GTHT - \_\_\_\_1\_\_\_

# ANNUAL REPORTS

2013



### Annual Water Quality Monitoring Program Report

### **Annual Geothermal Well Report**

Owner/Operator: Lightning Dock Geothermal HI-01, LLC (a subsidiary of Cyrq Energy, Inc.)

**Discharge Permit GTHT-001** 

Submitted by:

Nick Goodman CEO of Cyrq Energy, Inc. 136 South Main Street, Ste. 600 Salt Lake City, UT 84101

31 January 2014



Mr. Carl J. Chavez, CHMM New Mexico Energy, Minerals & Natural Resources Dept. Oil Conservation Division, Environmental Bureau 1220 South St. Francis Dr. Santa Fe, New Mexico 87505

January 30, 2014

RE: Lightning Dock Geothermal HI-01, 2013 Annual Water Quality Monitoring Program Report and 2103 Annual Geothermal Well Report for Lightning Dock Geothermal HI-01, **Hidalgo County, New Mexico** 

Dear Mr. Chavez,

Pursuant to the July 1, 2009 Discharge Permit ("D.P.") for Los Lobos' Lightning Dock Geothermal Project, pages 11-12, ¶20(F), and pages 16-17, ¶21(P), Lightning Dock Geothermal HI-01, LLC (formerly Los Lobos Renewable Power, LLC) herein submits the following:

- 2013 Annual Water Quality Monitoring Program Report
- 2103 Annual Geothermal Well Report

Power plant startup occurred on December 20, 2013. Thus, the 2013 Annual Reports reflect a situation where the monitoring programs have just been established and the geothermal wells have just been placed on production and injection. These documents therefore reflect only the water quality information collected from groundwater monitoring wells in November and December of 2013 and all of the historic and recent water quality information collected from the production or injection wells.

Two copies of each document are enclosed. Please forward one copy to Mr. Dawson in your Santa Fe office or to Mr. Dade in OCD's Artesia office. Thank you very much for your assistance in the development of this important energy project. Should you have questions regarding these reports, please do not hesitate to contact me by email at David.Janney@amec.com or by phone at (505) 821-1801.

Respectfully submitted,

David W. Janney, PG

Agent for Lightning Dock Geothermal HI 01, LLC

Cc: Mr. Nick Goodman, Lightning Dock Geothermal HI 01, LLC

Mr. Chuck Smiley, Lightning Dock Geothermal HI 01, LLC

Ms. Michelle Henrie, Attorney for Lightning Dock Geothermal HI 01, LLC



### Annual Water Quality Monitoring Program Report

#### **Annual Geothermal Well Report**

Owner/Operator: Lightning Dock Geothermal HI-01, LLC (a subsidiary of Cyrq Energy, Inc.)

**Discharge Permit GTHT-001** 

Submitted by:

Nick Goodman CEO of Cyrq Energy, Inc. 136 South Main Street, Ste. 600 Salt Lake City, UT 84101

31 January 2014



# Annual Water Quality Monitoring Program Report

### Owner/Operator: Lightning Dock Geothermal HI-01, LLC (a subsidiary of Cyrq Energy, Inc.)

Discharge Permit GTHT-001

Submitted by:

Nick Goodman CEO of Cyrq Energy, Inc. 136 South Main Street, Ste. 600 Salt Lake City, UT 84101

31 January 2014

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- 1. Cover Page
- 2. Comprehensive summary of all Water Quality monitoring data
- 3. Summary charts and tables of constituents exceeding standards
- 4. Remedial work performed
- 5. Chemical analyses
- 6. Leaks and Spills reports
- 7. Miscellaneous
- 8. Discharge Permit signatory requirements

#### Lightning Dock Geothermal HI-01, LLC 2013 Annual Water Quality Monitoring Program Report

Lightning Dock Geothermal HI-01, LLC (LDG), formerly Los Lobos Renewable Power, LLC, hereby submits its 2013 Annual Water Quality Monitoring Program Report pursuant to ¶20(F) of its Discharge Permit, dated July 1, 2009.

#### **Background**

**Overview.** LDG is the operator for two BLM Geothermal Resources Leases, NM-34790 (2,500.96 acres) and NM-108801 (640.00 acres), in Hidalgo County, New Mexico. LDG, which is owned by Cyrq Energy, Inc., has recently completed construction of Phase I of the development of Lightning Dock geothermal resource. Phase I uses geothermal fluids to generate electricity on a utility scale. All wells used in Phase I were drilled prior to 2013 (LDG 45-7, 47-7, 53-7, 55-7, and 63-7).

**Technology.** Cyrq Energy, Inc. currently operates a binary-cycle power plant in Thermo, Utah, which does not require steam (water vapor) to generate electricity. Instead, geothermal heat is used to heat a working fluid with a boiling point lower than the boiling point of water. The working fluid, when vaporized, turns a screw-style turbine to generate electricity. LDG's recently completed Phase I power plant at the Lightning Dock geothermal resource uses RF245 as the working fluid. When vaporized, RF245 turns the screw-style turbine in four Kaishan KE-1000 1,000 kW power modules which generate electricity. Thus, the technology involves two closed loops.

In the first closed loop, the hot geothermal fluid is pumped to the surface via a production well. The hot geothermal fluid—contained in a pipeline—enters the power plant at over 300° F and flows through a heat exchanger that transfers the heat to RF245, the working fluid. Subsequently, 100% of the geothermal fluid, cooled slightly to between 140° F -160° F, is returned to the same geothermal reservoir or fluid flow intervals via an injection well(s). The fluid is then naturally reheated to be used again and again. At the point where the geothermal fluid leaves the geothermal reservoir to the point where it returns to the reservoir, it remains contained in a pipe under pressure and in the fluid phase. It does not boil or flash or comingle with the working fluid, shallow freshwater aquifers, or air. There are no additives to the geothermal fluid, there is no surface containment, no holding tanks, and no evaporative losses. The geothermal fluid is contained in pipe or well casing during its entire journey, it is chemically unaltered, and is never exposed to the atmosphere.

The second closed loop contains the working fluid. The working fluid, too, is continuously contained in pipes. The working fluid gathers heat from the heat exchanger, vaporizes, turns the screw-style turbine, becomes cooled via the air-cooling fans, and then returns to the heat exchanger to recycle again and again. Please see Figure 1.

#### **Binary Cycle Power Plant Example**

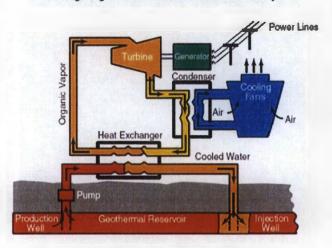


Figure 1

Because the fluids are continuously pumped and injected into the geothermal reservoir at equal and steady rates, equilibrium conditions are maintained within the geothermal reservoir.

Public Interest. The Lightning Dock Geothermal project uses geothermal fluids to generate electricity on a utility scale. By contract, this electricity is sold to PNM and used by New Mexicans. This project is in the public interest because geothermal heat is a renewable source of energy. In addition, geothermal heat is constant. It provides base load (i.e., 24/7) power, unlike wind and solar. Unlike other base-load sources of energy such as coal or natural gas, geothermal electricity is produced with zero emissions.

No Waste. Since the Lightning Dock Geothermal project relies on a geothermal closed-loop system, resulting in no net depletion of the geothermal reservoir, and is constantly returning the thermally depleted geothermal fluids to the geothermal reservoir for reheating, the project is in the interest of conservation. Further, the project prevents waste because the geothermal fluids are beneficially used to generate electricity that will be used by New Mexico customers.

Correlative Rights. Existing leases in the Lightning Dock geothermal area are: Los Lobos/LDG (3,140.96 acres of geothermal resources leased from BLM), Rosette, Inc. (313.59 acres of geothermal resources leased from NM State Land Office) and AmeriCulture, Inc. (10 acres of geothermal resources leased from NM State Land Office). In addition, the McCants family owns at least 240 acres of property with mineral rights in the Lightning Dock geothermal area. The Lightning Dock Geothermal project protects correlative rights and allows each leaseholder and owner their just and equitable share of recoverable geothermal resources.

#### **Discharge Permit Requirements**

- 1. Cover Sheet. Please see cover page.
- 2. Comprehensive summary of all water quality monitoring data. LDG installed seven shallow groundwater quality monitoring wells (MW-1 through MW-6 and MW1B) and one intermediate depth (INW-1) water quality monitoring well in 2013 and converted one of its geothermal production wells (LDG 47-7) into a deep up-gradient monitoring well (MW 47-7). Each of these wells was sampled prior to power plant start-up which took place on December 20, 2013. All production and injection wells were also sampled prior to power plant start-up. Permits for the groundwater monitoring wells issued by the New Mexico Office of the State Engineer are presented in **Tab A**.

Prior to November 2013, water quality data for the geothermal reservoir was available only from historic samples collected from production or injection wells LDG 45-7, LDG 53-7, LDG 55-7 and LDG 63-7. A comprehensive tabular summary of all groundwater samples collected from the geothermal wells prior to December 31, 2013 is included in Table 1 at <u>Tab</u> and a comprehensive summary of all groundwater samples collected from the water quality monitoring wells prior to plant start-up is included in Table 2 at **Tab B**.

3. Summary charts and tables depicting the constituents that have ever exceeded the ground water standards (20.6.2.3103 NMAC) or "background," or if any toxic pollutant has been detected (20.6.2.7(WW) NMAC). Tables 1 and 2 at Tab B provide groundwater analytical results relative to 20.6.2.3103 NMAC and concentrations detected above 20.6.2.3103 NMAC standards are highlighted in yellow. The Lightning Dock geothermal area, has naturally occurring concentrations of arsenic, fluoride, manganese, sulfate, and total dissolved solids that may exceed the standards in 20.6.2.3103 NMAC. Constituents identified as toxic pollutants per 20.6.2.7 NMAC were detected in some of the recent samples collected from the monitoring, production, or injection wells in the Lightning Dock geothermal area. Concentrations detected above 20.6.2.3103 NMAC standards are highlighted in orange. LDG thinks that these constituents detected in MW 47-7 and LDG 63-7 were introduced by the Well Analysis sampling system.

Background concentrations have not been established for the Lightning Dock geothermal area. LDG intends to establish background concentration during early 2014.

**4.** Description and reason for any remedial work on wells, ponds, ditches, etc. In 2013, LDG's contractor performed a casing integrity test and cleanout of well LDG 55-7. United Drilling mobilized to LDG on 10/09/13; installed a blow-out preventer, rigged up, and began drilling on 10/10/13; completed drilling on 10/19/13; and demobilized on 10/20/13. To protect the open drill hole, blank liner was installed between 570 feet to 731 feet and slotted

liner was installed from 731 feet to 1486 feet. The approved G-103 forms and Cleanout and Completion Handbook are included at **Tab C**.

LDG completed the characterization of the reserve pits at LDG 45-7 and the characterization of the contents of the reserve pit at 63-7. In addition LDG completed the construction of engineered and lined blow-down ponds at wells LDG 45-7, and LDG 55-7.

- 5. Copies of chemical analyses in accordance with Permit Condition 20 (Water Quality Monitoring Program). Copies of the laboratory analytical sheets for the samples collected from the groundwater quality monitoring wells, production wells, and injection wells in 2013 are included at <u>Tab D</u>. Copies of the well development and field sampling sheets are included at <u>Tab E</u>.
- 6. Copies of any leaks and spill reports submitted in accordance with Permit Condition 15. There were no leaks or spills to report in 2013.
- 7. Miscellaneous section to include any other issues that should be brought to OCD's attention. LDG anticipates a discussion on the necessity of operating its power plant under the auspices of a renewed Discharge Permit. If it is decided we must renew our Discharge Permit in 2014, we anticipate modifications will have to be made. As indicated in last year's Annual Report, LDG installed air-cooling systems for the condensers on each of the power blocks, thus eliminating the sampling and analysis requirements of Table 5 of the Discharge Permit.
- **8.** Certification Form. Please see the following page.

#### CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this 2013 Annual Water Quality Monitoring Program Report, including all attachments, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

I further certify that I am a representative who performs similar policy-making functions for Lightning Dock Geothermal HI-01, LLC who has authority to sign for Lightning Dock Geothermal HI-01, LLC.

Yours sincerely,

Signature: Mile Higher

Printed Name: Mike Gipson

Title: Distector of Operations



### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031

PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86
Animas, N.M. 88020

David Janney 8519 Jefferson NE Albuquerque, N.M. 87113

Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-1, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-1, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within he state, subject to the following conditions:

- 1. Well A-798-MON POD-1 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-1 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-1 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-1. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.

7. Well record shall be filed on or before November 30, 2014.

Charlet M. Abackson, District & Manager

Martin McMillan

Animas Basin Manager

'cc: State Engineer

MM:pg

File No. A- 798-MON

### NEW MEXICO OFFICE OF THE STATE ENGINEER



#### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



(check applicable box):

|   | For fees, see State Engineer web                | site: http://www.ose.state.nm.us/    | 3-200 39 \$5.00                                    |  |  |
|---|---|--------------------------------------|--|--|--|
| Purpose:                                | Pollution Control And / Or Recovery             | ☐ Geo-Thermal                        |  |  |  |
| ☐ Exploratory                           | Construction Site De-Watering                   | Other (Describe):                    |  |  |  |
|   | ☐ Mineral De-Watering                           |                                      |  |  |  |
| A separate permit wil                   | I be required to apply water to beneficial use. |                                      |  |  |  |
| ☐ Temporary Reque                       | est - Requested Start Date:                     | Requested End                        | Date:  |  |  |
| Plugging Plan of Ope                    | erations Submitted?  Yes  No                    |                                      |  |  |  |
|   |   |                                      | STO  |  |  |
| 1. APPLICANT(S)                         |   |                                      |  |  |  |
|   | ck Geothermai HI-01, LLC                        | Name:                                |  |  |  |
| Contact or Agent:<br>Mike Gipson or Kac | check here if Agent  ie Peterson                | Contact or Agent:<br>David Janney    | dheck here if Agent ⊠                              |  |  |
| Mailing Address: PO                     | Box 86  | Mailing Address: 8519 Jefferson NE   |  |  |  |
| City: Animas                            |   | City: Albuquerque                    |  |  |  |
| State: NM                               | Zip Code: 88020                                 | State: NM                            | Zip Code: 87113                                    |  |  |
| Phone:<br>Phone (Work): 575.            | ☐ Home ☐ Cell<br>548.0301                       | Phone:<br>Phone (Work): 505.821.1801 | ☐ Home ☐ Cell                                      |  |  |
| E-mail (optional): kad                  | cie.peterson@cyrqenergy.com                     | E-mail (optional): david.janne       | ey@amec.com  |  |  |
|   |   |                                      |  |  |  |
|   | FOR OSE INTERN                                  |                                      | cation for Permit. Form wr-07, Rev 8/25/11 Number: |  |  |
| Trans Description (optional):           |   |                                      | Number.  |  |  |
| Sub-Basin: An ! was                     |   |                                      |  |  |  |
|   | PCW/LOG Due Date:                               |                                      |  |  |  |
|   |   |                                      | Page 1 of 3  |  |  |

| Location Required: Coordin   |  |  | tate Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude   |
|--|--|--|--|
| (Lat/Long - WGS84)   | ate totalion mast b  | e reperæa m min e  | and I land (NAD 60), O'll (NAD 60), or Lander Longitude  |
| ☐ NM State Plane (NAD83) ☐ NM West Zone ☐ NM East Zone ☐ NM Central Zone   |  | JTM (NAD83) (Mete<br>]Zone 12N<br>]Zone 13N                    | 1/10 <sup>th</sup> of second)  |
| Well Number (if known):  | X or Easting or<br>Latitude:   | Y or Northing or Longitude:                                    | Optional: Complete boxes labeled "Other" below with PLSS (Public Land Survey System, i.e. Quarters, Section, Township, Range); Hydrographic Survey Map & Tract; Lot, Block & Subdivision; OR Land Grant Name if known.   |
| LDG MW-1   | 32° 8' 43"   | -108° 50' 08"  | Section 7, Township 25 S, Range 19 W   |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| NOTE: If more well location<br>Additional well descriptions  |  |  | n WR-08 (Attachment 1 – POD Descriptions) If yes, how many   |
| Other description relating well  | to common landmar  | ks, streets, or other  |  |
| Well is on land owned by: Lig  | htning Dock Geothe   | ermal HI-01, LLC a   | nd Rosette Inc.  |
| Well Information: NOTE: If r   | nore than one (1) w  | ell needs to be des  | cribed, provide attachment. Attached?   Yes   No   |
| Approximate depth of well (fe  | et): 85.00   |  | Outside diameter of well casing (inches): 2.25   |
| Driller Name: Rodgers & Co.  | , Inc.   |  | Oriller License Number: 225  |
| . ADDITIONAL STATEMENTS  | OR EXPLANATION   | is   |  |
| plant. These wells are a requirement. These wells are a requirement. They  | uirement of the Disc<br>will be completed i<br>I will be constructed | charge Permit GTH<br>n shallow alluvium<br>d with 2-inch ID sc | water quality related to the operation of the geothermal power T-001 issued for the project by the New Mexico Dilector to an approximate depth of 85 feet in few temperature hedule 40 PVC casing and have up to a 25-foot screened  |
| The state of the s |  |  | 1  |
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FOR OSE INTERNAL USE
File Number: A 790-MON 1001 Application for Permit, Form wr-07 Trn Number: Page 2 of 3 4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: Pollution Control and/or Recovery: xploratory: Construction Mine De-Watering: ☐ Include a Include a plan for pollution De-Watering: Include a plan for pollution description of control/recovery, that includes the control/recovery, that includes the following: Include a description of the any proposed following: proposed dewatering A description of the need for mine pump test, if A description of the need for the operation. dewatering. pollution control or recovery operation. applicable. ☐ The estimated duration of ☐ The estimated maximum period of time ☐ The estimated maximum period of the operation, for completion of the operation. time for completion of the operation. ☐ The maximum amount of The source(s) of the water to be diverted. ☐ The annual diversion amount. ☐ The annual consumptive use water to be diverted. The geohydrologic characteristics of the A description of the need aquifer(s). amount. for the dewatering operation, ☐The maximum amount of water to be ☐ The maximum amount of water to be diverted per annum. diverted and injected for the duration of A description of how the ☐The maximum amount of water to be the operation. diverted for the duration of the operation. diverted water will be disposed ☐ The method and place of discharge. ☐ The method of measurement of The quality of the water. Monitoring: Geo-Thermal: ☐The method of measurement of water water produced and discharged. Include the Include a description of the diverted. ☐ The source of water to be injected. ☐The recharge of water to the aguifer. reason for the geothermal heat exchange The method of measurement of monitoring project, Description of the estimated area of water injected. well, and, ☐ The amount of water to be hydrologic effect of the project. ☐ The characteristics of the aquifer. ☐ The method of determining the ☐ The diverted and re-injected for the The method and place of discharge. duration project. ☐An estimation of the effects on surface of the planned resulting annual consumptive use of ☐ The time frame for water rights and underground water rights water and depletion from any related constructing the geothermal from the mine dewatering project. monitoring. A description of the methods employed to stream system. heat exchange project, and, ☑ The duration of the project. Proof of any permit required from the estimate effects on surface water rights and New Mexico Environment Department. Preliminary surveys, design underground water rights. An access agreement if the data, and additional Information on existing wells, rivers. applicant is not the owner of the land on information shall be included to springs, and wetlands within the area of which the pollution plume control or provide all essential facts hydrologic effect. recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal HI-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. **ACTION OF THE STATE ENGINEER** This application is: X approved partially approved denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer, , State Engineer Charles L. Jackson, MPA Title: District 3 Manager rint

FOR OSE INTERNAL USE

File Number: A-798-MON-PODI

Page 3 of 3

Application for Permit, Form wr-07

Trn Number:

### ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

FILE: A-798

APPLICATION: A-798-MON

APPLICANTS: Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-798-MON POD-1 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-1 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-1 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-1. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November , 2013 .

Scott A/ Vernines, P.E, State Engineer

Charles L. Jackson, MPA

District 3 Manager



#### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer

P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson

P.O. Box 86

David Janney 8519 Jefferson NE Albuquerque, N.M. 87113

Animas, N.M. 88020

Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-2, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-2, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within the state, subject to the following conditions:

- 1. Well A-798-MON POD-2 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-2 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-2 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-2. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles, L. Jackson, MPA

District /3 Manager

By:

Animas Basin Manager

State Engineer cc:

MM:pg

File No. A-798 MON



#### **NEW MEXICO OFFICE OF THE STATE ENGINEER**

### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



(check applicable box):

|  | For fees, see State Engineer                 | website: http://www.ose.state.nm.us/ 3-300 | 44 \$5.00     |
|--|--|--|---------------|
| Purpose:                                 | Pollution Control And / Or Recove            |  |               |
| ☐ Exploratory                            | ☐ Construction Site De-Watering              | Other (Describe):                          |               |
| Monitoring                               | ☐ Mineral De-Watering                        |  |               |
| A separate permit will                   | be required to apply water to beneficial use | <b>.</b>                                   |               |
| ☐ Temporary Reques                       | st - Requested Start Date:                   | Requested End Date: 0                      | 2013<br>20    |
| Plugging Plan of Oper                    | rations Submitted?  Yes  No                  |  | NOV<br>FEE    |
|  |  |  |               |
| 1. APPLICANT(S)                          |  |  | # #<br># 5    |
| lame: Lightning Doo                      | ck Geothermal HI-01, LLC                     | Name:                                      | \$ 0          |
| Contact or Agent:<br>Mike Gipson or Kaci | check here if Agent   e Peterson             | Contact or Agent: check her David Janney   | re if Agent 🛚 |
| Mailing Address: PO                      | Box 86                                       | Mailing Address: 8519 Jefferson NE         |               |
| City: Animas                             |  | City: Albuquerque                          |               |
| State: NM                                | Zip Code: <b>88020</b>                       | State: NM Zip Code:                        | 87113         |
| Phone:<br>Phone (Work): <b>575.</b> 5    | ☐ Home ☐ Cell                                | Phone:                                     | ☐ Cell        |
| E-mail (optional): kaci                  | ie.peterson@cyrqenergy.com                   | E-mail (optional): david.janney@amec.com   |               |
|  |  |  |               |

| FOR OSE INTERNAL USE          | Application for Permit, Form wr-07, Rev 8/25/11 |
|-------------------------------|---|
| File Number: A-798 MON POD 2  | Trn Number:                                     |
| Trans Description (optional): |   |
| Sub-Basin: Animas             |   |
| PCW/LOG Due Date:             |   |

|  | ate location must b   | e reported in NM S  | tate Plane (NAD 83), UTM (NAD 83), <u>or</u> Latitude/Longitude  |
|--|---|---|--|
| (Lat/Long - WGS84)   |   |   |  |
| ☐ NM State Plane (NAD83) ☐ NM West Zone ☐ NM East Zone ☐ NM Central Zone                 | ` .   | UTM (NAD83) (Mete<br>]Zone 12N<br>]Zone 13N                     | Lat/Long (WGS84) (to the nearest 1/10 <sup>th</sup> of second)   |
| Well Number (if known):  | X or Easting or<br>Latitude:  | Y or Northing or Longitude:                                     | Optional: Complete boxes labeled "Other" below with PLSS (Public Land Survey System, i.e. Quarters, Section, Township, Range); Hydrographic Survey Map & Tract; Lot, Block & Subdivision; OR Land Grant Name if known. |
| LDG MW-2   | 32° 8' 28"  | -108° 50' 16"   | Section 7, Township 25 S, Range 19 W   |
|  |   |   |  |
|  |   |   |  |
|  |   |   |  |
|  |   |   |  |
| NOTE: If more well location<br>Additional well descriptions                              |   |   | WR-08 (Attachment 1 – POD Descriptions) If yes, how many   |
| Other description relating wel   |   |   |  |
| Well is on land owned by: Lig  |   |   |  |
| Well Information: NOTE: If r   | nore than one (1) w   | ell needs to be des   | cribed, provide attachment. Attached? 🗌 Yes 🔯 No   |
| Approximate depth of well (fe  | et): 85.00  | 10  | Outside diameter of well casing (inches): 2.25   |
| Driller Name: Rodgers & Co.  |   |   | Oriller License Number: 225  |
| . ADDITIONAL STATEMENTS  |   |   |  |
| plant. These wells are a req   | uirement of the Disc  | charge Permit GTH   | T-001 issued for the project by the New Mexico Qil   |
| plant. These wells are a req<br>Conservation Divison. They<br>geothermal water. Each wel | uirement of the Disc<br>will be completed i<br>Il will be constructed | charge Permit GTH<br>in shallow alluvium<br>d with 2-inch ID sc | T-001 issued for the project by the New Mexico Qii<br>to an approximate depth of 85 feet in Jow temperature<br>hedule 40 PVC casing and have up to a 2€-foot scæened   |
| plant. These wells are a req<br>Conservation Divison. They<br>geothermal water. Each wel | uirement of the Disc<br>will be completed i<br>Il will be constructed | charge Permit GTH<br>in shallow alluvium<br>d with 2-inch ID sc | T-001 issued for the project by the New Mexico Qill to an approximate depth of 85 feet in low temperature hedule 40 PVC casing and have up to a 28-foot screened   |
| plant. These wells are a req<br>Conservation Divison. They<br>geothermal water. Each wel | uirement of the Disc<br>will be completed i<br>Il will be constructed | charge Permit GTH<br>in shallow alluvium<br>d with 2-inch ID sc | T-001 issued for the project by the New Mexico Qiff to an approximate depth of 85 feet in low temperature hedule 40 PVC casing and have up to a 25-foot scarened   |
| plant. These wells are a req<br>Conservation Divison. They<br>geothermal water. Each wel | uirement of the Disc<br>will be completed i<br>Il will be constructed | charge Permit GTH<br>in shallow alluvium<br>d with 2-inch ID sc | T-001 issued for the project by the New Mexico Qii to an approximate depth of 85 feet in low temperature hedule 40 PVC casing and have up to a 25-foot scarened  |
| plant. These wells are a req<br>Conservation Divison. They<br>geothermal water. Each wel | uirement of the Disc<br>will be completed i<br>Il will be constructed | charge Permit GTH<br>in shallow alluvium<br>d with 2-inch ID sc | T-001 issued for the project by the New Mexico Qiff to an approximate depth of 85 feet in low temperature hedule 40 PVC casing and have up to a 25-foot scarened   |
| plant. These wells are a req<br>Conservation Divison. They                               | uirement of the Disc<br>will be completed i<br>Il will be constructed | charge Permit GTH<br>in shallow alluvium<br>d with 2-inch ID sc | T-001 issued for the project by the New Mexico Qii   |
| plant. These wells are a req<br>Conservation Divison. They<br>geothermal water. Each wel | uirement of the Disc<br>will be completed i<br>Il will be constructed | charge Permit GTH<br>in shallow alluvium<br>d with 2-inch ID sc | to an approximate depth of 85 feet in low temperature hedule 40 PVC casing and have up to a 25-foot screened   |

FOR OSE INTERNAL USE
File Number: A-798-MON POD Z Application for Permit, Form wr-07 Trn Number: Page 2 of 3 4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: exploratory: Pollution Control and/or Recovery: Construction Mine De-Watering: ] Include a Include a plan for pollution De-Watering: ☐ Include a plan for pollution control/recovery, that includes the following: ☐ Include a description of the description of control/recovery, that includes the proposed dewatering any proposed following: A description of the need for mine pump test, if A description of the need for the operation. dewatering. pollution control or recovery operation. The estimated duration of applicable. ☐ The estimated maximum period of time The estimated maximum period of the operation. for completion of the operation. ☐ The maximum amount of time for completion of the operation. ☐ The source(s) of the water to be diverted. ☐ The annual diversion amount. The geohydrologic characteristics of the water to be diverted, ☐ The annual consumptive use A description of the need aquifer(s). ☐ The maximum amount of water to be amount. for the dewatering operation, ☐ The maximum amount of water to be diverted per annum. A description of how the diverted and injected for the duration of The maximum amount of water to be diverted for the duration of the operation. the operation. diverted water will be disposed ☐The quality of the water. ☐ The method and place of discharge. of. The method of measurement of The method of measurement of water Monitoring: Geo-Thermal: Include the water produced and discharged. ☐ Include a description of the diverted. The source of water to be injected. ☐The recharge of water to the aquifer. reason for the geothermal heat exchange project. ☐ The method of measurement of Description of the estimated area of monitoring water injected. hydrologic effect of the project. well, and, The amount of water to be The method and place of discharge. ☐ The characteristics of the aquifer. diverted and re-injected for the ☐ The The method of determining the project,

The time frame for An estimation of the effects on surface duration water rights and underground water rights of the planned resulting annual consumptive use of water and depletion from any related from the mine dewatering project. monitoring. constructing the geothermal stream system. heat exchange project, and, A description of the methods employed to ☑ The duration of the project. Proof of any permit required from the estimate effects on surface water rights and New Mexico Environment Department. Preliminary surveys, design underground water rights. ☐ An access agreement if the ☐Information on existing wells, rivers, data, and additional applicant is not the owner of the land on information shall be included to springs, and wetlands within the area of which the pollution plume control or provide all essential facts hydrologic effect. recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal Hi-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. **ACTION OF THE STATE ENGINEER** This application is: partially approved X approved ☐ denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer, Merhifies, P.E. State Engineer Charles L. Jackson, MPA District 3 Manager Title: Application for Permit, Form wr-07

### ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

**FILE:** A-798

APPLICATION: A-798-MON

APPLICANTS: Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-798-MON POD-2 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-2 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-2 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-2. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November , 2013 .

Scott A. Verhines, P.E. State Engineer

Charles LW Mackson, MPA District 3 Manager



### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86

David Janney 8519 Jefferson NE Albuquerque, N.M. 87113

Animas, N.M. 88020

Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-3, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-3, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not retrimental to the public welfare or contrary to the conservation of water within an estate, subject to the following conditions:

- 1. Well A-798-MON POD-3 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-3 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-3 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-3. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA

District /3 Manager

By: // Common Martin McMillan

imas Basin Manager

cc: State Engineer

MM:pg

| File No. | I-798 | MON |
|----------|-------|-----|
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#### **NEW MEXICO OFFICE OF THE STATE ENGINEER**

### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



(check applicable box):

|  | For fees, see State Engineer wet              | bsite: http://www.ose.state.nm.us/   | 3-20044 \$ 500                             |
|--|---|--|--|
| Purpose:                                 | ☐ Pollution Control And / Or Recovery         | ☐ Geo-Thermal  | _  |
| ☐ Exploratory                            | ☐ Construction Site De-Watering               | Other (Describe):  |  |
| Monitoring                               | ☐ Mineral De-Watering                         |  |  |
|  |   |  |  |
| A separate permit will t                 | pe required to apply water to beneficial use. |  |  |
| ☐ Temporary Reques                       | t - Requested Start Date:                     | Requested End  | i Date:                                    |
| Plugging Plan of Opera                   | ations Submitted?  Yes  No                    |  |  |
|  |   |  |  |
|  |   |  |  |
| 1. APPLICANT(S)                          |   |  |  |
| Name: Lightning Doc                      | k Geothermal HI-01, LLC                       | Name:  | SC 2913                                    |
| Contact or Agent:                        | check here if Agent                           | Contact or Agent:  | check if Agend ⊠                           |
| Mike Gipson or Kacie                     | Peterson                                      | David Janney   |  |
| Mailing Address: PO B                    | ox 86   | Mailing Address: 8519 Jeffer   | <u> </u>                                   |
| City: Animas                             |   | City: Albuquerque  | 元<br>元<br>5                                |
| State: NM                                | Zip Code: 88020                               | State: NM  | Zip Code: 87113                            |
| Phone:                                   | ☐ Home ☐ Cell                                 | Phone:   | ☐ Home ☐ Cell                              |
| Phone (Work): 575. 54                    |   | Phone (Work): 505.821.1801   |  |
| E-mail (optional): kaci                  | e.peterson@cyrqenergy.com                     | E-mail (optional): david.janne   | ey@amec.com                                |
|  |   | and the second s |  |
|  |   |  |  |
|  |   |  |  |
|  |   |  |  |
|  | FOR OSE INTERN                                |  | cation for Permit, Form wr-07, Rev 8/25/11 |
| File Number: A-798 MON POD-3 Trn Number: |   |  | Number:                                    |
|  | Trans Description                             | (optional):  |  |
| Sub-Basin: Animas                        |   |  |  |

| Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Long(tude (Latitude: Cartifude: State Plane (NAD 83), or Latitude/Long(tude (Latitude: Cartifude: C | . WELL(S) Describe the well(s  |  |   |  |
|--|--|--|---|--|
| My West Zone   My Central Zo   |  | nate location must b   | e reported in NM S  | itate Plane (NAD 83), UTM (NAD 83), <u>or</u> Latitude/Longitude   |
| Well Number (if known):  X or Easting or Latitude:  or Longitude:  or Longitude:  or Longitude:  or Longitude:  or Longitude:  longitude:  or Longitude:  or Longitude:  long  | ☐ NM West Zone<br>☐ NM East Zone   |  | Zone 12N  | Z Laviong (VVC304) (to the fleatest  |
| NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions) Additional well descriptions are attached:  | Well Number (if known):  |  |   | PLSS (Public Land Survey System, i.e. Quarters, Section, Township, Range); Hydrographic Survey Map & Tract; Lot,   |
| Additional well descriptions are attached: Yes No If yes, how many  Ther description relating well to common landmarks, streets, or other:  Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many  Approximate depth of well (feet): 85.00  Outside diameter of well casing (inches): 2.25  Driller Name: Rogers & Co., Inc.  Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal power plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.   | LDG MW-3   | 32° 8' 52"   | -108° 49' 59"   | Section 7, Township 25 S, Range 19 W   |
| Additional well descriptions are attached: Yes No If yes, how many  Ther description relating well to common landmarks, streets, or other:  Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many  Approximate depth of well (feet): 85.00  Outside diameter of well casing (inches): 2.25  Driller Name: Rogers & Co., Inc.  Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal power plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.   |  |  |   |  |
| Additional well descriptions are attached:   |  |  |   |  |
| Additional well descriptions are attached: Yes No If yes, how many  Ther description relating well to common landmarks, streets, or other:  Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many  Approximate depth of well (feet): 85.00  Outside diameter of well casing (inches): 2.25  Driller Name: Rogers & Co., Inc.  Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal power plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.   |  |  |   |  |
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| Ther description relating well to common landmarks, streets, or other:  Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached?  □ Yes  ☒ No   |  |  |   |  |
| Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached?  No If yes, how many  | Other description relating wel   | to common landmar  | ks, streets, or other   |  |
| Approximate depth of well (feet): 85.00  Driller Name: Rogers & Co., Inc.  Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal power plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.  | Well is on land owned by: Lig  | htning Dock Geothe   | ermal HI-01, LLC a  | nd Rosette Inc.  |
| Driller Name: Rogers & Co., Inc.  Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal power plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.   |  | more than one (1) w  | ell needs to be des   | cribed, provide attachment. Attached? 🗌 Yes 🛛 No   |
| Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal power plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.   | Approximate depth of well (fe  | et): <b>85.00</b>  | (   | Outside diameter of well casing (inches): 2.25   |
| Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal power plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.   | Driller Name: Rogers & Co.,  | inc.   | 1   | Oriller License Number: 225  |
| plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.  | . ADDITIONAL STATEMENTS  | S OR EXPLANATION   | is  |  |
| OFFICE OF THE DEVING NM  | plant. These wells are a required Conservation Divison. They geothermal water. Each well | ulrement of the Disc<br>will be completed i<br>I will be constructed | charge Permit GTH<br>n shallow alluvium<br>d with 2-inch ID scl | T-001 issued for the project by the New Mexico Oil to an approximate depth of 85 feet in low temperature hedule 40 PVC casing and have up to a 25-foot semened |
| F THE OS   | interval. Wells will be const  | ructed according to  | State regulations.  | STO  |
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Application for Permit, Form wr-07 FOR OSE INTERNAL USE File Number: A-799-MM P003 Tm Number: Page 2 of 3

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: Construction Mine De-Watering: Pollution Control and/or Recovery: Exploratory: ☐ Include a Include a plan for pollution De-Watering: Include a plan for pollution control/recovery, that includes the following: description of control/recovery, that includes the Include a description of the A description of the need for mine proposed dewatering any proposed following: operation, pump test, if A description of the need for the dewatering. pollution control or recovery operation. The estimated duration of The estimated maximum period of time applicable. The estimated maximum period of the operation. for completion of the operation. ☐ The source(s) of the water to be diverted. time for completion of the operation. The maximum amount of ☐ The annual diversion amount. water to be diverted. ☐ The geohydrologic characteristics of the The annual consumptive use A description of the need aquifer(s). for the dewatering operation, ☐The maximum amount of water to be amount. The maximum amount of water to be diverted per annum. diverted and injected for the duration of A description of how the The maximum amount of water to be diverted for the duration of the operation. diverted water will be disposed the operation. ☐ The quality of the water. The method and place of discharge. of. ☐ The method of measurement of Geo-Thermal: ☐The method of measurement of water Monitoring: diverted. water produced and discharged. Include the Include a description of the ☐The recharge of water to the aguifer. ☐ The source of water to be injected. geothermal heat exchange reason for the The method of measurement of project. Description of the estimated area of monitoring ☐ The amount of water to be hydrologic effect of the project. well, and, water injected. ☐ The characteristics of the aquifer. ☐ The method of determining the ☐ The method and place of discharge. ☐ The diverted and re-injected for the An estimation of the effects on surface project, duration water rights and underground water rights of the planned resulting annual consumptive use of ☐ The time frame for water and depletion from any related from the mine dewatering project. constructing the geothermal monitoring. stream system. heat exchange project, and, A description of the methods employed to ☑ The duration of the project. Proof of any permit required from the estimate effects on surface water rights and underground water rights. New Mexico Environment Department. Preliminary surveys, design ☐Information on existing wells, rivers, An access agreement if the data, and additional applicant is not the owner of the land on information shall be included to springs, and wetlands within the area of hydrologic effect. which the pollution plume control or provide all essential facts recovery well is to be located. relating to the request. ACKNOWLEDGEMENT I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal HI-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. **ACTION OF THE STATE ENGINEER** This application is: partially approved X approved denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer, Charles L. Jackson, MPA Title: District 3 Manager Application for Permit. Form wr-07 FOR OSE INTERNAL USE

File Number: A-796-WW

100 3

Trn Number:

### ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

FILE:

A-798

APPLICATION:

A-798-MON

APPLICANTS:

Lightning Dock Geothermal, HI-01, LLC

- Well A-798-MON POD-3 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- The casing of well A-798-MON POD-3 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-3 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-3. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November , 2013 .

Scott A. Verhines, P.E, State Engineer

Charles L. Jackson, MPA District 3 Manager



### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86 Animas, N.M. 88020

David Janney 8519 Jefferson NE Albuquerque, N.M. 87113

#### Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-4, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-4, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within the state, subject to the following conditions:

- 1. Well A-798-MON POD-4 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-4 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-4 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-4. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA

District 3 Manager

By: //(a w Martin McMillan

nimas Basin Manager

cc: State Engineer

MM:pg

| File No. | - 798 | MON |
|----------|-------|-----|
|----------|-------|-----|

## Interview Street Commission

#### **NEW MEXICO OFFICE OF THE STATE ENGINEER**

#### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



(check applicable box):

|  | For fees, see State Engineer wet              | osite: http://www.ose.state.nm.us/                       | 3-20044 \$500                            |
|--|---|--|--|
| Purpose:                                       | ☐ Pollution Control And / Or Recovery         | ☐ Geo-Thermal  |  |
| ☐ Exploratory                                  | ☐ Construction Site De-Watering               | Other (Describe):  |  |
|  | ☐ Mineral De-Watering                         |  |  |
| A separate permit will I                       | be required to apply water to beneficial use. |  |  |
| ☐ Temporary Reques                             | t - Requested Start Date:                     | Requested Er   | d Date:                                  |
| Plugging Plan of Opera                         | ations Submitted?  Yes No                     |  | <b>-</b> 890                             |
|  |   |  |  |
| i. APPLICANT(S)                                |   |  |  |
| lame: Lightning Doc                            | k Geothermal HI-01, LLC                       | Name:  | en e |
| Contact or Agent:<br>Mike Gipson or Kacie      | check here if Agent  Peterson                 | Contact or Agent:<br>David Janney                        | check here if Agent 🛛                    |
| Mailing Address: PO B                          | Box 86  | Mailing Address: 8519 Jeffe                              | rson NE                                  |
| City: Animas                                   |   | City: Albuquerque  |  |
| State: NM                                      | Zip Code: 88020                               | State: NM  | Zip Code: 87113                          |
| Phone:   | ☐ Home ☐ Cell                                 | Phone:   | ☐ Home ☐ Cell                            |
| Phone (Work): 575. 54 E-mail (optional): kacie | e.peterson@cyrqenergy.com                     | Phone (Work): 505.821.180  E-mail (optional): david.janr |  |
|  |   |  |  |

| FOR OSE INTERNAL USE   | Application for Permit, Form Wr-U7, Rev 8/25/11 |
|--|---|
| File Number: A-798 WON POD-4   | Trn Number:                                     |
| Trans Description (optional):  |   |
| Sub-Basin: Autmas  |   |
| PCW/LOG Due Date:  |   |
| Land to the second seco | Dan 1 .50                                       |

| Location Required: Coordin<br>(Lat/Long - WGS84)                 |  | •  | tate Plane (NAD 83), UTM (NAD  | 83), <u>or</u> Latitude/Longitude                              |
|--|--|--|--|--|
| NM State Plane (NAD83) NM West Zone NM East Zone NM Central Zone |  | JTM (NAD83) (Mete<br>]Zone 12N<br>]Zone 13N  | Lat/Long<br>1/10 <sup>th</sup> of sec  | g (WGS84) (to the nearest<br>cond)                             |
| Well Number (if known):  | X or Easting or<br>Latitude:   | Y or Northing or Longitude:  | Optional: Complete boxes lab<br>PLSS (Public Land Survey Sys<br>Township, Range); Hydrograp<br>Block & Subdivision; OR Land                  | stem, i.e. Quarters, Section,<br>phic Survey Map & Tract; Lot, |
| LDG MW-4   | 32° 8' 45"   | -108° 50' 40''   | Section 7, Township 25 S, Rai  | nge 19 W   |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| NOTE: If more well location<br>Additional well descriptions      | s need to be descri  | bed, complete form<br>Yes 🖾 No   | WR-08 (Attachment 1 – POD Do   | escriptions)   |
| Other description relating well                                  | to common landmar  | ks, streets, or other:   |  |  |
| Well is on land owned by: Lig                                    | htning Dock Geothe   | ermal HI-01, LLC as  | nd Rosette Inc.  |  |
| Well Information: NOTE: If r<br>If yes, how many                 | nore than one (1) w  | ell needs to be des  | cribed, provide attachment. Att  | ached? 🛱 Yes 🛛 No  |
| Approximate depth of well (fe                                    | et): <b>85.00</b>  |  | Outside diameter of well casing (inc   | ches): 2.25  |
| Driller Name: Rogers & Co.,                                      | Inc.   |  | Oriller License Number: 225  |  |
| plant. These wells are a requ<br>Conservation Divison. They      | ells will be used to a<br>uirement of the Disc<br>will be completed i<br>I will be constructed | monitoring ground<br>charge Permit GTH<br>n shallow alluvium<br>d with 2-inch ID sci | water quality related to the oper<br>T-001 issued for the project by to<br>to an approximate depth of 85 to<br>nedule 40 PVC casing and have | the New Mexico Oil<br>feet in low temperature                  |
|  |  |  |  | )  |

FOR OSE INTERNAL USE
File Number: A-796-MON POD 4 Application for Permit, Form wr-07 Trn Number: Page 2 of 3 4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: Pollution Control and/or Recovery: Mine De-Watering: xploratory: Construction ☐ Include a ☐ Include a plan for pollution De-Watering: Include a plan for pollution description of control/recovery, that includes the Include a description of the control/recovery, that includes the following: any proposed following: proposed dewatering A description of the need for mine pump test, if A description of the need for the operation, dewatering. applicable. pollution control or recovery operation. ☐ The estimated duration of ☐ The estimated maximum period of time ☐ The estimated maximum period of the operation, for completion of the operation. time for completion of the operation. ☐ The source(s) of the water to be diverted. The maximum amount of The geohydrologic characteristics of the ☐ The annual diversion amount. water to be diverted. The annual consumptive use A description of the need aquifer(s). The maximum amount of water to be for the dewatering operation, amount. ☐ The maximum amount of water to be diverted per annum. diverted and injected for the duration of A description of how the The maximum amount of water to be diverted for the duration of the operation. diverted water will be disposed the operation. The method and place of discharge. of. ☐ The quality of the water. ☐ The method of measurement of Geo-Thermal: The method of measurement of water Monitoring: water produced and discharged. Include the ☐ Include a description of the diverted. ☐ The source of water to be injected. ☐The recharge of water to the aquifer. reason for the geothermal heat exchange Description of the estimated area of ☐ The method of measurement of project, monitoring well, and, water injected. ☐ The amount of water to be hydrologic effect of the project. ☐ The ☐ The characteristics of the aquifer. diverted and re-injected for the The method and place of discharge. An estimation of the effects on surface ☐ The method of determining the project,

The time frame for duration of the planned resulting annual consumptive use of water rights and underground water rights from the mine dewatering project. water and depletion from any related constructing the geothermal monitoring. A description of the methods employed to stream system. heat exchange project, and, ☐ The duration of the project. Proof of any permit required from the estimate effects on surface water rights and New Mexico Environment Department. ☐ Preliminary surveys, design underground water rights. An access agreement if the data, and additional ☐Information on existing wells, rivers, applicant is not the owner of the land on springs, and wetlands within the area of information shall be included to which the pollution plume control or provide all essential facts hydrologic effect. recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal HI-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. Applicant Signature **ACTION OF THE STATE ENGINEER** This application is: X approved partially approved ☐ denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer, Scott A. Werhines, P.E. State Engineer Charles L. Jackson, MPA Title: District 3 Manager **Print** Application for Permit, Form wr-07 FOR OSE INTERNAL USE

File Number: A-798-MON POD4 Trn Number.

### ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

**FILE:** A-798

APPLICATION: A-798-MON

APPLICANTS: Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-798-MON POD-4 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-4 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-4 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-4. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November, 2013

Scott M. Varhines, P.E. State Engineer

Charles L. Jackson, MPA

District 3 Manager



#### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 5462851 FAX: (575) 5462290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86

Animas, N.M. 88020

David Janney 8519 Jefferson NE Albuquerque, N.M. 87113

#### Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-5, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-5, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not extrimental to the public welfare or contrary to the conservation of water within ne state, subject to the following conditions:

- 1. Well A-798-MON POD-5 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-5 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-5 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-5. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA

District 3 Manager

Martin McMillan

imas Basin Manager

cc: State Engineer

MM:pg

File No. A-798 MON

#### **NEW MEXICO OFFICE OF THE STATE ENGINEER**



#### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



Page 1 of 3

(check applicable box):

| For fees, see State Engine                                      | eer website: http://www.ose.state.nm.us/ 3-20044 45-00 |
|---|--|
| Purpose:  |  |
| ☐ Exploratory ☐ Construction Site De-Watering                   | Other (Describe):                                      |
| ☑ Monitoring ☐ Mineral De-Watering                              | •  |
| A separate permit will be required to apply water to beneficial | use.   |
| ☐ Temporary Request - Requested Start Date:                     | Requested End Date:                                    |
| Plugging Plan of Operations Submitted? ☐ Yes ☑ No               |  |
|   |  |
|   | 2  |
| . APPLICANT(S)  | SIO  |
| .vame: Lightning Dock Geothermal HI-01, LLC                     | Name:  |
| Contact or Agent: check here if Agent                           | Contact or Agent: check here it Agent ⊠                |
| Mike Gipson or Kacle Peterson                                   | David Janney   |
| Mailing Address: PO Box 86                                      | Mailing Address: 8519 Jefferson NE                     |
| City: Animas  | City: Albuquerque                                      |
| State: NM Zip Code: 88020                                       | State: NM Zip Code: 87113                              |
| Phone:  | Phone:   |
| Phone (Work): 575. 548.0301                                     | Phone (Work): 505.821.1801                             |
| E-mail (optional): kacie.peterson@cyrqenergy.com                | E-mail (optional): david.janney@amec.com               |
|   | ်္ဂိဂူ   |
|   |  |
|   |  |
|   |  |
|   | Application for Permit, Form wr-07, Rev 8/25/11        |
|   | :A-798 MON POD 5 Trn Number:                           |
| Towns Dance   |  |
| Sub-Basin:  | iption (optional):  Acciusas                           |

| Location Required: Coordin<br>Lat/Long - WGS84)                                   | nate location must b         | e reported in NM S                          | tate Plane (NAD 83), UTM (NAD 83), <u>or</u> Latitude/Longi  | tude                   |  |
|---|------------------------------|---|--|------------------------|--|
| ☐ NM State Plane (NAD83)<br>☐ NM West Zone<br>☐ NM East Zone<br>☐ NM Central Zone | ` ´                          | JTM (NAD83) (Mete<br>]Zone 12N<br>]Zone 13N | 1/10 <sup>th</sup> of second)  |                        |  |
| Well Number (if known):   | X or Easting or<br>Latitude: | Y or Northing or Longitude:                 | Optional: Complete boxes labeled "Other" below we PLSS (Public Land Survey System, i.e. Quarters, Someonship, Range); Hydrographic Survey Map & Trablock & Subdivision; OR Land Grant Name if know | ection,<br>ect; Lot,   |  |
| LDG MW-5  | 32° 8' 27"                   | -108° 50' 01"                               | Section 7, Township 25 S, Range 19 W   |                        |  |
|   |                              |   |  |                        |  |
|   |                              |   |  |                        |  |
|   |                              |   |  |                        |  |
|   |                              |   | OFFIC<br>STATE<br>DE-  | e amengah<br>geli amen |  |
| NOTE: If more well location<br>Additional well descriptions                       | s need to be descri          | bed, complete forn<br>Yes 🖾 No              | WR-08 (Attachment 1 – POD Descriptions) If yes, how many   | agrico"                |  |
| Other description relating well   | I to common landmar          | ks, streets, or other                       | e e e e e e e e e e e e e e e e e e e  | Carago<br>Co           |  |
| Well is on land owned by: Lig   | htning Dock Geothe           | ermal HI-01, LLC a                          | nd Rosette Inc.  |                        |  |
| Well Information: NOTE: If I  | more than one (1) w          | ell needs to be des                         | cribed, provide attachment. Attached? 🔲 Yes 🛛  | No                     |  |
| pproximate depth of well (feet): 85.00  |                              |   | Outside diameter of well casing (inches): 2.25   |                        |  |
| Driller Name: Rodgers & Co., Inc.   |                              | Driller License Number: 225                 |  |                        |  |
| ADDITIONAL STATEMENTS   | rells will be used to        | monitoring ground                           | water quality related to the operation of the geothern   | nal powe               |  |
| Conservation Divison. They  | will be completed i          | n shallow alluvium<br>d with 2-inch ID sc   | T-001 issued for the project by the New Mexico Oil to an approximate depth of 85 feet in low temperature the dule 40 PVC casing and have up to a 25-foot screet                                    | OFFICE<br>STATE OFFICE |  |
|   |                              |   |  |                        |  |
|   |                              |   |  | ⊅)'                    |  |

FOR OSE INTERNAL USE
File Number: A-798-MON POD 5

Application for Permit, Form wr-07

Trn Number:

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: Pollution Control and/or Recovery: Construction Mine De-Watering: xploratory: ☐ Include a ☐ Include a plan for pollution De-Watering: ☐ Include a plan for pollution control/recovery, that includes the following: description of control/recovery, that includes the Include a description of the ☐ A description of the need for mine proposed dewatering any proposed following: dewatering. pump test, if A description of the need for the operation, pollution control or recovery operation. applicable. The estimated duration of ☐ The estimated maximum period of time ☐ The estimated maximum period of the operation, for completion of the operation. ☐ The source(s) of the water to be diverted. ☐ The geohydrologic characteristics of the time for completion of the operation. ☐ The maximum amount of ☐ The annual diversion amount. water to be diverted. ☐ The annual consumptive use ☐ A description of the need aquifer(s). ☐The maximum amount of water to be for the dewatering operation, amount. diverted per annum. ☐ The maximum amount of water to be ☐The maximum amount of water to be diverted and injected for the duration of A description of how the diverted water will be disposed diverted for the duration of the operation. the operation. ☐ The method and place of discharge. ☐The quality of the water. ☐ The method of measurement of Geo-Thermal: The method of measurement of water Monitoring: water produced and discharged. Include the Include a description of the diverted. ☐The recharge of water to the aquifer. The source of water to be injected. geothermal heat exchange reason for the Description of the estimated area of ☐ The method of measurement of project. monitoring hydrologic effect of the project. water injected. ☐ The amount of water to be well, and, ☐The method and place of discharge.
☐An estimation of the effects on surface ☐ The characteristics of the aquifer. diverted and re-injected for the ☐ The ☐ The method of determining the project. duration of the planned resulting annual consumptive use of ☐ The time frame for water rights and underground water rights from the mine dewatering project. monitoring. water and depletion from any related constructing the geothermal ☐A description of the methods employed to stream system. heat exchange project, and, Proof of any permit required from the estimate effects on surface water rights and The duration of the project. New Mexico Environment Department. underground water rights. ☐ Preliminary surveys, design ☐Information on existing wells, rivers, An access agreement if the data, and additional information shall be included to springs, and wetlands within the area of applicant is not the owner of the land on which the pollution plume control or provide all essential facts hydrologic effect. recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal HI-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. **ACTION OF THE STATE ENGINEER** This application is: partially approved denied X approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer, Charles L. Jackson, MPA
Print District 3 Manager Print Application for Permit, Form wr-07 FOR OSE INTERNAL USE

File Number: A-798-MON PODS

Trn Number:

#### ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

**FILE:** A-798

**APPLICATION:** A-798-MON

APPLICANTS: Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-798-MON POD-5 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-5 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-5 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-5. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November, 2013 .

Scott A. Verhines, P.E. State Engineer

Charles L. Jackson, MPA

District 3 Manager



# STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86

Animas, N.M. 88020

David Janney 8519 Jefferson NE

Albuquerque, N.M. 87113

### Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-6, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-6, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not 'etrimental to the public welfare or contrary to the conservation of water within he state, subject to the following conditions:

- 1. Well A-798-MON POD-6 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-6 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-6 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-6. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA

District/3 Manager

By: // www.//
Martin McMillan

nimas Basin Manager

cc: State Engineer

MM:pg

### **NEW MEXICO OFFICE OF THE STATE ENGINEER**



## APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



(check applicable box):

|   | For fees, see State Engineer web              | osite: http://www.ose.state.nm.us/   | 3-<br>3- | 2009  | 75  |
|---|---|--------------------------------------|----------|---|-----|
| Purpose:                                  | ☐ Pollution Control And / Or Recovery         | ☐ Geo-Thermal                        |          |   |     |
| ☐ Exploratory                             | Construction Site De-Watering                 | Other (Describe):                    |          |   |     |
| Monitoring                                | ☐ Mineral De-Watering                         |                                      |          |   |     |
| A separate permit will                    | be required to apply water to beneficial use. |                                      | STAT     | 2013 OC   |     |
| ☐ Temporary Reques                        | t - Requested Start Date:                     | Requested End                        | PAR      | 23  |     |
| Plugging Plan of Open                     | ations Submitted?   Yes   No                  | Ç                                    | ିନ       | in the state of t |     |
|   |   | 5                                    | ,<br>H   | έυ.   |     |
| 1. APPLICANT(S)  Jame: Lightning Doc      | k Geothermal HI-01, LLC                       | Name:                                |          | was now for   |     |
| Contact or Agent:<br>Mike Gipson or Kacie | check here if Agent                           | Contact or Agent: David Janney       | ched     | ck here if Agen   | t 🖾 |
| Mailing Address: PO B                     | 30x 86  | Mailing Address: 8519 Jeffers        | son NE   |   |     |
| City: Animas                              |   | City: Albuquerque                    |          |   |     |
| State: NM                                 | Zip Code: 88020                               | State: NM                            | Zip C    | ode: 87113  |     |
| Phone:<br>Phone (Work): 575. 54           | ☐ Home ☐ Cell                                 | Phone:<br>Phone (Work): 505.821.1801 |          | lome Cell   |     |
| E-mail (optional): kaci                   | e.peterson@cyrqenergy.com                     | E-mail (optional): david.janne       | ey@amec. | .com  |     |
|   |   |                                      |          |   |     |

| TON OOL INTERNATION            | Application for Permit, Form wr-07, Rev 8/25/11 |
|--------------------------------|---|
| File Number, A- 798 MON FOD-CO | Trn Number:                                     |
| Trans Description (optional):  |   |
| Sub-Basin: Aururas             |   |
| PCW/LOG Due Date:              |   |

| be be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval according to State   | . WELL(S) Describe the well(s                                  | ) applicable to this ap | plication.                             |   |
|---|--|-------------------------|--|---|
| M West Zone   Done   M Central Zone     |  | ate location must b     | e reported in NM :                     | State Plane (NAD 83), UTM (NAD 83), <u>or</u> Latitude/Longitude  |
| Well Number (if known):  X or Easting or Latitude:  or Longitude:  or Longitude:  or Longitude:  or Longitude:  or Longitude:  longitude:  or Longitude:  longitu | ☐ NM West Zone<br>☐ NM East Zone                               |                         | Zone 12N                               |   |
| NOTE: If more well locations need to be described, complete form WR-06 (Attachment 1 – POD Descriptions) Additional well descriptions are attached:  Yes No if yes, how many  Ther description relating well to common landmarks, streets, or other:  Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many.  Approximate depth of well (feet): 85.00  Outside diameter of well casing (inches): 2.25  Driller Name: Rogers & Co., inc.  Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  This monitoring well will be used to monitoring groundwater quality related to the operation of the geothermal power plant. This well is a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Division. It will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. It will be be constructed with 2-inch ID schedule 40 PVC casing and have up to a 28-foot screened interval according to State regulations.  | Well Number (if known):  |                         |  | PLSS (Public Land Survey System, i.e. Quarters, Section, Township, Range); Hydrographic Survey Map & Tract; Lot,          |
| Additional well descriptions are attached: Yes No If yes, how many  Ther description relating well to common landmarks, streets, or other:  Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many.  Approximate depth of well (feet): 85.00 Outside diameter of well casing (inches): 2.25  Driller Name: Rogers & Co., Inc. Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  This monitoring well will be used to monitoring groundwater quality related to the operation of the geothermal power plant. This well is a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. It will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. It will be be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened Interval according to State regulations.   | LDG MW-6   | 32° 8' 54"              | -108° 50' 06"                          | Section 7, Township 25 S, Range 19 W  |
| Additional well descriptions are attached: Yes No If yes, how many.  There description relating well to common landmarks, streets, or other:  Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many.  Approximate depth of well (feet): 85.00  Outside diameter of well casing (inches): 2.25  Driller Name: Rogers & Co., Inc.  Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  This monitoring well will be used to monitoring groundwater quality related to the operation of the geothermal power plant. This well is a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. It will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. It will be be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened Interval according to State regulations.   |  |                         |  |   |
| Additional well descriptions are attached: Yes No If yes, how many  Ther description relating well to common landmarks, streets, or other:  Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many.  Approximate depth of well (feet): 85.00 Outside diameter of well casing (inches): 2.25  Driller Name: Rogers & Co., Inc. Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  This monitoring well will be used to monitoring groundwater quality related to the operation of the geothermal power plant. This well is a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. It will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. It will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened Interval according to State regulations.  |  |                         |  |   |
| Additional well descriptions are attached: Yes No If yes, how many  Ther description relating well to common landmarks, streets, or other:  Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many.  Approximate depth of well (feet): 85.00 Outside diameter of well casing (inches): 2.25  Driller Name: Rogers & Co., Inc. Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  This monitoring well will be used to monitoring groundwater quality related to the operation of the geothermal power plant. This well is a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. It will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. It will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened Interval according to State regulations.  |  |                         |  |   |
| Additional well descriptions are attached: Yes No If yes, how many.  Ther description relating well to common landmarks, streets, or other:  Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many.  Approximate depth of well (feet): 85.00 Outside diameter of well casing (inches): 2.25  Driller Name: Rogers & Co., Inc. Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  This monitoring well will be used to monitoring groundwater quality related to the operation of the geothermal power plant. This well is a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. It will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. It will be be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened Interval according to State regulations.  |  |                         |  | **************************************  |
| Other description relating well to common landmarks, streets, or other:    Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  |  |                         |  |   |
| Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many  | Other description relating well                                | l to common landmar     | ks, streets, or othe                   | <b>".</b>   |
| If yes, how many  | Well is on land owned by: Lig                                  | htning Dock Geoth       | ermal HI-01, LLC a                     | and Rosette Inc.  |
| Driller Name: Rogers & Co., Inc.  Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  This monitoring well will be used to monitoring groundwater quality related to the operation of the geothermal power plant. This well is a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. It will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. It will be be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval according to State regulations.  |  | more than one (1) w     | ell needs to be de                     | scribed, provide attachment. Attached? 🔲 Yes 🛛 No   |
| ADDITIONAL STATEMENTS OR EXPLANATIONS  This monitoring well will be used to monitoring groundwater quality related to the operation of the geothermal power plant. This well is a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. It will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. It will be be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval according to State regulations.   |  | et): 85.00              |  | Outside diameter of well casing (inches): 2.25  |
| This monitoring well will be used to monitoring groundwater quality related to the operation of the geothermal power plant. This well is a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. It will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. It will be be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval according to State regulations.  | Driller Name: Rogers & Co.,                                    | inc.                    |  | Driller License Number: 225   |
| This well is a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. It will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. It will be be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval according to State regulations.  |  |                         |  |   |
| 28 AM 8:  | This well is a requirement of<br>Divison. It will be completed | the Discharge Perri     | nit GTHT-001 issu<br>n to an approxima | ed for the project by the New Mexico Oil Conservation<br>te depth of 85 feet in low temperature geothermal water. It will |
| 28 AM 8:  | regulations.   |                         |  | OFFIC<br>STATE<br>DES   |
|   |  |                         |  | 28 <i>I</i>   |
|   |  |                         |  | <u>≅∭</u>   |

FOR OSE INTERNAL USE

File Number: A-798-MON POD 6 Application for Permit, Form wr-07 Trn Number: Page 2 of 3 4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: (ploratory: Pollution Control and/or Recovery: Construction Mine De-Watering: Include a plan for pollution De-Watering: ☐ Include a plan for pollution Include a control/recovery, that includes the following: control/recovery, that includes the ☐ Include a description of the description of A description of the need for mine any proposed following: proposed dewatering A description of the need for the operation. pump test, if dewatering. pollution control or recovery operation. The estimated duration of applicable. ☐ The estimated maximum period of time for completion of the operation. ☐ The estimated maximum period of the operation, time for completion of the operation. ☐ The maximum amount of ☐ The source(s) of the water to be diverted. ☐ The annual diversion amount.☐ The annual consumptive use The geohydrologic characteristics of the water to be diverted. aquifer(s). A description of the need for the dewatering operation, The maximum amount of water to be amount. The maximum amount of water to be diverted per annum. diverted and injected for the duration of ☐The maximum amount of water to be A description of how the diverted for the duration of the operation. diverted water will be disposed the operation. ☐ The method and place of discharge. of. ☐The quality of the water. The method of measurement of ☐The method of measurement of water Monitoring: Geo-Thermal: Include the water produced and discharged. Include a description of the diverted. ☐ The source of water to be injected. The recharge of water to the aquifer. reason for the geothermal heat exchange The method of measurement of project. Description of the estimated area of monitoring hydrologic effect of the project. water injected. well, and, The amount of water to be ☐The method and place of discharge. ☐An estimation of the effects on surface ☐ The characteristics of the aquifer. diverted and re-injected for the ☐ The The method of determining the duration project, resulting annual consumptive use of water rights and underground water rights of the planned ☐ The time frame for water and depletion from any related constructing the geothermal from the mine dewatering project. monitoring. A description of the methods employed to stream system. heat exchange project, and, estimate effects on surface water rights and Proof of any permit required from the The duration of the project. underground water rights. New Mexico Environment Department. Preliminary surveys, design ☐ An access agreement if the ☐Information on existing wells, rivers, data, and additional applicant is not the owner of the land on information shall be included to springs, and wetlands within the area of which the pollution plume control or hydrologic effect. provide all essential facts recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal HI-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge/and belief. Applicant Signature ACTION OF THE STATE ENGINEER This application is: partially approved □ approved denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in the conservation of the conser Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13, for the State Engineer Ç, S Charles L. Jackson, MPA District 3 Manager Title: Print Application for Permit, Form wr-07 FOR OSE INTERNAL USE File Number: A-798-MON Trn Number: POD 6

### ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

FILE:

A-798

APPLICATION: A-798-MON

APPLICANTS:

Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-798-MON POD-6 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-6 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-6 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-6. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November , 2013

Scott A. Verhines, P.E. State Engineer

L. Jackson, MPA District 3 Manager



# STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86

Animas, N.M. 88020

David Janney

8519 Jefferson NE Albuquerque, N.M. 87113

Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-7, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-7, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not 'etrimental to the public welfare or contrary to the conservation of water within he state, subject to the following conditions:

- 1. Well A-798-MON POD-7 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-7 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-7 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-7. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA
District 3 Manager / //

Martin McMillan

imas Basin Manager

cc: State Engineer

MM:pg

# ARI STEEM Commission

### **NEW MEXICO OFFICE OF THE STATE ENGINEER**

# APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



Page 1 of 3

(check applicable box):

| and the second s | For fees, see State Engineer web             | osite: http://www.ose.state.nm.us/      | 3-20039 45                                   |  |
|--|--|---|--|--|
| Purpose:   | ☐ Pollution Control And / Or Recovery        | ☐ Geo-Thermal                           |  |  |
| ☐ Exploratory  | ☐ Construction Site De-Watering              | Other (Describe):                       |  |  |
| Monitoring   | ☐ Mineral De-Watering                        |   |  |  |
|  |  |   |  |  |
| A separate permit will b   | e required to apply water to beneficial use. |   |  |  |
| ☐ Temporary Request  | - Requested Start Date:                      | Requested En                            | d Date:                                      |  |
| Plugging Plan of Opera   | tions Submitted?  Yes No                     |   |  |  |
|  |  |   |  |  |
|  |  |   |  |  |
| 1. APPLICANT(S)  |  | Г                                       |  |  |
| lame: Lightning Dock   | Geothermal HI-01, LLC                        | Name:                                   |  |  |
| Contact or Agent:  | check here if Agent                          | Contact or Agent: check here if Agent 🗵 |  |  |
| Mike Gipson or Kacie   | Peterson                                     | David Janney                            |  |  |
| Mailing Address: PO Bo   | ox 86  | Mailing Address: 8519 Jeffe             | rson NE                                      |  |
| City: Animas   |  | City: Albuquerque                       |  |  |
| State: NM  | Zip Code: 88020                              | State: NM                               | Zip Code: 87113                              |  |
| Phone:   | ☐ Home ☐ Cell                                | Phone:                                  | ☐ Home ☐ Cell                                |  |
| Phone (Work): 575. 548   |  | Phone (Work): 505.821.1801              |  |  |
| E-mail (optional): kacle   | peterson@cyrqenergy.com                      | E-mail (optional): david.janr           | ney@amec.com                                 |  |
| <u> </u>   |  |   |  |  |
|  |  |   |  |  |
|  |  |   |  |  |
|  |  |   |  |  |
|  | FOR OSE INTERN                               | AL USE App                              | lication for Permit, Form wi-07, Rev 8/25/11 |  |
|  | File Number:                                 | -06                                     | n Number:                                    |  |
|  | Trans Description (                          | optional):                              |  |  |
|  | Sub-Basin: Auc                               | ма5                                     |  |  |
|  | PCW/LOG Due Dat                              | te:                                     |  |  |

| . WELL(S) Describe the well(s)   |   |  |  |                                  |
|--|---|--|--|----------------------------------|
| Location Required: Coordin<br>(Lat/Long - WGS84)                         | ate location must b                         | e reported in NM S                         | State Plane (NAD 83), UTM (NAD 83), <u>or</u> Latitude <i>i</i>  | Longitude                        |
| ☐ NM State Plane (NAD83) ☐ NM West Zone ☐ NM East Zone ☐ NM Central Zone |   | JTM (NAD83) (Met<br>]Zone 12N<br>]Zone 13N | ers)   | e nearest                        |
| Well Number (if known):  | X or Easting or<br>Latitude:                | Y or Northing<br>or Longitude:             | Optional: Complete boxes labeled "Other" be<br>PLSS (Public Land Survey System, i.e. Quart<br>Township, Range); Hydrographic Survey Map<br>Block & Subdivision; OR Land Grant Name if                      | ers, Section,<br>b & Tract; Lot, |
| LDG MW-1B  | 32° 8' 39"                                  | -108° 50' 08"                              | Section 7, Township 25 S, Range 19 W   |                                  |
|  |   |  |  |                                  |
|  |   |  |  |                                  |
|  |   |  |  |                                  |
|  |   |  |  |                                  |
| NOTE: If more well location<br>Additional well descriptions              |   |  | m WR-08 (Attachment 1 – POD Descriptions)  If yes, how many  |                                  |
| Other description relating well  | to common landmar                           | ks, streets, or other                      | r:   |                                  |
| Well is on land owned by: Lig  | htning Dock Geothe                          | ermal HI-01, LLC a                         | nd Rosette Inc.  |                                  |
| Well Information: NOTE: If no lf yes, how many                           | nore than one (1) w                         | ell needs to be de                         | scribed, provide attachment. Attached?   Ye  | s 🖾 No                           |
| Approximate depth of well (fee   | et): <b>85.00</b>                           |  | Outside diameter of well casing (inches): 2.25   |                                  |
| Driller Name: Rogers & Co.,  | Inc.  |  | Driller License Number: 225  |                                  |
| B. ADDITIONAL STATEMENTS   | OR EXPLANATION                              | IS   |  |                                  |
| This well is a requirement of Divison. It will be completed              | the Discharge Perm<br>I in shallow alluviun | nit GTHT-001 issu<br>n to an approxima     | lity related to the operation of the geothermal pole of for the project by the New Mexico Oll Conserts depth of 85 feet in low temperature geothermal a 25-foot screened interval and will be constructed. | vation<br>al water. It wil       |
| to state regulations.  |   |  | ٠. <u>(</u><br>مح  | 1       2       3                |
|  |   |  |  |                                  |
|  |   |  |  |                                  |

FOR OSE INTERNAL USE
File Number: A - 796 - MON POD 7

Page 2 of 3

Application for Permit, Form wr-07

Trn Number:

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: Exploratory: Pollution Control and/or Recovery: Construction Mine De-Watering: De-Watering: Include a plan for pollution ] include a Include a plan for pollution description of control/recovery, that includes the Include a description of the control/recovery, that includes the following: proposed dewatering A description of the need for mine any proposed following: A description of the need for the operation. dewatering. pump test, if pollution control or recovery operation.

The estimated maximum period of applicable. ☐ The estimated duration of ☐ The estimated maximum period of time for completion of the operation. the operation. ☐ The source(s) of the water to be diverted. ☐ The maximum amount of time for completion of the operation. ☐ The annual diversion amount. The geohydrologic characteristics of the water to be diverted. aquifer(s). The annual consumptive use A description of the need for the dewatering operation, ☐The maximum amount of water to be amount. diverted per annum. ☐ The maximum amount of water to be diverted and injected for the duration of ☐ A description of how the ☐The maximum amount of water to be diverted for the duration of the operation. diverted water will be disposed the operation. ☐ The quality of the water.
☐ The method of measurement of water ☐ The method and place of discharge. of. ☐ The method of measurement of Geo-Thermal: Monitoring: water produced and discharged. diverted. Include the Include a description of the ☐ The source of water to be injected. geothermal heat exchange ☐The recharge of water to the aguifer. reason for the The method of measurement of project,

The amount of water to be Description of the estimated area of monitoring hydrologic effect of the project. well, and, water injected. ☐ The characteristics of the aquifer. The method and place of discharge. diverted and re-injected for the ☐ The An estimation of the effects on surface ☐ The method of determining the project, duration The time frame for resulting annual consumptive use of water rights and underground water rights of the planned from the mine dewatering project. water and depletion from any related constructing the geothermal monitoring. A description of the methods employed to stream system. heat exchange project, and, Proof of any permit required from the The duration of the project. estimate effects on surface water rights and New Mexico Environment Department. underground water rights. ☐ Preliminary surveys, design ☐Information on existing wells, rivers. An access agreement if the data, and additional applicant is not the owner of the land on springs, and wetlands within the area of information shall be included to which the pollution plume control or provide all essential facts hydrologic effect. recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal HI-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. **ACTION OF THE STATE ENGINEER** This application is: □ approved partially approved denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer. Verhines, P.E. , State Engineer Charles L. Jackson, MPA District 3 Manager Application for Permit, Form wr-07 FOR OSE INTERNAL USE

File Number: A - 798-MON POD 7

SUCT 28 AM 8:55

Application for Permit, Form wr-07

Trn Number:

Page 3 of 3



# STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 25, 2013

FILE: A-799

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86

Animas, N.M. 88020

David Janney 8519 Jefferson NE

Albuquerque, N.M. 87113

Greetings:

Enclosed is your copy of Monitor Well Permit A-799, which has been approved.

Your attention is called to the Conditions of Approval under permit A-799-MON-POD1, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for a monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within the state, subject to the following conditions:

- 1. Well A-799-MON POD-1 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-799-MON POD-1 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-799-MON POD-1 shall not exceed 600 feet.
- 4. PVC casing set using any cement grout is subject to collapse and/or deformation due to column weight and heat of hydration of the curing cement. Casing manufacturer should be consulted to establish the timing and placement of safe intervals of annular sealant.
- 5. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 6. No appropriation of water shall be made from well A-799-MON POD-1. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 7. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 8. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L, Jackson, MPA

District & Managery

By: We Well,

Martin McMillan

Animas Basin Manager

MM:pg

Cc: State Engineer

| File No. | 799 | MON |
|----------|-----|-----|
|----------|-----|-----|



### **NEW MEXICO OFFICE OF THE STATE ENGINEER**

# APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



(check applicable box):

|   | For fees, see State Engineer we                 | bsite: http://www.ose.state.nm.us/           | 3-20044 90=           |
|---|---|--|-----------------------|
| Purpose:  | ☐ Pollution Control And / Or Recovery           |  |                       |
| ☐ Exploratory   | ☐ Construction Site De-Watering                 | Other (Describe):                            |                       |
| Monitoring Monitoring   | ☐ Mineral De-Watering                           |  |                       |
| A separate permit wil   | I be required to apply water to beneficial use. |  |                       |
| ☐ Temporary Reque   | est - Requested Start Date:                     | Requested End I                              | Date:                 |
| Plugging Plan of Ope  | erations Submitted?  Yes  No                    |  |                       |
|   |   |  |                       |
| APPLICANT(S)  Name: Lightning Do  Contact or Agent:  Mike Gipson or Kac | check here if Agent  ie Peterson                | Name:  Contact or Agent:  David Janney       | check here if Agent 🔯 |
| Mailing Address: PO   | Box 86  | Mailing Address: 8519 Jefferso               | on NE                 |
| City: Animas  |   | City: Albuquerque                            |                       |
|   |   |  |                       |
| State: NM   | Zip Code: 88020                                 | State: NM                                    | Zip Code: 87113       |
| Phone:  | ☐ Home ☐ Cell                                   | State: NM  Phone: Phone (Work): 505.821.1801 | Zip Code: 87113       |
| State: NM<br>Phone:<br>Phone (Work): 575. 8<br>E-mail (optional): kad   | ☐ Home ☐ Cell                                   | Phone:                                       | Home Deall O          |

| FOR OSE INTERNAL USE          | Application for Permit, Form wr-07, Rev 8/25/11 |
|-------------------------------|---|
| File Number: A-799 War Pod-1  | Tm Number:                                      |
| Trans Description (optional): |   |
| Sub-Basin: Auima5             |   |
| PCW/LOG Due Date:             |   |
|                               | Dage 1 of 2                                     |

2. WELL(S) Describe the well(s) applicable to this application. Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84) ☐ NM State Plane (NAD83) (Feet) ☐ UTM (NAD83) (Meters) □ Lat/Long (WGS84) (to the nearest ☐Zone 12N ☐ NM West Zone 1/10<sup>th</sup> of second) ☐Zone 13N ☐ NM East Zone NM Central Zone Optional: Complete boxes labeled "Other" below with X or Easting or Y or Northing PLSS (Public Land Survey System, i.e. Quarters, Section, Well Number (if known): Township, Range); Hydrographic Survey Map & Tract; Lot, Latitude: or Longitude: Block & Subdivision; OR Land Grant Name if known. Section 7, Township 25 S, Range 19 W 32° 8' 40" -108° 50' 18" LDG IW 13.87" 39.46 NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 - POD Descriptions) S Additional well descriptions are attached: Yes No if yes, how many Other description relating well to common landmarks, streets, or other: ı Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc. Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes **⊠**No If yes, how many Outside dlameter of well casing (inches): 2.25 Approximate depth of well (feet): 85.00 **Driller License Number: 225** Driller Name: Rodgers & Co., Inc. 3. ADDITIONAL STATEMENTS OR EXPLANATIONS Mud-rotary drilling will advance an approximate 8-inch borehole to approximately 600 feet. The borehole geology will be logged in the field. The monitoring well will consist of 2-inch diameter Schedule 80 PVC rated for geothermal use. 15 feet of 0.020 continuous slot screen will be installed from approximately 600 feet below existing grade to approximately 585 feet below existing grade. 585 of blank casing will be installed above the screen section. A 10/20 silica sand filter pack will be emplaced via tremie pipe to a minimum of 3 feet above the screen section. A minimum 3-foot think pure bentonite plug will be placed above the filter place via tremie pipe and the annulus of the well bore will be pressure-grouted from the bottom of the

FOR OSE INTERNAL USE Application for Permit, Form wr-07
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| 4. SPECIFIC REC<br>boxes, to indicate   | QUIREMENTS: The applicant must include the information has been included and/or a   | the following, as applicable to eac<br>ittached to this application:   | h well type. Please check the appropriate  |  |  |  |  |
|---|---|--|--|--|--|--|--|
| include a description of any proposed pump test, if applicable.  Monitoring:  Include the reason for the monitoring well, and,  The duration of the planned monitoring. | Pollution Control and/or Recovery:  Include a plan for pollution control/recovery, that includes the following:  A description of the need for the pollution control or recovery operation.  The estimated maximum period of time for completion of the operation.  The annual diversion amount.  The annual consumptive use amount.  The maximum amount of water to be diverted and injected for the duration of the operation.  The method and place of discharge.  The method of measurement of water produced and discharged.  The source of water to be injected.  The method of measurement of water injected.  The characteristics of the aquifer.  The method of determining the resulting annual consumptive use of water and depletion from any related stream system.  Proof of any permit required from the New Mexico Environment Department.  An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located. | Construction De-Watering: Include a description of the proposed dewatering operation, The estimated duration of the operation, The maximum amount of water to be diverted, A description of the need for the dewatering operation, and, A description of how the diverted water will be disposed of.  Geo-Thermal: Include a description of the geothermal heat exchange project, The amount of water to be diverted and re-injected for the project, The time frame for constructing the geothermal heat exchange project, and, The duration of the project. Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request. | Mine De-Watering:  Include a plan for pollution control/recovery, that includes the following: A description of the need for mine dewatering. The estimated maximum period of time for completion of the operation. The source(s) of the water to be diverted. The geohydrologic characteristics of the aquifer(s). The maximum amount of water to be diverted per annum. The maximum amount of water to be diverted for the duration of the operation. The quality of the water. The method of measurement of water diverted. The recharge of water to the aquifer. Description of the estimated area of hydrologic effect of the project. The method and place of discharge. An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. A description of the methods employed to estimate effects on surface water rights and underground water rights. Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.  |  |  |  |  |
|   | AC  | KNOWLEDGEMENT  |  |  |  |  |  |
| I, We (name of  | applicant(s)), Mike Gipson or Kacie Peter<br>Pr   | son, Lightning Dock Geotherm int Name(s)   |  |  |  |  |  |
| Applicant Signa   | pregoing statements are true to the best of (   | (my, our) knowledge and belief.  Applicant Signature   | OFFICE STATE OF THE STATE OF TH |  |  |  |  |
|   | ACTION  | OF THE STATE ENGINEER  | _ 일월<br>3년 - 중   |  |  |  |  |
|   |   | This application is:   | <u>-</u> m   |  |  |  |  |
|   | 🔀 approved  | ☐ partially approved [   |  |  |  |  |  |
| provided it is n<br>Mexico nor de   | ot exercised to the detriment of any others<br>trimental to the public welfare and further so   | having existing rights, and is not oubject to the <u>attached</u> conditions o   | contrary to the conservation of water in New f approval.   |  |  |  |  |
| Witness my han  | Witness my hand and seal this 25th day of November 20 13 , for the State Engineer,  |  |  |  |  |  |  |
| Scott A. Werhines, P.E. State Engineer  By: Charles L. Jackson, MPA  Print  |   |  |  |  |  |  |  |
|   | ct 3 Manager  |  |  |  |  |  |  |
| Print \   |   |  | Application to Description   |  |  |  |  |
|   | FOR OS  | SE INTERNAL USE  | Application for Permit, Form wr-07   |  |  |  |  |

File Number:

Tm Number:

# ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

**FILE:** A-799

**APPLICATION:** A-799-MON

APPLICANTS: Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-799-MON POD-1 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-799-MON POD-1 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-799-MON POD-1 shall not exceed 600 feet.
- 4. PVC casing set using any cement grout is subject to collapse and/or deformation due to column weight and heat of hydration of the curing cement. Casing manufacturer should be consulted to establish the timing and placement of safe intervals of annular sealant.
- 5. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 6. No appropriation of water shall be made from well A-799-MON POD-1. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 7. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 8. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 25th day of November, 2013.

Scott A/ Varhines, P.E.,

Charles L. Jackson, MPA

District 3 Manager

### **BOREHOLE LOG MW-1A**



| Client Lightning Dock Geothermal HI-01, L | LC <sub>Type</sub> of Completion Monitoring Well | Surface Completion Stickup     |
|---|--|--------------------------------|
| Project Number 11-517-00102.06            | Start Date11/18/2013                             | Completed11/18/2013            |
| Field Geologist E. Koenig                 | Formation of Completion Alluvium                 | Filter Pack 57 - 85 feet       |
| Drilling Contractor Rodgers & Co., Inc.   | Borehole Diameter 8 inches                       | Screened Interval 60 - 85 feet |
| Driller John Tanner                       |  |                                |
| Drilling Method Hollow Stem Auger 8"      | N (ft) 417894                                    | E (ft)                         |
| Elevation TOC 4203.94 ft above MSL        |  |                                |
| Elevation Pad 4202.83 ft above MSL        | ▼ Static Water Level (RGS/Flev                   | MSI ) 4136.39 ft above MSI.    |

| Depth<br>(ft)      | Well Diagram                            | Graphic<br>Log | Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fall<br>drop hamme | Material Description   | Elev.<br>(ft) | Remarks                |
|--------------------|---|----------------|--------------------|---|--|---------------|------------------------|
| 5                  |   |                |                    |   | Silty Sand, fine to medium grained, non-plastic,gray brown, dry.  Clayey Sand with Gravel,     | 4203          |                        |
| 10-                |   |                | $\times$           | 18  | predominantly medium grained,<br>trace coarse sand, medium<br>plasticity, moist, brown; gravel | 4193          |                        |
| 15-                |   |                |                    |   | predominantly 1/2 inch.  | 4188          |                        |
| 20-                |   |                | $\times$           | 11  | Silty Clay, low plasticity, moist, gray brown.   | 4183          |                        |
| 25-                | -2 inch schedule                        |                |                    |   | Clayey Sand With Gravel,<br>predominantly fine- to medium<br>grained, medium plasticity.       | 4178          | Very moist at ~30 feet |
| 30<br>-<br>-<br>35 | 80 CPVC casing; Cement grout            |                | ×                  | 5   |  | 4173          |                        |
| 35**               |   |                |                    |   | Clay with Sand with Gravel,<br>medium plasticity, moist, brown.                                | 4168          |                        |
| 40                 |   |                | $\times$           | 30  | , ,  | 4163          |                        |
| 45-                |   |                |                    |   | Clayey Sand, predominantly medium grained, medium  | 4158          |                        |
| 50~                |   |                | $\times$           | 66  | plasticity, gray brown.  Sand with Silt with   | 4153          |                        |
| 55-                | -3/8 inch coated bentonite              |                |                    |   | Gravel, poorly graded, medium grained, moist, brown; gravel up to 3/4 inch, angular.           | 4148          |                        |
| 60 –               | pellets                                 |                |                    |   | Clayey Sand with Gravel, predominantly fine to medium  | 4143          |                        |
| <b>▼</b> 65-       | - 10/20 Silica<br>sand                  |                | $\geq$             | 37  | grained, medium plasticity,<br>moist, gray brown; gravel<br>predominantly ~1/2 inch,           | 4 <u>₩</u> 38 |                        |
| 70                 | - 0.020 Slotted                         |                |                    |   | subangular, ranging up to 3/4 inch.  | 4133          |                        |
| 75-                | well screen                             |                |                    |   | Bottom 5-10 feet contains sandy layers and flowing sands.                                      | 4128          |                        |
| 80-                | - Slough, flowing sands (estimated from |                |                    |   | ,  | 4123          |                        |
| 85                 | sand usage)                             | 1///           | 1                  |   | Total Depth = 85 ft  | 4118          |                        |







### **BOREHOLE LOG MW-1B**



| Client Lightning Dock Geothermal HI-01, LLC | Type of Completion Monitoring Well | Surface Completion Stickup     |
|---|------------------------------------|--------------------------------|
|   | Start Date                         | Completed                      |
| Field Geologist E. Koenig                   | Formation of Completion Alluvium   | Filter Pack 57 - 85 feet       |
| Drilling Contractor Rodgers & Co., Inc.     | Borehole Diameter 8 inches         | Screened Interval 60 - 85 feet |
| Driller John Tanner                         |                                    |                                |
| Drilling Method Hollow Stem Auger 8"        | N (ft)                             | E (ft)                         |
| Elevation TOC 4203.00 ft above MSL          | • •                                | • ,                            |
| Elevation Pad 4202.00 ft above MSL          | Static Water Level (BGS/Elev.      | MSL)                           |

| Depth<br>(ft)     | Well Diagram   | Graphic<br>Log | Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fall<br>trop hamme | Material Description  | Elev.<br>(ft)                | Remarks               |
|-------------------|--|----------------|--------------------|---|---|------------------------------|-----------------------|
| 10 -              |  |                |                    | 18  | Silty Clayey Sand, fine to medium grained, low plasticity, brown, trace gravel.  Clayey Sand, predominantly medium grained, medium plasticity, moist, brown.                | 4197<br>4192<br>4187         |                       |
| 20—<br>25—<br>30— | - Cement Grout -2 inch schedule 80 CPVC casing         |                |                    | 18  | Clayey Sand with Gravel;<br>gravel subangular, ~1/2 inch<br>Clay, medium plasticity, very<br>moist, brown.  | 4182                         | Very moist zone.      |
| 40                |  |                |                    | 47  | Clayey Sand, medium grained, medium plasticity, moist, gray brown.  Silty Clayey Sand, predominantly coarse, low plasticity, moist, gray brown.  Clayey Sand, predominantly | 4167<br>4162<br>4157<br>4157 |                       |
| 55 -              | - 3/8 inch coated bentonite pellets                    |                |                    | 77  | medium grained, medium plasticity, moist, gray brown.  Clayey Sand with Gravel; gravel predominantly ~1/2 inch ranging up to 3/4 inch, subangular.                          | 4147                         | Very moist at~65 feet |
| 70<br>75<br>80    | - 10/20 silica sand - 0.020 Slotted well screen        |                |                    | - <b>-</b>  | Clay, medium plasticity, very moist, gray brown.  Trace Gravel below ~72 feet.  Clay with Sand, medium plasticity, trace gravel, wet to supersaturated. Flowing sands       | 4132<br>4127<br>4122         | Wet                   |
| 85                | - Slough and flowing sands (estimated from sand usage) |                |                    |   | at bottom of hole.  Total Depth = 85 ft   | 4122                         |                       |

**SAMPLE TYPE LEGEND** 





### BOREHOLE LOG MW-2



Client Lightning Dock Geothermal HI-01, LLC Type of Completion Surface Completion Stickup Monitoring Well Project Number \_\_\_11-517-00102.06 Start Date \_\_11/14/2013 Completed \_\_11/14/2013 Filter Pack 52 - 80 feet Field Geologist E. Koenig **Alluvium** Formation of Completion \_ Drilling Contractor Rodgers & Co., Inc. Screened Interval \_\_55 - 80 feet Borehole Diameter 8 inches Driller John Tanner Drilling Method Hollow Stem Auger 8" N (ft) 419017 2412933 E (ft) \_ Elevation TOC 4205.00 ft above MSL Elevation Pad \_ 4204.15 ft above MSL ▼ Static Water Level (BGS/Elev. MSL) 4135.15 ft above MSL

Depth Elev. Well Diagram Material Description Remarks (ft) (ft) Clayey Sand With Gravel, Gravel horizon at 5 predominantly fine to medium feet grained, medium plasticity, 4199 damp, gray brown; gravel up to 3/4 inch, angular. 4194 15 4189 Silty Clayey Sand, fine to medium grained, low plasticity, 20 4184 moist, yellow gray brown; trace fine gravel up to 3/8 inch, subangular. 25 2 inch schedule 4179 80 CPVC casing; Cement Occasional thin clayey horizons grout 30 and gravel horizons. 4174 Clayey Sand, predominantly medium grained with occasional 35 4169 coarse horizons, medium plasticity, brown. 40 4164 45 4159 Gravel horizon with trace caliche 50 at ~39 feet; gravel up to 3/4 inch, 4154 3/8 inch coated subround to subangular. bentonite pellets 55 4149 Sand is coarse at 45 feet. Clayey Gravel with Sand, 60 poorly graded, ranging up to 1 4144 inch, subround; medium plasticity, moist, gray brown. 65 4139 10/20 silica sand 0.020 Slotted 70 Likely sandy intervals near 4134 well screen bottom of boring. 75 4129 80 4124 Total Depth = 80 ft 85 4119

### **SAMPLE TYPE LEGEND**



**Auger Cuttings Sample** 



### **BOREHOLE LOG MW-3**



Client Lightning Dock Geothermal HI-01, LLC Type of Completion Monitoring Well Surface Completion Stickup Project Number \_\_\_\_11-517-00102.06 Start Date \_\_\_11/15/2013 Completed \_\_\_11/15/2013 Filter Pack 52 - 80 feet **Alluvium** Field Geologist E. Koenig Formation of Completion \_ Drilling Contractor Rodgers & Co., Inc. Borehole Diameter 8 inches Screened Interval \_\_55 - 80 feet Driller John Tanner N (ft) \_418962 E (ft) 2413681 Drilling Method Hollow Stem Auger 8" Elevation TOC 4211.08 ft above MSL Elevation Pad 4210.26 ft above MSL ▼ Static Water Level (BGS/Elev. MSL) 4137.84 ft above MSL

| Depth<br>(ft)  | Well Diagram   | Graphic<br>Log<br>Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fall<br>drop hamme | Material Description  | Elev.<br>(ft) | Remarks |
|----------------|--|--------------------------------------|---|---|---------------|---------|
| 5-<br>10-      |  |                                      |   | Silty Clayey Sand with Gravel, predominantly fine to medium grained, trace coarse sand, low plasticity,damp, gray brown; gravel predominantly 1/2 inch, subangular. | 4205          |         |
| 15-<br>20-     |  |                                      |   | Clayey Sand with Gravel,<br>predominantly medium- to<br>coarse grained, medium<br>plasticity, damp to moist; gravel<br>1/2-3/4 inch, subangular.                    | 4195          |         |
| 25<br>30       | -2 inch schedule<br>80 CPVC<br>casing; Cement<br>grout | <b>-</b>                             |   |   | 4185          |         |
| 35-<br>40      |  | _                                    |   | Subangular gravel horizon: gravel up to 1 inch at 39 feet BGS.  | 4175          |         |
| 45<br>50       | - 3/8 inch coated                                      |                                      |   | Gravel with Clay and Sand, poorly graded, ranging up to 3/4 inch, angular; finer fraction medium grained sand and clay, medium plasticity, gray brown.              | 4165          |         |
| 55 –<br>60 –   | bentonite pellets                                      |                                      |   | Clayey Sand, medium- to coarse grained, medium plasticity, gray brown.  Gravel with Clay and Sand,  | 4155          |         |
| 65<br>-<br>70- | - 10/20 silica<br>sand<br>0.020 Slotted                |                                      |   | poorly graded, subangular, ranging up to 3/4 inch, subangular.  Clayey Sand, predominantly  | 4145          |         |
| <b>▼</b> 75-   | well screen  |                                      |   | medium grained, medium plasticity, moist, gray brown. Sandy horizons likely below 75 feet.  | 4140          |         |
| 80 –<br>85 –   |  |                                      |   | Sand with Silt, poorly graded, highly cemented, predominantly medium grained.   | 4130          |         |
|                |  |                                      |   | Auger refusal at 80 feet.   |               |         |

**SAMPLE TYPE LEGEND** 

Total Depth = 80 ft





### **BOREHOLE LOG MW-4**



| Client Lightning Dock Geothermal HI-01, I | LC <sub>Type</sub> of Completion Monitoring Well | Surface Completion Stickup      |
|---|--|---------------------------------|
| Project Number                            | Start Date11/13/2013                             | Completed 11/13/2013            |
| Field Geologist E. Koenig                 | Formation of Completion Alluvium                 | Filter Pack <b>52 - 80 feet</b> |
| Drilling Contractor Rodgers & Co., Inc.   | Borehole Diameter 8 inches                       | Screened Interval 55 - 80 feet  |
| Driller John Tanner                       |  |                                 |
| Drilling Method Hollow Stem Auger 8"      | N (ft) 419101                                    | E (ft)                          |
| Elevation TOC 4194.89 ft above MSL        | •  | `,                              |
| Elevation Pad 4193.54 ft above MSL        | ▼ Static Water Level (BGS/Elev.)                 | MSL) 4127.21 ft above MSL       |

| Depth<br>(ft)        | Well Diagram  | Graphic<br>Log<br>Sample<br>Interval<br>Blows/ft.<br>140 lb. 30"<br>free-fall<br>trop hamme | Material Description   | Elev.<br>(ft)   | Remarks   |
|----------------------|---|---|--|---|---|
| 10                   | - 2 inch schedule 80 CPVC casing; Cement grout  - 3/8 inch coated bentonite pellets |   | Clay with Sand, medium plasticity, windblown, dry, gray brown.  Silty Clayey Sand, medium grained, low PI, trace fine gravel ~3/8 inch.  Clayey Sand, fine- to medium grained, medium plasticity, moist, gray brown.  Traces of coarse sand and fine, angular gravel, ~3/8 inch.  Clayey Sand, medium- to coarse grained, medium plasticity, moist gray brown. | 4189<br>4189<br>4189<br>4179<br>4174<br>4169<br>4164<br>4164<br>4164<br>4164<br>4164<br>4164<br>416 | Increasing in<br>moisture at ~20 feet.<br>Perched water at ~37<br>feet. |
| 70<br>75<br>80<br>85 | - 10/20 silica<br>sand<br>0.020 Slotted<br>well screen                              |   | Bottom 5-10 feet likely contains sandy horizons.  Total Depth = 80 ft  | 4134  |   |

**SAMPLE TYPE LEGEND** 





### **BOREHOLE LOG MW-5**



Client Lightning Dock Geothermal HI-01, LLC Type of Completion Monitoring Well Stickup Surface Completion \_ Start Date \_\_\_11/16/2013 Completed \_\_\_\_11/16/2013 Project Number \_\_11-517-00102.06 Field Geologist E. Koenig Filter Pack 60 - 78 feet Formation of Completion Alluvium Drilling Contractor Rodgers & Co., Inc. Borehole Diameter \_ 8 inches Screened Interval 63 - 78 feet Driller John Tanner N (ft) 416451 Drilling Method Hollow Stem Auger 8" E (ft) \_ 2413497 Elevation TOC 4211.24 ft above MSL Elevation Pad 4210.24 ft above MSL ▼ Static Water Level (BGS/Elev. MSL) 4135.23 ft above MSL

| Depth<br>(ft)  | Well Diagram  | Graphic<br>Log | Sample<br>Interval<br>Blows/ft. | Material Description  Material Description   | Elev.<br>(ft)  | Remarks |
|--|---|----------------|---------------------------------|--|--|---------|
| 5-<br>10-<br>15-<br>20-<br>25-<br>30-<br>40-<br>45-<br>50- | - 2 inch schedule<br>80 CPVC<br>casing; Cement<br>grout |                |                                 | Silty Sand, fine- to medium grained, non-plastic, dry, gray brown.  Clayey Sand, predominantly fine- to medium grained, medium plasticity, trace coarse sand, trace gravel.  Clayey Sand, predominantly medium- to coarse grained.  Clay with Sand, medium plasticity, gray brown, trace gravel up to 1 inch, subangular at 20 feet.  Clayey Sand with Gravel, predominantly fine- to medium grained, medium plasticity, gray brown; gravel predominantly ~1/2 inch, ranging up to 3/4 inch, subangular.  Clay with Sand, medium plasticity, gray brown; gravel predominantly ~1/2 inch, ranging up to 3/4 inch, subangular. | 4200 - 4200 - 4190 - 4185 - 4170 - 4165 - 4155 - 41 |         |
| 60<br>65   | - 3/8 inch coated bentonite pellets                     |                |                                 |  | 4150   |         |
| 70 -<br><b>⊻</b> 75 -<br>80 -                              | -10/20 silica<br>sand<br>0.020 Slotted<br>well screen   |                |                                 | Clayey Sand, fine- to medium grained, medium plasticity, gray brown; trace gravel, predominantly ~1/2 inch, ranging up to 1 inch, angular.  Sand with Silt, hard, well-cemented, possibly silicified. Auger refusal at 78  | 4140<br>4135<br>4130   |         |
| 85-  |   |                |                                 | feet.  Total Depth = 78 ft   | 4125   |         |

SAMPLE TYPE LEGEND

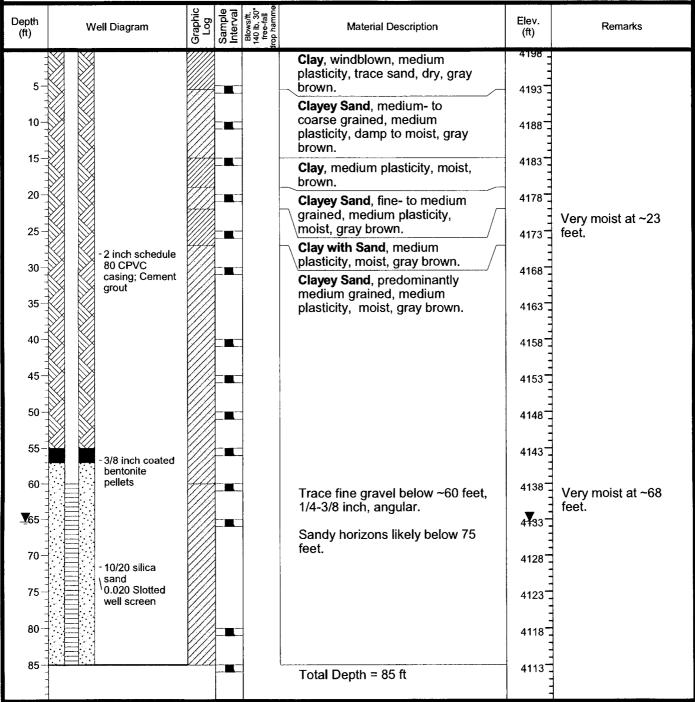




### BOREHOLE LOG MW-6



| i roject runnber                     | -517-00102.06<br>Koenig<br>Rodgers & Co., In | _ Sta<br>_ Fo              | pe of Completion art Date         | detion Alluvium      | Completed 11/     | 17/2013  | Stickup<br>85 feet<br>60 - 85 feet |
|--------------------------------------|--|----------------------------|-----------------------------------|----------------------|-------------------|----------|------------------------------------|
| Drilling Method Ho Elevation TOC 419 | llow Stem Auger 8<br>9.58 ft above MSL       |                            | N (ft)416482                      | 2                    | E (ft) 2412309    |          |                                    |
| Elevation Pad 4197                   | 7.90 ft above MSL                            |                            | ▼ Static Wa                       | ter Level (BGS/Elev. | MSL) 4132.57 ft a | bove MSL |                                    |
| Depth We                             | II Diogram                                   | phic<br>og<br>nple<br>rval | /s/ft.<br>5. 30"<br>-fall<br>amme | Material Desc        | rintion           | Elev.    | Pomarke                            |



### **SAMPLE TYPE LEGEND**



Auger Cuttings Sample



### **BOREHOLE LOG INW-1**



| Client Lightning Dock Geothermal HI-01, I | LLC <sub>Type</sub> of Completion Monitoring Well | Surface CompletionStickup        |
|---|---|----------------------------------|
| Project Number11-517-00102.06             | Start Date  | Completed12/3/2013               |
| Field Geologist E. Koenig                 | Formation of Completion Alluvium                  | Filter Pack 565 - 600 feet       |
| Drilling Contractor Rodgers & Co., Inc.   | Borehole Diameter 8 inches                        | Screened Interval 570 - 590 feet |
| Driller Art Baeza                         |   |                                  |
| Drilling Method Mud Rotary                | N (ft) 417682                                     | E (ft)                           |
| Elevation TOC 4199.58 ft above MSL        | · ,   | ` '                              |
| Flevation Pad 4198.13 ft above MSL        | ▼ Static Water Level (BGS/Flev                    | MSI ) 4121.22 ft above MSI       |

| Depth<br>(ft)  | Well Diagram | Graphic<br>Log | Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fall<br>trop hamme | Material Description  | Elev.<br>(ft)                | Remarks                    |
|----------------|--------------|----------------|--------------------|---|---|------------------------------|----------------------------|
| 10<br>15<br>20 |              |                |                    |   | Alluvium: Clayey Sand, medium plasticity, sand predominantly coarse, mostly volcanics: ~60% Rhyolite ~20% Andesite or basalt ~20% Chert  Clay with Gravel, medium plasticity; gravel: mixed volcanics: rhyolite, and chert, some limonite | 4198<br>4193<br>4188<br>4183 |                            |
| 25             |              |                |                    |   | staining and low grade greenish alteration.  Clayey Sand, predominantly medium grained, trace gravel: mixed volcanics, rhyolite and   | 4173                         |                            |
| 35 —<br>40 —   |              |                |                    |   | basalt/andesite; sand is subangular: quartz, feldspar, chert and mafics.  Clay and Clayey Sands, medium plasticity; trace gravel of   | 4163                         |                            |
| 45<br>50       |              |                |                    |   | mixed volcanics: rhyolite, maybe dacite and andesite, trace yellow jasper.  | 4153                         |                            |
| 55—<br>60—     |              |                |                    |   | Clay, trace medium sand, medium plasticity, yellow gray brown.  | 4143                         |                            |
| 65             |              |                |                    |   | Clayey Sand, predominantly fine grained, some medium grained horizons, medium plasticity, trace gravel, ~1/2 inch, subround, mostly dusky red and   | 4133                         | Gravelly zone at ~75 feet. |
| <b>▼</b> 75    |              |                |                    |   | gray, rhyolitic with visible sanidine crystals.   | 4423                         |                            |
| 80<br>85       |              |                |                    |   | Generally sandier and coarser with intermittent horizons of fine clayey sand.   | 4118                         |                            |

**SAMPLE TYPE LEGEND** 



**Auger Cuttings Sample** 



### BOREHOLE LOG INW-1



| Client Lightning Dock Geothermal HI-01, I |                                  | Surface Completion St      | ickup          |
|---|----------------------------------|----------------------------|----------------|
| Project Number11-517-00102.06             | Start Date 12/3/2013             | Completed 12/3/2013        |                |
| Field Geologist E. Koenig                 | Formation of Completion Alluvium | Filter Pack <b>565 - 6</b> | 600 feet       |
| Drilling Contractor Rodgers & Co., Inc.   | Borehole Diameter 8 inches       | Screened Interval _        | 570 - 590 feet |
| Driller Art Baeza                         |                                  |                            |                |
| Drilling MethodMud Rotary                 | N (ft)417682                     | E (ft) 2412393             |                |
| Elevation TOC 4199.58 ft above MSL        | , ,                              |                            |                |
| Elevation Pad 4198.13 ft above MSL        | ▼ Static Water Level (BGS/Elev.  | MSL) 4121.22 ft above MSL  |                |

| Depth<br>(ft)  | Well Diagram | Graphic<br>Log | Sample<br>Interval | Blows/ft,<br>140 lb. 30"<br>free-fall<br>drop hamme | Material Description   | Elev.<br>(ft) | Remarks |
|----------------|--------------|----------------|--------------------|---|--|---------------|---------|
| 95-            |              |                |                    |   | Generally sandier and coarser with intermittent horizons of fine clayey sand.' Layer continued from previous page'               | 4108          |         |
| 105            |              |                |                    |   | Clay, medium plasticity, trace sand, gray brown.   | 4098          |         |
| 110<br>115     |              |                |                    |   | Clayey Sand, fine- to medium grained, medium plasticity, trace gravel ranging up to 1/2 inch,                                    | 4088          |         |
| 120            |              |                |                    |   | subround, mostly volcanics.  | 4078          |         |
| 125 —<br>130 — |              |                |                    | _   | Sand with Silt with Gravel, poorly graded, subangular,   | 4073          |         |
| 135 —<br>140 — |              |                |                    |   | medium- to coarse grained;<br>mixed volcanics including tan,<br>dusky red and gray rhyolites,<br>trace yellow jasper, basalt and | 4063          |         |
| 145 <u> </u>   |              |                |                    |   | Increasing gravel with depth.  | 4053          |         |
| 155            |              |                |                    |   | Occasional intervals of clayey sand.  Gravels with Sand, poorly graded, approximately 1/2-3/4 inch mixed values in and           | 4048          |         |
| 160<br>165     |              |                |                    |   | inch, mixed volcanics: tan and<br>dusky red rhyolite,<br>volcaniclastics, yellow gray<br>chert.                                  | 4038          |         |
| 170<br>175     |              |                |                    |   | Clayey Gravel with Sand  | 4028          |         |
| -              |              |                |                    |   |  | 4023          |         |

**SAMPLE TYPE LEGEND** 



**Auger Cuttings Sample** 



### **BOREHOLE LOG INW-1**



| Client Lightning Dock Geothermal HI-01, L |                                  | Surface Completion Stickup       |
|---|----------------------------------|----------------------------------|
| Project Number <u>11-517-00102.06</u>     | Start Date 12/3/2013             | Completed <u>12/3/2013</u>       |
| Field Geologist E. Koenig                 | Formation of Completion Alluvium | Filter Pack 565 - 600 feet       |
| Drilling Contractor Rodgers & Co., Inc.   | Borehole Diameter 8 inches       | Screened Interval 570 - 590 feet |
| Driller Art Baeza                         |                                  |                                  |
| Drilling Method Mud Rotary                | N (ft) 417682                    | E (ft)                           |
| Elevation TOC 4199.58 ft above MSL        | · ,                              | •                                |
| Elevation Pad4198.13 ft above MSL         | ▼ Static Water Level (BGS/Elev.) | MSL) 4121.22 ft above MSL        |

| Depth<br>(ft)  | Well Diagram | Graphic<br>Log | Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fall<br>frop hammer | Material Description  | Elev.<br>(ft)    | Remarks                         |
|----------------|--------------|----------------|--------------------|--|---|------------------|---------------------------------|
| 185            |              |                |                    |  | Sand, poorly graded, medium-<br>to coarse grained, subangular<br>highly cemented and far less<br>heterogeneous than previously<br>-mainly red-brown rhyolite. | 4018             |                                 |
| 190 —<br>195 — |              |                |                    |  | Clay with fine Sand, medium plasticity.   | 4008             |                                 |
| 200            |              |                |                    |  |   | 3998             |                                 |
| 205            |              |                |                    |  | Sand with Gravel, poorly graded, medium- to coarse grained, subangular, primarily   | 3993             |                                 |
| 210-           |              |                |                    |  | red brown rhyolite, very hard and well cemented.  | 3988             |                                 |
| 215~           |              |                |                    |  |   | 3983             |                                 |
| 220            |              |                |                    |  |   | 3978             |                                 |
| 225            |              |                |                    |  |   | 3973             |                                 |
| 230 —          |              |                |                    |  | Clayey Sand with Gravel,<br>predominantly medium- to<br>coarse grained, medium  | 3968 3<br>3963 3 |                                 |
| 240            |              |                |                    |  | plasticity, reddish brown.  Fine-to medium grained, gray  | 3958             |                                 |
| 245            |              |                |                    |  | brown   | 3953             |                                 |
| 250            |              |                |                    |  | Clay, medium plasticity,  | 3948             |                                 |
| 255            |              |                |                    |  | greenish gray.  | 3943             |                                 |
| 260            |              |                |                    |  |   | 3938             |                                 |
| 265            |              |                |                    |  |   | 3933             | Change from tricone to PDC bit. |

### **SAMPLE TYPE LEGEND**



Auger Cuttings Sample



### **BOREHOLE LOG INW-1**



| Project N<br>Field Geo                          | ologist E. Koenig                                      | Start Da  | ate 12/3/2013 Completed on of Completion Alluvium   | 12/3/2013   | Stickup<br>- 600 feet   |
|---|--|---|---|---|---|
| Drilling C                                      | ontractor Rodgers & Co., In                            | Bo  | rehole Diameter <u>8 inches</u> S   | Screened Interval   | 570 - 590 feet  |
| Driller<br>Drilling M<br>Elevation<br>Elevation | TOC 4199.58 ft above MSI                               |   | E (ft)  |   |   |
| Depth<br>(ft)                                   | Well Diagram   | Graphic<br>Log<br>Sample<br>Interval<br>Blows/ft. | Material Description  | Elev.<br>(ft)   | Remarks   |
| 275 <del>-</del><br>280 <del>-</del>            |  |   | Sand with Gravel, poorly graded, medium- to coarse grained, angular; gravel is flattened and subround to subangular, material mostly volcanically derived: red brown, | 3928 - 3923 - 3928 - 392 | Change from tricone to PDC bit.   |
| 285 <u> </u>                                    | -2 inch schedule<br>80 CPVC<br>casing; Cement<br>grout |   | gray and purplish gray rhyolites with trace greenish alteration.  Very hard and well-cemented.'  Layer continued from previous  |   |   |
| 295<br>300                                      |  |   | page' Sand, angular, much easier to drill through; change in lithology to mostly quartz with only ~5%   | 3903  |   |
| 305   |  |   | volcanics. Some clayey horizons toward bottom of unit.  Clay, medium plasticity, bright red brown, possibly weathered or hydrothermally altered                       | 3893  |   |
| 310   |  |   | rhyolite. Intermittent horizons of hard sands. Clay, medium plasticity.   | 3888  | Trip out and change back to tricone bit at  |
| 320 <del>-</del><br>325 -                       |  |   | Hard sands  Alternating Sandy and clayey layers.  | 3878  | 320 feet BGS per<br>Troy Richardson's<br>instructions. Material<br>on PDC bit was |
| 330   |  |   | Gravel, poorly graded, ranging up to 1 inch, flattened and subround, mostly volcanics: rec brown and gray rhyolites with  | d 3868  | brown clay and purplish gray pumice.  |
| 335 <u> </u>                                    |  |   | visible sanidine crystals, trace<br>quartz grains and slight trace<br>grains with either greenish<br>alteration or olivine content.                                   | 3863  |   |
| 345   |  |   | Occasional clay or clayey sand horizons below 335 feet.   | 3853  |   |

**SAMPLE TYPE LEGEND** 



350

355

**Auger Cuttings Sample** 



Grading sandier with depth.

3848

3843

### **BOREHOLE LOG INW-1**



| Client Lightning Dock Geothermal HI-01, I | LC <sub>Type</sub> of Completion Monitoring Well | Surface Completion Stickup      |  |
|---|--|---------------------------------|--|
| Project Number11-517-00102.06             | Start Date12/3/2013                              | Completed 12/3/2013             |  |
| Field Geologist E. Koenig                 | Formation of Completion Alluvium                 | Filter Pack 565 - 600 feet      |  |
| Drilling Contractor Rodgers & Co., Inc.   | Borehole Diameter 8 inches                       | Screened Interval570 - 590 feet |  |
| Driller Art Baeza                         |  |                                 |  |
| Drilling Method Mud Rotary                | N (ft) <b>417682</b>                             | E (ft)2412393                   |  |
| Elevation TOC 4199.58 ft above MSL        | , ,  |                                 |  |
| Flevation Pad 4198.13 ft above MSL        | ▼ Static Water Level (BGS/Flev                   | MSI ) 4121 22 ft above MSI      |  |

| Depth<br>(ft)   | Well Diagram | Graphic<br>Log | Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fail<br>drop hammer | Material Description   | Elev.<br>(ft) | Remarks |
|---|--------------|----------------|--------------------|--|--|---------------|---------|
| 465 –<br>465 –<br>475 –<br>475 –<br>480 –<br>485 –<br>490 – |              |                |                    |  | Sand, poorly graded, mediumto coarse grained, mostly quartz and volcanics: brown and red brown rhyolite, trace more mafic material, slight trace limonite coated grains, greenish alteration in a few grains.  Clay with Gravel, high plasticity, gray.  Sand with very fine gravel, poorly graded, mediumto coarse grained, angular: quartz and volcanics with slight trace clay shale fragments. | 3748          |         |
| 500   |              |                |                    |  | Gravel, size unknown, mixed volcanics with slight trace blue gray clay shale fragments.  Sand, poorly graded, mediumto coarse grained, subangular, quartz and mixed volcanics, slight trace clay shale fragments.  | 3698          |         |
| 530   |              |                |                    |  |  | 3668          |         |

**SAMPLE TYPE LEGEND** 



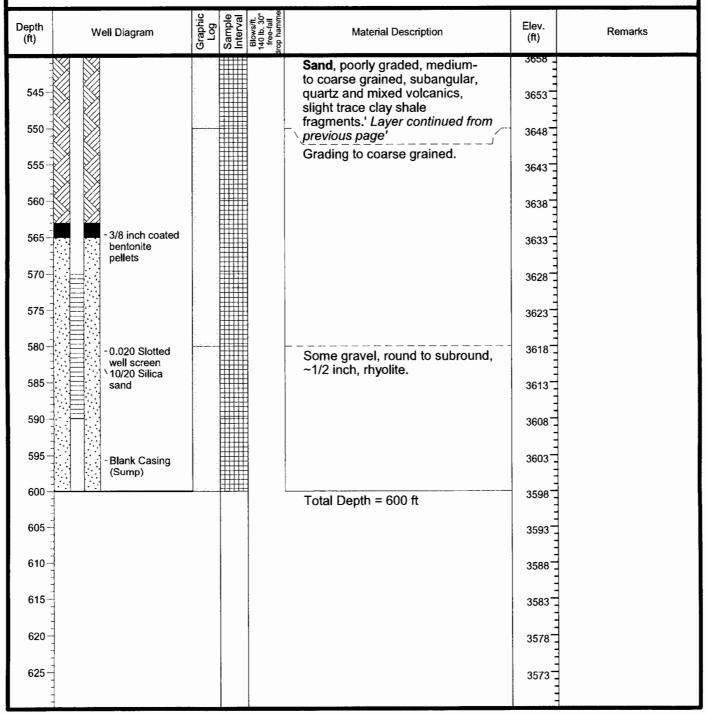
Auger Cuttings Sample



### BOREHOLE LOG INW-1



| Client Lightning Dock Geothermal HI-01, LL |                                  | Surface Completion Stickup       |
|--|----------------------------------|----------------------------------|
| Project Number11-517-00102.06              | Start Date                       | Completed                        |
| Field Geologist E. Koenig                  | Formation of Completion Alluvium | Filter Pack 565 - 600 feet       |
| Drilling Contractor Rodgers & Co., Inc.    | Borehole Diameter 8 inches       | Screened Interval 570 - 590 feet |
| Driller Art Baeza                          |                                  |                                  |
| Drilling Method Mud Rotary                 | N (ft) 417682                    | E (ft)                           |
| Elevation TOC 4199.58 ft above MSL         |                                  |                                  |
| Elevation Pad 4198.13 ft above MSL         | ▼ Static Water Level (BGS/Elev.) | MSL) 4121.22 ft above MSL        |



SAMPLE TYPE LEGEND



Auger Cuttings Sample

Split Spoon Sample



### Summary of Production Injection Well Analytical Results Lightning Dock Geothermal Hi-01, LLC - Hidalgo County, New Mexico TABLE 1

|   |                          | Well ID<br>Fluid Type | LDG 45-7<br>Single Phase   | LDG 45-7<br>Single Phase Fluid | LDG 45-7<br>Flashed Fluid | LDG 45-7<br>Single Phase Fluid | LDG 45-7<br>Total Fluid | LDG 53-7<br>Single Phase Fluid        | LDG 53-7<br>Single Phase Fluid             | LDG 55-7<br>Single Phase Fluid | LDG 55-7<br>Flashed Fluid | LDG 55-7/<br>Total Fluid   | LDG 55-7<br>Flashed Fluid | LDG 55-7<br>Total Fluid | LDG 63-7/<br>Single Phase Fluid |                                  |
|---|--------------------------|-----------------------|--|--------------------------------|---------------------------|--------------------------------|-------------------------|---------------------------------------|--|--------------------------------|---------------------------|--|---------------------------|-------------------------|---------------------------------|----------------------------------|
| HAMPER HERE   | NMAC 20.6.2              | Sample ID Sample Date | 1312A59-001<br>12/19/2013  | 1/26/12                        | 1/26/12                   | 12/8/11                        | 1/26/12                 | 1312666                               | 1/26/12                                    | 1312055-001                    | 14949-1<br>8/5/10         | 8/5/10   | 14949-2<br>8/5/10         | 14949-2<br>8/5/10       | 1312A59-002<br>12/20/13         | WW63-7<br>8/28/12                |
| Analyte   | Standard<br>Dissolved    |                       | to a section of the s | L                              |                           |                                |                         | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Post Company Secretary Secretary Secretary | have a second of the second    |                           | V 10 - 170 - | 2.50                      |                         |                                 | Samuel Construction Construction |
| ( A   | Concentration            |                       | 0.012  | 0.018                          | 0.015                     | 0.0098                         | 0.014                   | ND                                    | 0.016                                      | 0.0074                         | 0.02                      | 0.010  | 0.010                     | 0.017                   | 22                              | 0.055*                           |
| 1 Arsenic (As) 2 Barium (Ba)  | 0.1 mg/l                 |                       | 0.012  | 0.076                          | 0.061                     | 0.054                          | 0.05861                 | 0.038                                 | 0.042                                      | 0.094                          | 0.02                      | 0.019  | 0.018                     | 0.017                   | 3.2<br>0.051                    | 0.056*<br>0.014*                 |
| 3 Cadmium (Cd)  | 0.01 mg/l                |                       | ND   | NA                             | NA                        | ND                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA NA                     | NA                      | ND                              | NA NA                            |
| Chromium (Cr)   | 0.05 mg/l                |                       | NA   | NA                             | NA                        | ND                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA                        | NA                      | NA                              | NA                               |
| 5 Cyanide (CN)  | 0.2 mg/l                 |                       | ND   | NA                             | NA .                      | ND                             | NA .                    | ND                                    | NA 11.5                                    | NA O.F.                        | NA                        | NA   | NA                        | NA                      | ND                              | NA                               |
| Fluoride (F) Lead (Pb)  | 1.6 mg/l<br>0.05 mg/l    |                       | 14<br>ND   | 11.1<br>NA                     | 11.6<br>NA                | 10<br>ND                       | 11<br>NA                | 1.4<br>ND                             | 11.6<br>NA                                 | 9.5<br>ND                      | 10.8<br>NA                | 10.3<br>NA   | 9.37<br>NA                | 8.93<br>NA              | 0.0011                          | 14.2<br>NA                       |
| 8 Total Mercury (Hg)  | 0.002 mg/l               |                       | ND   | NA                             | NA NA                     | ND                             | NA NA                   | ND ND                                 | NA NA                                      | ND                             | NA NA                     | NA NA  | NA NA                     | NA NA                   | ND ND                           | NA NA                            |
| 9 Nitrate (NO <sub>3</sub> as N)                                    | 10.0 mg/l                |                       | ND   | NA                             | NA                        | ND                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA                        | NA                      | ND                              | <0.500                           |
| O Selenium (Se)   | 0.05 mg/l                |                       | 0.0017   | NA                             | NA                        | 0.0034                         | NA                      | NA                                    | NA   | 0.0038                         | NA                        | NA   | NA                        | NA                      | 0.0021                          | NA                               |
| 1 Silver (Ag)   | 0.05 mg/l                |                       | ND   | NA                             | NA                        | ND                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA                        | NA                      | ND                              | NA                               |
| 2 Uranium (U)   | 0.03 mg/l<br>30 pCi/L    |                       | ND<br>6.49 ± 1.35 (0.367)  | NA<br>NA                       | NA<br>NA                  | ND<br>NA                       | NA<br>NA                | ND<br>0.166 ± 0.380 (0.225)           | NA<br>NA                                   | ND<br>NA                       | NA<br>NA                  | NA<br>NA   | NA<br>NA                  | NA<br>NA                | ND<br>-0.220±0.306 (0.775)      | NA NA                            |
| 3 Radioactivity: Radium (Ra 226) 4 Radioactivity: Radium (Ra 228)   | 30 pCi/L                 |                       | 0.522 ± 0.331 (0.614)  | NA<br>NA                       | NA NA                     | NA NA                          | NA<br>NA                | 0.414 ± 0.460 (0.931)                 | NA NA                                      | NA<br>NA                       | NA<br>NA                  | NA<br>NA   | NA<br>NA                  | NA<br>NA                | 0.0100 ± 0.365 (0.847)          | NA<br>NA                         |
| 5 Radionuclides: Radon 222  | None                     |                       | 2560   | NA NA                          | NA NA                     | NA NA                          | NA NA                   | -67.8 U                               | NA NA                                      | NA NA                          | NA NA                     | NA NA  | NA NA                     | NA                      | 78.6 U                          | NA NA                            |
| 6 Benzene   | 1.0 ug/l                 |                       | ND   | NA                             | NA                        | NA                             | NA                      | ND                                    | NA   | 1.8                            | NA                        | NA   | NA                        | NA                      | 4.8                             | NA                               |
| 7 Polychlorinated biphenyls (PCB's)                                 | 1 ug/l                   |                       | ND   | NA                             | NA                        | NA                             | NA                      | ND                                    | · NA                                       | ND                             | NA                        | NA   | NA                        | NA                      | ND                              | NA                               |
| 8 Toluene   | 750 ug/l                 |                       | ND ND  | NA NA                          | NA NA                     | NA NA                          | NA NA                   | ND                                    | NA   | 3.4                            | NA                        | NA   | NA NA                     | NA                      | 2                               | NA                               |
| 9 Carbon Tetrachloride 0 1,2-dichloroethane (EDC)                   | 10 ug/l<br>10 ug/l       |                       | ND<br>ND   | NA<br>NA                       | NA<br>NA                  | NA<br>NA                       | NA<br>NA                | ND<br>ND                              | NA<br>NA                                   | ND<br>ND                       | NA<br>NA                  | NA<br>NA   | NA<br>NA                  | NA<br>NA                | ND<br>ND                        | NA<br>NA                         |
| 1 1.1-dichloroethene (1.1-DCE)                                      | 5 ug/l                   |                       | ND   | NA NA                          | NA NA                     | NA NA                          | NA NA                   | ND                                    | NA NA                                      | ND                             | NA NA                     | NA NA  | NA NA                     | NA NA                   | ND                              | NA NA                            |
| 2 1,1,2,2-tetrachloroethylene (PCE)                                 | 20 ug/i                  |                       | ND   | NA                             | NA                        | NA                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA                        | NA                      | 370                             | NA                               |
| 3 1,1,2-trichloroethylene (TCE)                                     | 100 ug/l                 |                       | ND   | NA                             | NA                        | NA                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA                        | NA                      | 1                               | NA                               |
| 4 ethylbenzene  | 750 ug/l                 |                       | ND   | NA                             | NA                        | NA                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA                        | NA                      | ND                              | NA                               |
| 5 total xylenes   | 620 ug/l                 |                       | ND<br>ND   | NA                             | NA                        | NA NA                          | NA                      | ND ND                                 | NA NA                                      | ND                             | NA                        | NA   | NA                        | NA                      | ND                              | NA                               |
| 76 methylene chloride<br>77 chloroform                              | 100 ug/l                 |                       | ND<br>ND   | NA<br>NA                       | NA<br>NA                  | NA<br>NA                       | NA<br>NA                | ND<br>ND                              | NA<br>NA                                   | ND<br>ND                       | NA<br>NA                  | NA<br>NA   | NA<br>NA                  | NA<br>NA                | ND<br>ND                        | NA<br>NA                         |
| 8 1,1-dichloroethane  | 25 ug/l                  |                       | ND   | NA                             | NA NA                     | NA NA                          | NA NA                   | ND                                    | NA NA                                      | ND                             | NA NA                     | NA NA  | NA NA                     | NA                      | ND                              | NA NA                            |
| 9 ethlene dibromide (EDB)   | 0.1 ug/l                 |                       | ND   | NA                             | NA                        | NA                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA                        | NA                      | ND                              | NA                               |
| 0 1,1,1-trichloroethane   | 60 ug/l                  |                       | ND   | NA                             | NA                        | NA                             | NA                      | ND                                    | NA NA                                      | ND                             | NA                        | NA   | NA                        | NA                      | ND                              | NA NA                            |
| 1 1,1,2-trichloroethane   | 10 ug/l                  |                       | ND   | NA                             | NA                        | NA                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA                        | NA                      | ND                              | NA                               |
| 2 1,1,2,2-tetrachloroethane   | 10 ug/l                  |                       | ND   | NA<br>NA                       | NA<br>NA                  | NA                             | NA<br>NA                | ND                                    | NA<br>NA                                   | ND<br>ND                       | NA                        | NA   | NA<br>NA                  | NA<br>NA                | ND                              | NA                               |
| vinyl chloride  4 PAH's: total naphthalene + monomethylnaphthalenes | 1 ug/l<br>30 ug/l        |                       | ND<br>ND   | NA<br>NA                       | NA<br>NA                  | NA<br>NA                       | NA<br>NA                | ND<br>ND                              | NA<br>NA                                   | ND<br>ND                       | NA<br>NA                  | NA<br>NA   | NA<br>NA                  | NA<br>NA                | ND<br>ND                        | NA<br>NA                         |
| benzo-a-pyrene  | 0.7 ug/l                 |                       | ND ND  | NA NA                          | NA NA                     | ND                             | NA NA                   | ND                                    | NA NA                                      | ND                             | NA NA                     | NA .   | NA NA                     | NA                      | ND                              | NA NA                            |
| 76 TPH 418.1  | None                     |                       | 52   | NA                             | NA                        | NA                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA                        | NA                      | 2.8                             | NA                               |
|   |                          |                       |  | 22.2                           |                           |                                | 05.0                    |                                       |  | 4.00                           | -                         |  |                           |                         |                                 |                                  |
| 1 Chloride (CI)   | 250.0 mg/l<br>1.0 mg/l   |                       | 97<br>ND   | 86.9<br>NA                     | 90.1<br>NA                | 86<br>ND                       | 85.8<br>NA              | 33<br>ND                              | 79<br>NA                                   | 140<br>ND                      | 90.2<br>NA                | 86<br>NA   | 89.8<br>NA                | 85.6<br>NA              | 67<br>0.029                     | 78.1<br>0.006*                   |
| 2 Copper (Cu)<br>3 Iron (Fe)  | 1.0 mg/l                 |                       | ND ND  | 0.026                          | 0.021                     | ND                             | <0.005                  | ND<br>ND                              | 0.04                                       | 0.4                            | ND ND                     | ND ND  | ND ND                     | ND                      | 0.29                            | 3.91*                            |
| 4 Manganese (Mn)  | 0.2 mg/l                 |                       | 0.018  | 0.027                          | 0.0082                    | ND                             | 0.0078                  | 0.067                                 | 0.002                                      | 0.13                           | 0.016                     | 0.015  | 0.0069                    | 0.0066                  | 0.028                           | 0.183*                           |
| 5 Phenols   | 0.005 mg/l               |                       | ND   | NA                             | NA                        | ND                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA                        | NA                      | 18                              | NA                               |
| Sulfate (SO <sub>4</sub> )  | 600.0 mg/l               |                       | 540  | 507                            | 526                       | 510                            | 501                     | 120                                   | 453  | 630                            | 531                       | 506  | 526                       | 501                     | 250                             | 303                              |
| 7 Total Dissolved Solids (TDS)                                      | 1000.0 mg/l              |                       | 1270<br>ND   | 1370                           | 1390                      | 1200                           | 1324<br>NA              | 321                                   | 1200                                       | 842                            | 1370                      | 1306   | 1360                      | 1296                    | 800                             | 1020                             |
| 8 Zinc (Zn)<br>9 pH   | 10.0 mg/l<br>between 6-9 |                       | 6.82   | NA<br>6.64                     | NA<br>8.37                | ND<br>6.7                      | NA<br>NA                | 0.049<br>7.53                         | NA<br>9.51                                 | ND<br>6.89                     | NA<br>6.97                | NA<br>NA   | 6.6                       | NA<br>NA                | 0.027<br>8.41                   | NA<br>9.45                       |
|   |                          | 1                     | 0.02   | 0.04                           | 0.57                      | 0.7                            |                         | 7.55                                  | 3.31                                       | 0.05                           | 6.57                      | 100  | 0.0                       |                         | 0.42                            | 5.45                             |
| 1 Aluminum (AI)   | 5.0 mg/l                 |                       | 0.21   | 0.177                          | 0.175                     | ND                             | 0.167                   | ND                                    | 0.209                                      | 0.08                           | NA                        | NA   | NA                        | NA                      | 0.04                            | NA                               |
| 2 Boron (B)   | 0.75 mg/l                |                       | 0.46   | 0.441                          | 0.432                     | 0.46                           | 0.411                   | 0.12                                  | 0.482                                      | 0.65                           | 0.469                     | 0.447  | 0.467                     | NA                      | 2<br>ND                         | 2.09*                            |
| 3 Cobalt (Co)<br>4 Molybdenum (Mo)                                  | 0.05 mg/l<br>1.0 mg/l    |                       | ND<br>0.026  | NA<br>NA                       | NA<br>NA                  | ND<br>0.03                     | NA<br>NA                | ND<br>ND                              | NA<br>NA                                   | ND<br>0.046                    | NA<br>NA                  | NA<br>NA   | NA<br>NA                  | NA<br>NA                | 0.094                           | NA<br>NA                         |
| 5 Nickel (Ni)   | 0.2 mg/l                 |                       | ND   | NA NA                          | NA NA                     | ND                             | NA NA                   | ND                                    | NA NA                                      | ND ND                          | NA NA                     | NA   | NA                        | NA                      | 0.049                           | NA NA                            |
| 6 Bromide   | None                     |                       | ND   | NA                             | NA                        | NA                             | NA                      | NA                                    | NA   | 0.46                           | NA                        | NA   | NA                        | NA                      | ND                              | NA                               |
| 7 Lithium (Li)  | None                     |                       | 0.9  | NA                             | NA                        | NA                             | NA                      | 0.0887                                | NA   | 0.8                            | NA                        | NA   | NA                        | NA                      | 0.6                             | NA                               |
| Rubidium (Rb)   | None                     |                       | 0.25   | NA                             | NA                        | NA                             | NA                      | 0.0127                                | NA   | 0.3                            | NA                        | NA   | NA                        | NA                      | 0.07                            | NA                               |
| 9 Tungsten  | None                     |                       | ND   | NA                             | NA                        | NA                             | NA                      | ND                                    | NA   | ND                             | NA                        | NA   | NA                        | NA                      | ND                              | NA                               |
| NOTES   |                          |                       |  |                                |                           |                                |                         |                                       |  |                                |                           |  |                           |                         |                                 |                                  |
| NA = Not Analyzed   |                          |                       | 1000   |                                |                           |                                |                         |                                       |  |                                |                           |  |                           |                         |                                 |                                  |
| NA = Not Detected   |                          |                       |  |                                |                           |                                |                         |                                       |  |                                |                           |  |                           |                         |                                 |                                  |
| * Total metal not dissolved metal                                   |                          |                       |  |                                |                           |                                |                         |                                       |  |                                |                           |  |                           |                         |                                 |                                  |
| U = Not detected at minimum detectable concentra                    |                          |                       |  |                                |                           |                                |                         |                                       |  |                                |                           |  |                           |                         |                                 |                                  |
| H = Anaylsis performed past recommended holding                     | unte                     |                       | L  |                                |                           |                                |                         |                                       |  |                                |                           |  |                           |                         |                                 |                                  |

# Summary of Monitoring Well Analytical Results Lightning Dock Geothermal HI-01, LLC - Hidalgo County, New Mexico TABLE 2

|  | 100                             | Well ID:     | MW-1                  | MW-1B                 | MW-2                   | MW-2 Duplicate        | MW-3                  | MW-4                  | MW-5                  | MW-6                  | INW1                  | LDG 47-7                |
|--|---------------------------------|--------------|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------|
| 4/10                                       | NMAC 20.6.2                     | Sample Date: | 11/25/2013            | 12/11/2013            | 11/25/2013             | 11/25/2013            | 11/24/2013            | 11/24/2013            | 11/24/2013            | 11/23/2013            | 12/20/2013            | 12/21/2013              |
|  | Std. Dissolved<br>Concentration | Lab ID:      | 1311B14-001           | 1312659-001           | 1311B14-002            | 1311B14-003           | 1311B14-004           | 1311B14-005           | 1311B14-006           | 1311B14-007           | 1312A59-003           | 1312840-001             |
| Analyte  1 Arsenic (As)                    | 1 mg/l                          | Lab ID.      | 0.0055                | 0.011                 | 0.0082                 | 0.0083                | 0.019                 | 0.012                 | 0.0060                | 0.020                 | 0.013                 | 0.42                    |
| 2 Barium (Ba)                              | 1 mg/l                          |              | 0.063                 | 0.14                  | 0.044                  | 0.043                 | 0.06                  | 0.059                 | 0.041                 | 0.047                 | 0.099                 | 0.13                    |
| 3 Cadmium (Cd)                             | 0.01 mg/l                       |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | MD                    | ND                    | ND                      |
| 4 Chromium (Cr)                            | 0.5 mg/l                        |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | NA                    | NA                      |
| 5 Cyanide (CN)                             | 0.2 mg/l                        |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 6 Fluoride (F)                             | 1.6 mg/l                        |              | 7.7                   | 9,3                   | 11                     | 11                    | 12                    | 4.3                   | 1.3                   | 6.9                   | 3.9                   | 12                      |
| 7 Lead (Pb)                                | 0.05 mg/l                       |              | ND                    | 0.0044                | . ND                   | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 8 Total Mercury (Hg)                       | 0.002 mg/l                      |              | 0.00079               | 0.0016                | ND                     | ND                    | 0.00034               | ND                    | 0.0010                | 0.00077               | ND                    | ND                      |
| 9 Nitrate(NO3 as N)                        | 10 mg/l                         |              | 2.6                   | 15                    | 3.1                    | 3.2                   | 2.1                   | 12                    | 42                    | 42                    | 2.9                   | ND                      |
| 10 Selenium (Se)                           | 0.05 mg/l                       |              | 0.0052                | NA                    | 0.0035                 | 0.0035                | 0.0034                | 0.033                 | 0.028                 | 0.011                 | 0.01                  | ND                      |
| 11 Silver (Ag)                             | 0.05 mg/l                       |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 12 Uranium (U)                             | 0.03 mg/l                       |              | 0.011                 | 0.0037                | ND                     | ND                    | ND                    | 0.0051                | 0.014                 | 0.0012                | 0.0013                | ND                      |
| 13 Radioactivity: Radium 266               | 30 pCi/I                        |              | 0.285 ± 0.350 (0.571) | 2.00 ± 0.722 (0.566)  | 0.266 ± 0.377 (0.638)  | 0.183 ± 0.312 (0.550) | 0.102 ± 0.375 (0.720) | 1.32 ± 0.615 (0.664)  | 0.305 ± 0.401 (0.667) | 0.140 ± 0.305 (0.562) | 1.04 ± 0.535 (0.561)  | 0.0340 ± 0.481 (0.981)  |
| 14 Radioactivity: Radium 288               | 30 pCi/I                        |              | 0.888 ± 0.456 (0.799) | 0.711 ± 0.402 (0.727) | 0.0585 ± 0.308 (0.702) | 0.468 ± 0.385 (0.767) | 0.156 ± 0.270 (0.590) | 0.542 ± 0.396 (0.772) | 0.333 ± 0.452 (0.966) | 2.53 ± 0.949 (1.39)   | 0.462 ± 0.343 (0.666) | -0.0191 ± 0.378 (0.924) |
| 15 Radionuclides: Radon 222                | None                            |              | 238                   | 676                   | 580                    | 567                   | 781                   | 1090                  | 197                   | 507                   | 1090                  | -33.4 UH                |
| 16 Benzene                                 | 1 ug/l                          |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | 23                      |
| 17 Polychlorinated biphenyls (PCB's)       | 1 ug/l                          |              | NA                    | ND                    | NA                     | NA                    | NA                    | NA                    | NA                    | NA                    | ND                    | ND                      |
| 18 Toluene                                 | 750 ug/l                        |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | 45                      |
| 19 Carbon Tetrachloride                    | 10 ug/l                         |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 20 1,2-dichloroethane (EDC)                | 10 ug/l                         |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 21 1,1-dichloroethylene (1,1-DCE)          | 5 ug/l                          |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 22 1,1,2,2,-tetrachloroethene (PCE)        | 20 ug/l                         |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 23 1,1,2-trichloroethylene (TCE)           | 100 ug/l                        | *****        | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 24 ethylbenzene                            | 750 ug/l                        |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | 1.3                     |
| 5 Total xylenes                            | 620 ug/l                        |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | 19                      |
| 26 methylene chloride                      | 100 ug/l                        |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 27 chloroform                              | 100 ug/l                        |              | 28                    | 33                    | 4.9                    | 5.2                   | 21                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 8 1,1-dichloroethane                       | 25 ug/l                         |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 29 ethlene dibromide (EDB)                 | 0.1 ug/l                        |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 30 1,1,1-trichloroethane                   | 660 ug/l                        |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 1 1,1,2-trichloroethane                    | 10 ug/l                         |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 32 1,1,2,2-tetrachloroethane               | 10 ug/l                         |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 33 vinyl chloride                          | 1 ug/l                          |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 34 PAH's; total naphthalene + naphthalenes | 30 ug/l                         |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND ?                    |
| 35 benzo-a-pyrene                          | 0.7 ug/l                        |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
| 36 TPH 418.1                               | None                            |              | ND                    | 1.3                   | ND                     | ND                    | 1.1                   | NA                    | NA                    | ND                    | 1.4                   | ND                      |
|  | 250 //                          |              | 100                   | 120                   | 06                     | 96                    | 94                    | 710                   | 230                   | 130                   | 170                   | 130                     |
| 1 Chloride (Cl)                            | 250 mg/l                        |              | 100<br>ND             | 120<br>ND             | 96<br>ND               | ND ND                 | ND                    | ND ND                 | ND                    | ND ND                 | ND ND                 | ND ND                   |
| 2 Copper (Cu)<br>3 Iron (Fe)               | 1 mg/l                          |              | ND                    | 8.5                   | ND                     | ND                    | 0.24                  | ND                    | 0.021                 | 0.39                  | 0.033                 | 0.32                    |
| 4 Manganese (Mn)                           | 0.2 mg/l                        |              | 0.21                  | 0.27                  | 0.041                  | 0.036                 | 0.18                  | 0.15                  | 0.27                  | 0.074                 | 0.019                 | 0.14                    |
| 5 Phenol                                   | 0.005 mg/l                      |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | 14                      |
| 6 Sulfate                                  | 600 mg/l                        |              | 670                   | 540                   | 510                    | 510                   | 540                   | 1200                  | 930                   | 950                   | 700                   | 250                     |
| 7 Total Dissolved Solids (TDS)             | 1000 mg/l                       |              | 1780                  | 1520                  | 1380                   | 1210                  | 1380                  | 3210                  | 2010                  | 1880                  | 1480                  | 1190                    |
| 8 Zinc (Zn)                                | 10 mg/l                         |              | ND                    | 0.015                 | 0.015                  | ND                    | ND                    | 0.048                 | 0.023                 | 0.033                 | ND                    | 0.022                   |
| 9 pH                                       | 6-9 pH Units                    |              | 7.69                  | 7.66                  | 7.6                    | 7.58                  | 8                     | 7.38                  | 7.62                  | 7.56                  | 8.59                  | 7.33                    |
| 4 AL                                       | E mali                          |              | 0.034                 | 25                    | 0.049                  | 0.024                 | 0.31                  | ND                    | ND                    | 0.63                  | 0.069                 | 0.05                    |
| 1 Aluminum (Al)                            | 5 mg/l<br>.75 mg/l              |              | 0.034                 | 0.45                  | 0.049                  | 0.36                  | 0.44                  | 0.22                  | 0.31                  | 0.39                  | 0.52                  | 2.6                     |
| 2 Boron (B)<br>3 Cobalt (Co)               | 0.05 mg/l                       |              | ND                    | ND                    | ND                     | ND                    | ND                    | ND                    | ND ND                 | ND ND                 | ND ND                 | ND                      |
| 4 Molybdenum (Mo)                          | 1.0 mg/l                        |              | 0.058                 | 0.029                 | 0.027                  | 0.026                 | 0.065                 | 0.014                 | 0.031                 | 0.035                 | 0.055                 | 0.038                   |
| 5 Nickel (Ni)                              | 0.2 mg/l                        |              | ND                    | ND ND                 | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | 0.081                   |
| 6 Bromide                                  | None                            |              | ND                    | NA NA                 | ND                     | ND                    | ND                    | 2.2                   | 1.2                   | ND                    | 0.8                   | 0.32                    |
| 7 Lithium (Li)                             | None                            |              | 0.8                   | 0.533                 | 0.7                    | 0.7                   | 0.5                   | 1.7                   | 0.4                   | 0.8                   | 0.6                   | 1                       |
| 8 Rubidium (Rb)                            | None                            |              | 0.2                   | 0.189                 | 0.1                    | 0.1                   | 0.2                   | 0.4                   | 0.1                   | 0.1                   | 0.21                  | 0.24                    |
| 9 Tungsten                                 | None                            |              | ND                    | 0.0386                | ND                     | ND                    | ND                    | ND                    | ND                    | ND                    | ND                    | ND                      |
|  |                                 |              |                       |                       |                        |                       |                       |                       |                       |                       |                       |                         |
| Notes:                                     |                                 |              |                       |                       |                        |                       |                       |                       |                       |                       |                       |                         |
| NA = not analyzed                          | -                               | -            |                       |                       |                        |                       |                       |                       |                       |                       |                       |                         |
| ND = not detected                          |                                 |              |                       |                       |                        |                       |                       |                       |                       | -                     |                       |                         |

# OIL CONSERVATION DIVISION

| ENERGY AND MINERALS DEPARTMENT   | P. O. BOX                                    |  | Adopted 10-1-74   |
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| NO. OF COPIES RECEIVED   | SANTA FE, NEW                                | MEXICO 87501   | Revised 10-1-78   |
| DISTRIBUTION   | •  |  |   |
| File   | SUNDRY NOTICES A                             | ND REPORTS   |   |
| N. M. B. M.  | ON   |  | S. Indicate Type of Lease                                     |
| U. S. G. S   | GEOTHERMAL RESO                              | URCES WELLS  | State - Fee -   |
| Operator   |  | •  | S.a State Lease No.   |
| Land Office  |  |  | Federal NM34790   |
| Do Not Use This Form for Proposals to Orill to<br>For Permit —" (Form G-101) for Such Propos                     | or to Deepen or Plug Back to a Diff<br>ole.) | ferent Reservoir. Use "Application                                     |   |
| 1. Type of well Geothermal Producer  | Temp. Observation                            |  | 7. Unit Agreement Name  |
|  | Injection/Disposal                           | ]  |   |
| 2. Name of Operator  |  |  | 8. Farm or Lease Name   |
| Los Lobos Renewable Power, LLC   |  |  | 9. Well No.   |
| 3. Address of Operator   | Call Lake City Liber 94404                   |  | LDG 55-7  |
| 136 South Main Street, Ste. 600, S   | balt Lake City, Otan 84101                   |  | 10. Field and Pool, or Wildcat                                |
|  | Q For From The South                         | Line and 2412 Feet From  | Lightning Dock Geothermal                                     |
| Unit Letter  | 2 reet From the OUTTO                        | Line and   |   |
| The East Line, Section 7   | Township 25S                                 | Range 19W NMPM.  |   |
| The Line of the second   |  |  |   |
|  | 15. Elevation (Show whether L                | OF, RT, GR, etc.)  | 12. County  |
|  | 4198 GR                                      |  | Hidalgo   |
| 16. Check App  | ropriate Box To Indicate Natu                | re of Notice, Report or Other Da                                       | ta  |
| NOTICE OF INTENTION  | 1 70:  | SUBSEQUE   | NT REPORT OF:   |
| PERFORM REMEDIAL WORK D PL   | JG AND ABANDON                               | REMEDIAL WORK  | ALTERING CASING   |
| TEMPORARILY ABANDON  |  | COMMENCE DRILLING OPNS.  | PLUG & ABANDONMENT  |
| JLL OR ALTER CASING CH   | ANGE PLANS                                   | CASING TEST AND CEMENT JOB   | □-  |
|  |  | OTHER Cement bond log p  | erformed in   |
|  |  | STHER COMMISSION DO  | <u>Sitoring in </u>   |
| OTHÉR  |  |  |   |
| 17. Describe Proposed or completed Operation   | ons (Clearly state all persinent de          | tails, and give pertinenes dates, inch                                 | iding estimated date of starting any                          |
| proposed work) SEE RULE 203.   |  | •  |   |
| Subsequent notice of a cement bon  | d log.                                       |  |   |
| ·  |  | •  |   |
| Baker Hughes performed a cement<br>Please find attached a copy of this<br>required for this well to be placed or | cement bond log and conside                  | 08 and the cement bond appear<br>er it partial fulfillment of the mecl | ed to be in good condition.<br>nanical integrity test that is |
| radance in the tien to be breaked  |  |  |   |
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| 1. I hereby certify that the information above   | e is true and complete to the best           | of my knowledge and belief.  |   |
| D = D1. 1  | _  |  |   |
| SIGNED David Wiffour   | ney, PG TITLE Agent                          | for Los Lobos Renewable Power, L                                       | LC DATE March 22, 2013  |
|  | 1  |  |   |

APPROVED BY LAND, Charing TITLE ENVIRONMENTAL ENGINEER DATE 11/12/2013



November 6, 2013

Mr. Carl Chavez, CHMM
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3490
Carl J. Chavez@state.nm.us

Project 115170010
PEOCE 12013 NOV 12 P 4: 0'

RE: Subsequent Sundry Notice Form G-103 for Geothermal Production Well LDG 55-7 for Lightning Dock Geothermal HI-01, LLC, Section 7, Twp. 25S, Rng. 19W, Hidalgo County, New Mexico

Dear Mr. Chavez:

On behalf of Lightning Dock Geothermal HI-01, LLC, AMEC Environment & Infrastructure, Inc. (AMEC) respectfully submits the attached Subsequent Sundry Notice for the clean out and liner installation in LDG-55-7 following successful completion of the casing integrity testing. The liner was set at 1486 to 570 feet with 480 feet of overlap inside the production casing. We believe open hole to be present below 1486 feet but could not get the liner to pass this depth.

Mr. Dade will receive two originals at his office in Artesia. Thank you very much for your assistance in the development of this important energy project. Should you have questions regarding this sundry notice please do not hesitate to contact me by email at David.Janney@amec.com or by phone at (505) 821-1801.

Respectfully submitted,

David W. Janney, PG

Agent for Lightning Dock Geothermal HI-01, LLC

Cc: Mr. Randy Dade - NMOCD Artesia

Mr. Chuck Smiley - Lightning Dock Geothermal HI-01, LLC

Ms. Michelle Henrie -- Attorney for Lightning Dock Geothermal HI-01, LLC

**Attachments** 

One (1) Form G-103 Sundry Notice for LDG 55-7

### STATE OF NEW MEXICO

# OIL CONSERVATION DIVISION

| Form | 6-1 | 03  |   |      |
|------|-----|-----|---|------|
| Adop | ted | 10- | 1 | . 71 |
| Bovi |     |     |   |      |

| ENERGY AND MINERALS DEPARTMENT   | SANTA FE, NEW MEXICO 87501   | Adopted 10-1-74<br>Revised 10-1-78     |
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| DISTRIBUTION   | •  |  |
| File   | SUNDRY NOTICES AND REPORTS   |  |
| N. M. B. M.  | ON   | S. Indicate Type of Lease              |
| U. S. G. S   | GEOTHERMAL RESOURCES WELLS   | State Fee                              |
| Operator   |  | S.a State Lease No.                    |
| Land Office .  |  | Federal NM34790                        |
| Do Not Use This Form for Proposals to Drill or For Permit - " (Form G-101) for Such Proposels. | to Deepen or Plug Back to a Different Reservoir. Use "Application.)  |  |
| 1. Type of well Geothermal Producer  | Temp. Observation  | 7. Unit Agreement Name                 |
| Low-Temp Thermal   | Injection/Olsposal   | 1                                      |
| 2. Name of Operator  |  | 8. Farm or Lease Name                  |
| Lightning Dock Geothermal HI-01, L   | I.C.   | Federal NM34790                        |
| 3. Address of Operator   |  | 9. Well No.                            |
| 136 South Main Street, Ste. 600, Sal   | It Lake City Utah 84101  | LDG 55-7                               |
| 4. Location of Well  | t Lune Oily, Otan O-101  | 10. Field and Pool, or Witdcat         |
|  | Feet From The South Line and 2412 Feet From  | Lightning Dock Geothermal              |
| Unit Letter J 2329   | _ reet From The  | minimum.                               |
|  | - 000 4014   |  |
| The East Line, Section/  | Township 25S Range 19W NAPA  |  |
| mmmmm  | 15. Elevation (Show whether DF, RT, GR, etc.)  | 12. County                             |
|  | 4  |  |
|  | 4198 GR  | Hidalgo ////////                       |
| 16. Check Appro  | priate Box To Indicate Nature of Notice, Report or Other I   | Data                                   |
| NOTICE OF INTENTION T  | TO: SUBSEQU  | JENT REPORT OF:                        |
| PERFORM REMEDIAL WORK 🔲 PLUG   | AND ABANDON  REMEDIAL WORK   | ALTERING CASING                        |
| MPORARILY ABANDON  | COMMENCE DRILLING OPNS.  | PLUG & ABANDONMENT                     |
| LL OR ALTER CASING CHAN  | IGE PLANS . CASING TEST AND CEMENT JO  |  |
|  | Well clean out and   | Lliner setting                         |
|  | OTHER Well clean out and   | liner setting                          |
| OTHÉR  |  |  |
|  |  |  |
|  | (Clearly state all pertinent details, and give pertinenet dates, in  | chiding estimated date of starting any |
| proposed work) SEE RULE 203.   | •  |  |
| Well cleanout and running slotted line   | r. '   |  |
| Slotted liner was intended to be run to  | pth of 2349 feet between October 14 and 18, 2013.<br>the total depth of 2349 feet. Due to tight hole at 1516 fe<br>1486 feet. Open well bore occurs from 1486 feet to 2349 |  |
| Liner overlap in the production casing   | was intended to be 100 feet. Liner over lap is now from  | 570 feet to 1050 feet.                 |
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| I hereby certify that the information above is   | s true and complete to the best of my knowledge and belief.  |  |
|  | Agent for Lightning Dock Geothermal HI-  | 01,                                    |
| SIGNED Dived Lytames,  | TITLELIC.  | DATE 11/8/2013                         |
|  |  |  |

TITLE Environmental Engineer DATE 12/17/2013



July 8, 2013

Project 1151700102

Mr. Randy Dade
District 2 Supervisor
New Mexico Oil Conservation Division
811 South First Street
Artesia, NM 88210
575-748-1283
Randy.Dade@state.nm.us

RE: Sundry Notice Form G-103 for Geothermal Production Well LDG 55-7 for Los Lobos Renewable Power, LLC, Section 7, Twp. 25S, Rng. 19W, Hidalgo County, New Mexico

Dear Mr. Dade:

On behalf of Los Lobos Renewable Power, LLC, AMEC Environment & Infrastructure respectfully submits the attached Sundry Notice for the cleanout and completion of LDG 55-7. LDG 55-7 is located on federal geothermal lease NM 34790 in Hidalgo County, New Mexico. There is one original and one copy of the form included in this submittal. Mr. Carl Chavez will also receive an original at his office in Santa Fe. AMEC will also submit a Sundry Notice for this work to Mr. Patrick Moran with the Bureau of Land Management in Las Cruces, New Mexico and an equivalent type of form will be submitted to Mr. Martin McMillan with the New Mexico Office of the State Engineer in Deming.

Thank you very much for your assistance in the development of this important energy project. Should you have questions regarding these applications, please do not hesitate to contact me by email at David.Janney@amec.com or by phone at (505) 821-1801.

Respectfully submitted,

David W. Janney, PG

Agent for Los Lobos Renewable Power, LLC

Cc: Mr. Carl Chavez - NMOCD Santa Fe

Mr. Chuck Smiley - Los Lobos Renewable Power, LLC (Lightning Dock

Geothermal HI-01, LLC)

Ms. Michelle Henrie - Attorney for Los Lobos Renewable Power, LLC

### **Attachments**

Two (2) Forms G-103 Sundry Notice for LDG 55-7

Two (2) Cleanout & Completion program for LDG 55-7 by Capuano Engineering Consultants

### STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT

APPROVED BY \_\_\_

CONDITIONS OF APPROVAL, IF ANY

# OIL CONSERVATION DIVISION P. C. BOX 2000

| Form 6-1 |         |
|----------|---------|
| Adopted  | 10-1-74 |
| Revised  | 10-1-78 |

| ENERGY WILL WINGLING OF  |  | SANTA FE, NE                           | W MEXICO 87501   | Revised 10-1-78                            |
|--|--|--|--|--|
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| DISTRIBUTION   |  | •                                      |  |  |
| File   |  | SUNDRY NOTICE                          | S AND REPORTS  | •  |
| N. M. B. M   |  | 01                                     |  | S. Indicate Type of Lease                  |
| U. S. G. S   |  |  |  | State   Fee                                |
| Operator   | _  | GEOTHERMAL RE                          | SOURCES WELLS  | S.a State Lease No.                        |
| Land Office  |  |  |  | Federal NM34790                            |
| Land Office  |  |  |  | Lenetal Miles 180                          |
| Do Not Use This Form for Pro-<br>For Permit (Farm G-101) for   | posels to Drift or to l<br>or Such Proposels.) | Despen or Plug Back to e               | Offferent Reservoir. Use "Applicat   | ·  |
| 1. Type of well Geothers   | real Producer                                  | Temp. Observation                      |  | 7. Unit Agreement Name                     |
| Low-Ten  | np Thermat                                     | Injection/Disposal                     |  |  |
| 2. Name of Operator  | <del></del>                                    | ······································ | •  | 8. Farm of Lease Name                      |
| Los Lobos Renewable  | o Douge LLC                                    |  |  |  |
| J. Address of Operator   | e rowel. LLC                                   |  |  | 9. Well No.                                |
|  | 4 Ob- 000 O-lk1                                | alaa Oika I Hab 04404                  |  | 1  |
| 136 South Main Stree   | et, Ste. 600, Sait L                           | ake City, Utan 84101                   |  | LDG 55-7                                   |
| 4. Location of Well  |  |  |  | Lightnian Dook Coathornal                  |
| Unit LetterK   | 2329_F   | et From The South                      | Line andFeet F   | Lightning Dock Geothermal                  |
|  |  |  |  | Millimini                                  |
| The <u>East</u> Line,  | Section 7                                      | Township _25S                          | Renge 19WN   | MPM. (()))))))))                           |
| 1 179 <u>L. C. C.</u>   |  |  |  |  |
| mmmm   | EVIIIIIII                                      | . Elevation (Show whether              | er DF. RT. GR. etc.)   | 12. County                                 |
|  |  |  | 2 , , ,  |  |
|  | <i>IIIIIIII</i>                                | 4201 GR                                |  | Hidalgo /////////                          |
| 16.  | Check Appropris                                | ite Box To Indicate No                 | ature of Notice, Report or Oth   | er Data                                    |
| NOTICE C   | OF INTENTION TO:                               |  | et me  | EQUENT REPORT OF:                          |
|  |  | ND ARANDON -                           |  |  |
| PERFORM REMEDIAL WORK  | LLI PLUGAI                                     | ND ABANDON L                           | REMEDIAL WORK  | ALTERING CASING                            |
| TEMPORARILY ABANDON  | 띺  | _                                      | COMMENCE DRILLING OPN  | _ :  |
| LL OR ALTER CASING   | ☐ CHANGE                                       | PLANS                                  | CASING TEST AND CEMENT   | T JOB -                                    |
|  |  |  |  |  |
|  |  |  | OTHER  |  |
| отнёк Cleanout well a  | nd run slotted line                            | [ ]                                    | }  |  |
| •  |  | _                                      | 1  |  |
| 17. Describe Proposed or com   | pleted Operations (C                           | learly state all persinent             | details, and give pertinenes dates   | , including estimated date of starting any |
| proposed work) SEE RULE  | •  | •                                      | •  |  |
| • •  |  |  |  |  |
| Move on location and rig<br>Cleanout well to existing<br>Run slotted liner with 100<br>Close master valve, rig-o | depth of 2,349 fe<br>0 feet of overlap to      | 2,349 feet.                            | •  |  |
| Please see attached LD0 program.   | G 55-7 Cleanout 8                              | Completion Program                     | n by Capuano Engineering Co  | onsultants for the details of this         |
| L9:  | •  |  |  |  |
|  | •  |  |  |  |
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|  |  | •                                      | •  |  |
| I hereby certify that the last   | formation above is to                          | ue and complete to the he              | est of my knowledge and belief.  |  |
| Time of ferring the sine our   |  |  |  |  |
| <b>b</b> :2:   | 1  |  | -16-1-1-1-1-1-2  | wer. LLG mare July 8, 2013                 |
| SURVED Daniel (1)  |  | CAC AGA                                | nt for Los Lobos Renewable Pov   | JUIV O. ZUIJ                               |
| 2.4.1  | Janney.  | TITLE AND                              | THE COURSE COURSE CONTRACTOR OF THE COURSE C | MOI, LLO DATE SUIJ ST ZO TO                |
|  | Janney.  | TITLE AND                              | THE COURSE OF TH | DATE DATE                                  |

\_TITLE \_\_



# LDG 55-7 Cleanout and Completion Program

### **Designed and Prepared By:**



3883 Airway Drive Suite 210 Santa Rosa, CA 95403 TELEPHONE: (707) 575-8740

### Cyrq – Lightning Dock Geothermal Cleanout and Completion Program LDG 55-7

|                   | Drilling Program                          |  |  |  |  |
|-------------------|---|--|--|--|--|
| Operating Company | Cyrq - Los Lobos Renewable Power, LLC     |  |  |  |  |
| Field             | Lightning Dock                            |  |  |  |  |
| Well              | LDG 55-7                                  |  |  |  |  |
| Location          | Sec 7 Twp 25 S R 19 W: Hidalgo County, NM |  |  |  |  |
| Well Type         | Production Well                           |  |  |  |  |
| Drilling Engineer | Louis Capuano III                         |  |  |  |  |
| Date of Issue     | July 8, 2013                              |  |  |  |  |

|          |                   | Signature                       | Date |
|----------|-------------------|---------------------------------|------|
| Prepared | Louis Capuano III |                                 |      |
|          | Drilling Engineer | Capuano Engineering Consultants |      |

## **Table of Contents**

## Section:

- A. General Well Information
- B. Cleanout and Completion Program
- C. Lithology
- D. BOP Diagram

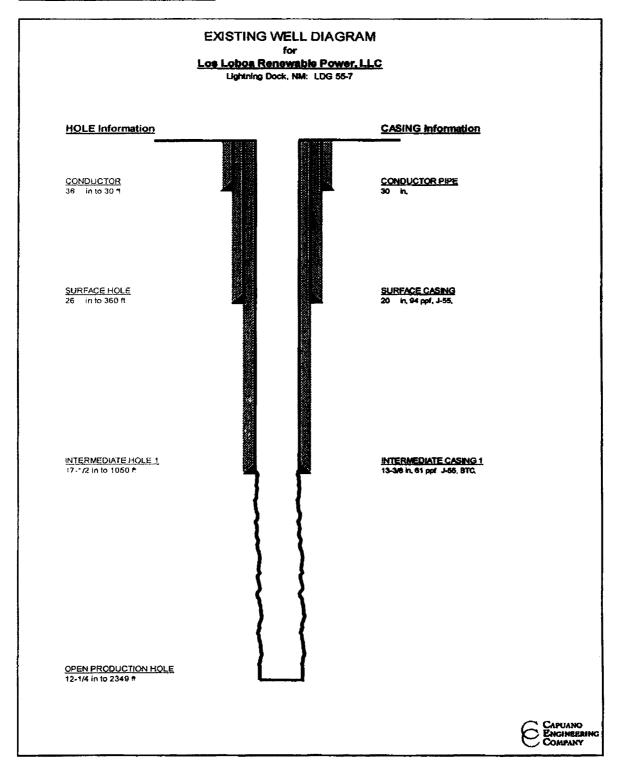
# Section A: General Well Information

| Well Information Table         |  |  |  |  |  |
|--------------------------------|--|--|--|--|--|
| Los Lobos Renewable Power, LLC | LDG 55-7   |  |  |  |  |
| Location                       | Section: 7, Township: 25S, Range: 19W County: Hidalgo County State: NM |  |  |  |  |
| Elevation                      | GL: 4208'  |  |  |  |  |
|                                | Original KB: 15'   |  |  |  |  |
| Original 1985 Total Depth      | 7001' MD   |  |  |  |  |
| 2010 Re-Opening Depth          | 2349' MD   |  |  |  |  |
| Surface LAT/LONG               | LAT = 32.144311 deg<br>LONG = -108.835941                              |  |  |  |  |

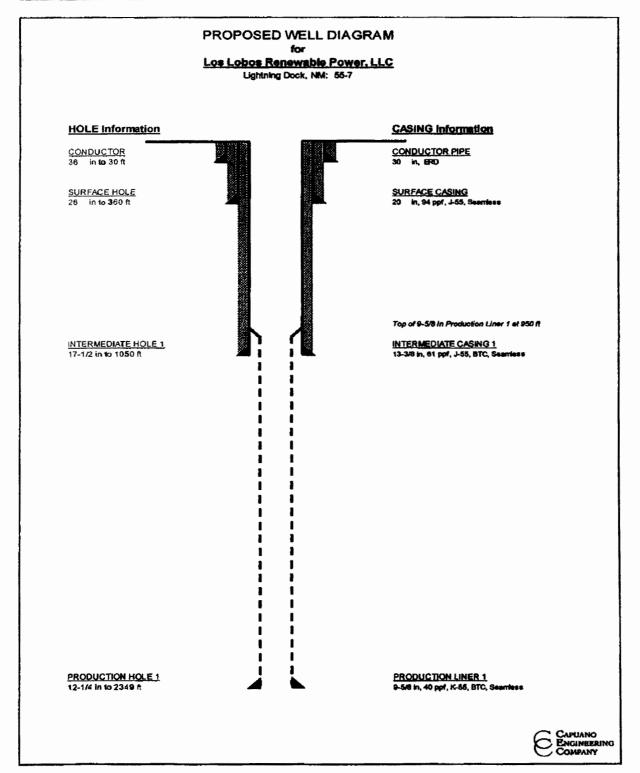
| Section     | Maximun<br>Sec | n Depth of<br>tion | Casing                            |
|-------------|----------------|--------------------|-----------------------------------|
| ОН          | OH MD TVD      | Ü                  |                                   |
| 36"         | 30'            | 30'                | 30", 135 ppf, J-55 BTC Casing     |
| 26 <b>"</b> | 360'           | 360'               | 20", 94 ppf, J-55, BTC            |
| 17-1/2"     | 1050'          | 1050'              | 13-3/8", 61 ppf, J-55, BTC Casing |
| 12-1/4"     | 2349'          | 2349'              | Open Hole                         |

| Wellhead Information                                      |                     |  |  |  |  |  |
|---|---------------------|--|--|--|--|--|
| Flange Size   | Pressure Test (psi) |  |  |  |  |  |
| 13-3/8" SOW x 12" ANSI 400 Series with two 2" LP outlets. | 250 / 1000          |  |  |  |  |  |
| 12" 300 FE RTJ slab gate valve.                           | 250 / 1000          |  |  |  |  |  |

## **Existing Wellbore Schematic:**



## **Proposed Wellbore Schematic:**



## Section B: Cleanout and Completion Program

### Safety / Hazards Considerations in This Section:

During the cleanout and completion program, it is imperative to maintain a steady water supply to the rig. The well has shown signs of temperature and artesian flow. During all operations while the well is open, a steady flow of cool water will be introduced to the wellbore at a rate of approximately 10 gallons per minute. This will ensure that the flow from geothermal formations will stay killed. The fresh water will be supplied by fresh water well LDG 14-7. All clean out and subsequent procedure will utilize fresh water to ensure that no formation damage is incurred on the reservoir. Bentonite or clay-like products will not be used during the clean-out and completion program. All cuttings will be managed and disposed of properly.

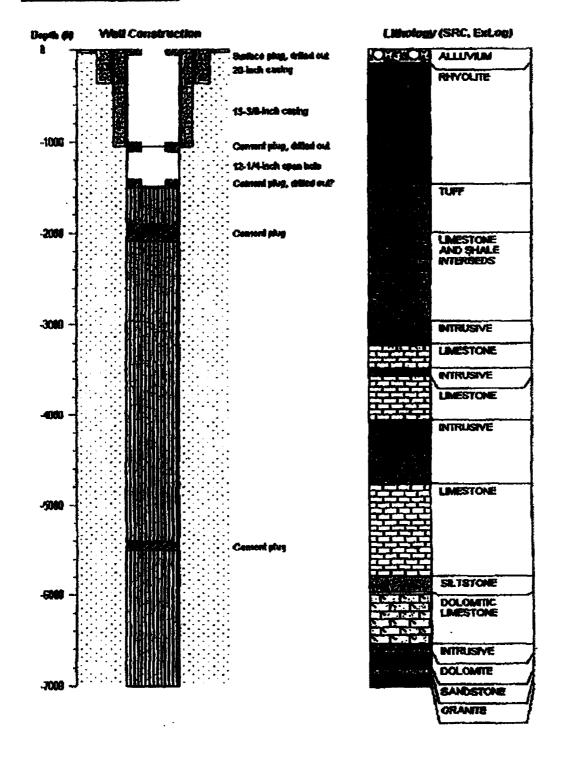
| Bit & Hyd  | iraulics Program                       | Mud Program |             |  |  |  |  |
|--|--|-------------|-------------|--|--|--|--|
| Bit Type   | 12-1/4" Tri-cone                       | Mud Weight  | 8.33 ppg    |  |  |  |  |
| Nozzles  | 3 x 20,                                | Mud Type    | Fresh Water |  |  |  |  |
| IADC Code  | OC Code 3-1-5 to 4-2-7                 |             | N/A         |  |  |  |  |
| RPM  | 60 – 80 RPM                            | YP          | N/A         |  |  |  |  |
| Pump Rate  | 400 – 700 gpm                          | PH          | N/A         |  |  |  |  |
| Run a maximum of 40,000 lbs of WOB. An average of 20,000 lbs to 30,000 lbs will suffice. |  |             |             |  |  |  |  |
| 12-1/4" BHA  | OC, 8" Jar, 4 x 8" DC, XO, drill pipe. |             |             |  |  |  |  |

#### Procedure:

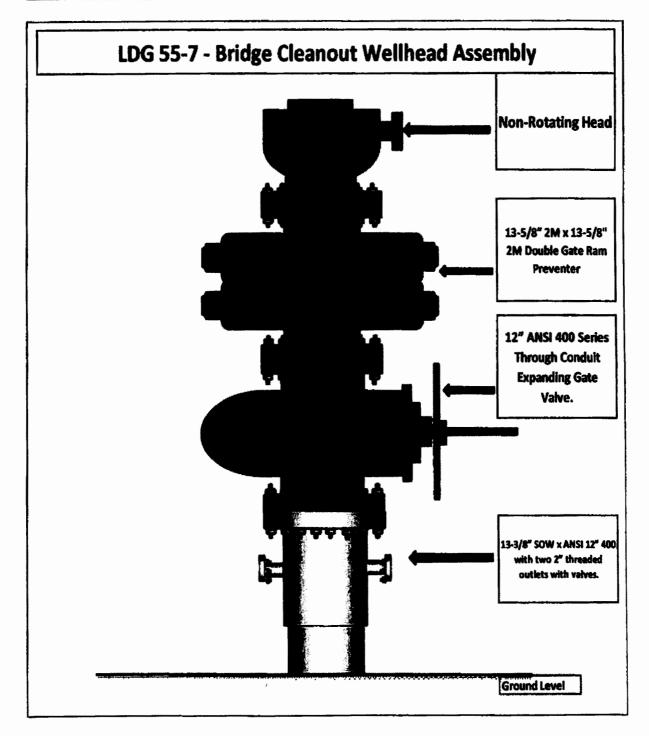
- 1. Move in and rig up on well.
  - 1.1. Nipple up BOP stack on wellhead.
  - 1.2. Move in water tank and fill.
- 2. Pick up and make up 12-1/4" Bottom Hole Assembly.
- 3. Run into well with assembly and drill pipe.
- 4. Tag bridge at approximately 1341'.
- 5. Pull up 5 ft and begin circulating water.
- 6. Begin rotation of bit at 70 rpm.
- 7. Tag and begin to drill out bridge.
  - 7.1. Continue to drill out bridge until clear open hole is reached or well TD is tagged at 2349'.
- 8. At section TD circulate, make a wiper trip to the 13-3/8" casing shoe and POOH.

- 8.1. Circulate and pull out of the hole.
- 8.2. Strap drill pipe, tools and collars to ensure hole depth.
- 9. Run 9-5/8", 40 ppf, K-55, BTC Slotted liner on a 13-3/8" x 9-5/8" liner adapter.
  - 9.1. Plan liner for a 100' liner lap.
  - 9.2. Lower four joints and upper four joints of the liner will be blank.
  - 9.3. Equip liner with a guide shoe.
  - 9.4. Weld the bottom four joints of casing.
  - 9.5. Run liner in the hole on drill pipe.
  - 9.6. Tag bottom.
- 10. Release from liner adapter.
- 11. Pull out of the hole with tool and drill pipe.
- 12. Close master valve and rig down.

# Section C: Lithology



# Section C: BOP Diagram





Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 16, 2013

David Janney
AMEC
8519 Jefferson Street, NE
Albuquerque, NM 87113
TEL: (505) 796-7276

FAX

RE: Lightning Dock Geothermal Water Quality Monitoring OrderNo.: 1312055

Dear David Janney:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/2/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

### Lab Order 1312055

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMBC Client Sample ID: LDG 55-7

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/27/2013 3:00:00 PM

Lab ID: 1312055-001 Matrix: AQUEOUS Received Date: 12/2/2013 3:20:00 PM

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed         | Batch |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|-------|
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Analyst               | : SCC |
| Aroclor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640 |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640 |
| Aroclor 1232                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640 |
| Arocior 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640 |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640 |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640 |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640 |
| Surr: Decachlorobiphenyl          | 88.4   | 17-123   |      | %REC  | 1  | 12/8/2013 2:05:14 PM  | 10640 |
| Surr: Tetrachloro-m-xylene        | 74.0   | 22.6-113 |      | %REC  | 1  | 12/8/2013 2:05:14 PM  | 10640 |
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst               | : SCC |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Acenaphthylere                    | ND     | 2.5      |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Phenanthrene                      | 0.65   | 0.60     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Pyrene                            | 0.71   | 0.30     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| Surr: Benzo(e)pyrene              | 64.1   | 24.5-139 |      | %REC  | 1  | 12/9/2013 7:15:48 PM  | 10641 |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst               | : JRR |
| Fluoride                          | 9.5    | 2.0      | *    | mg/L  | 20 | 12/3/2013 5:28:52 PM  | R1521 |
| Chloride                          | 140    | 10       |      | mg/L  | 20 | 12/3/2013 5:28:52 PM  | R1521 |
| Bromide                           | 0.46   | 0.10     |      | mg/L  | 1  | 12/3/2013 4:51:39 PM  | R1521 |
| Phosphorus, Orthophosphate (As P) | ND     | 0.50     | Н    | mg/L  | 1  | 12/3/2013 4:51:39 PM  | R1521 |
| Sulfate                           | 630    | 10       | *:   | mg/L  | 20 | 12/3/2013 5:28:52 PM  | R1521 |
| Nitrate+Nitrite as N              | ND     | 1.0      |      | mg/L  | 5  | 12/4/2013 10:52:14 PM | R1528 |
| EPA METHOD 200.7: DISSOLVED MI    | ETALS  |          |      |       |    | Analyst               | : JLF |
| Aluminum                          | 0.080  | 0.020    |      | mg/L  | 1  | 12/3/2013 7:04:41 PM  | R1521 |
|                                   |        |          |      |       |    |                       |       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 1 of 28
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1312055

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: LDG 55-7

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/27/2013 3:00:00 PM Matrix: AQUEOUS Received Date: 12/2/2013 3:20:00 PM Lab ID: 1312055-001

| Analyses                      | Result | RL Qu   | al Units | DF | Date Analyzed         | Batch    |
|-------------------------------|--------|---------|----------|----|-----------------------|----------|
| EPA METHOD 200.7: DISSOLVED N | METALS |         |          |    | Analyst               | JLF      |
| Barium                        | 0.094  | 0.0020  | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Boron                         | 0.65   | 0.040   | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Cadmium                       | ND     | 0.0020  | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Calcium                       | 48     | 1.0     | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Chromium                      | ND     | 0.0060  | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Cobalt                        | ND     | 0.0060  | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Copper                        | ND     | 0.0060  | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Iron                          | 0.40   | 0.020   | * mg/L   | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Magnesium                     | ND     | 1.0     | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Manganese                     | 0.13   | 0.0020  | * mg/L   | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Molybdenum                    | 0.046  | 0.0080  | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Nickel                        | ND     | 0.010   | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Potassium                     | 32     | 1.0     | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| Silver                        | ND     | 0.0050  | mg/L     | 1  | 12/10/2013 11:43:56 A | И R15389 |
| Sodium                        | 380    | 5.0     | mg/L     | 5  | 12/3/2013 7:06:37 PM  | R15213   |
| Zinc                          | ND     | 0.010   | mg/L     | 1  | 12/3/2013 7:04:41 PM  | R15213   |
| EPA 200.8: DISSOLVED METALS   |        |         |          |    | Analyst               | : DBD    |
| Arsenic                       | 0.0074 | 0.0010  | mg/L     | 1  | 12/9/2013 2:28:31 PM  | R15360   |
| Lead                          | ND     | 0.0010  | mg/L     | 1  | 12/9/2013 12:53:57 PM | R15358   |
| Selenium                      | 0.0038 | 0.0010  | mg/L     | 1  | 12/9/2013 2:28:31 PM  | R15360   |
| Uranium                       | ND     | 0.0010  | mg/L     | 1  | 12/9/2013 12:53:57 PM | R15358   |
| EPA METHOD 245.1: MERCURY     |        |         |          |    | Analyst               | : JML    |
| Mercury                       | ND     | 0.00020 | mg/L     | 1  | 12/8/2013 5:08:28 PM  | 10693    |
| EPA METHOD 8270C: SEMIVOLAT   | ILES   |         |          |    | Analyst               | : DAM    |
| Acenaphthene                  | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639    |
| Acenaphthylene                | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639    |
| Aniline                       | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639    |
| Anthracene                    | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639    |
| Azobenzene                    | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639    |
| Benz(a)anthracene             | ND     | 10      | µg/L     | 1  | 12/4/2013 12:59:42 PM | 10639    |
| Benzo(a)pyrene                | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639    |
| Benzo(b)fluoranthene          | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639    |
| Benzo(g,h,i)perylene          | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 1 10639  |
| Benzo(k)fluoranthene          | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 1 10639  |
| Benzoic acid                  | ND     | 40      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 1 10639  |
| Benzyl alcohol                | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 1 10639  |
| Bis(2-chloroethoxy)methane    | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 1 10639  |
| Bis(2-chloroethyl)ether       | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM | 1 10639  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range E
- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 2 of 28 Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

#### Lab Order 1312055

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: LDG 55-7

Lightning Dock Geothermal Water Qualit Collection Date: 11/27/2013 3:00:00 PM **Project:** Lab ID: 1312055-001 Matrix: AQUEOUS Received Date: 12/2/2013 3:20:00 PM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed         | Batch |
|-----------------------------|--------|-------|----------|----|-----------------------|-------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  |       |          |    | Analyst               | : DAM |
| Bis(2-chloroiscpropyl)ether | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Bis(2-ethylhexyl)phthalate  | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4-Bromophenyl phenyl ether  | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Butyl benzyl phthalate      | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Carbazole                   | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4-Chloro-3-methylphenol     | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4-Chloroaniline             | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2-Chloronaphthalene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2-Chlorophenol              | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4-Chlorophenyl phenyl ether | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Chrysene                    | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Di-n-butyl phthalate        | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Di-n-octyl phthalate        | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Dibenz(a,h)anthracene       | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Dibenzofuran                | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 3,3'-Dichlorobenzidine      | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Diethyl phthalate           | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Dimethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,4-Dichlorophenol          | ND     | 20    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,4-Dimethylphenol          | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4,6-Dinitro-2-methylphenol  | ND     | 20    | μg/Ł     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,4-Dinitrophenol           | ND     | 20    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,4-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,6-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Fluoranthene                | ND     | 10    | µg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Fluorene                    | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Hexachlorobenzene           | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Hexachlorobutadiene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Hexachlorocyclopentadiene   | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Hexachloroethane            | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Indeno(1,2,3-cd)pyrene      | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Isophorone                  | ND     | 10    | µg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 1-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2-Methylphenol              | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 3+4-Methylphenol            | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 3 of 28 Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

### Lab Order 1312055

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: LDG 55-7

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/27/2013 3:00:00 PM

Lab ID: 1312055-001 Matrix: AQUEOUS Received Date: 12/2/2013 3:20:00 PM

| Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|-----------|----------|----|-----------------------|--------|
| EPA METHOD 8270C: SEMIVOLATILI | ES     |           |          |    | Analyst               | : DAM  |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Naphthalene                    | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| 2-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| 3-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| 4-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Nitrobenzene                   | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| 2-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| 4-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Phenol                         | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Pyrene                         | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Pyridine                       | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Surr: 2-Fluorophenol           | 48.5   | 22.7-98   | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Surr: Phenol-d5                | 38.2   | 23.4-74.9 | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Surr: 2,4,6-Tribromophenol     | 79.0   | 23.3-111  | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Surr: Nitrobenzene-d5          | 68.9   | 36.8-111  | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Surr: 2-Fluorobiphenyl         | 73.7   | 38.3-110  | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| Surr: 4-Terphenyl-d14          | 69.0   | 52.1-116  | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639  |
| EPA METHOD 8260B: VOLATILES    |        |           |          |    | Analyst               | cadg   |
| Benzene                        | 1.8    | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| Toluene                        | 3.4    | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| Ethylbenzene                   | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| Naphthalene                    | ND     | 2.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| Acetone                        | 68     | 10        | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| Bromobenzene                   | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |
| Bromodichloromethane           | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R15228 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 4 of 28

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1312055

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: LDG 55-7

Lightning Dock Geothermal Water Qualit **Collection Date:** 11/27/2013 3:00:00 PM Project: Received Date: 12/2/2013 3:20:00 PM Lab ID: 1312055-001 Matrix: AQUEOUS

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed        | Batch  |
|-----------------------------|--------|-------|----------|----|----------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Analyst              | cadg   |
| Bromoform                   | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Bromomethane                | ND     | 3.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 2-Butanone                  | ND     | 10    | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Carbon disulficle           | ND     | 10    | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Carbon Tetrachloride        | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Chlorobenzene               | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Chloroethane                | ND     | 2.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Chloroform                  | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Chloromethane               | ND     | 3.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 2-Chlorotoluene             | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Styrene                     | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 5 of 28 P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

#### Lab Order 1312055

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: LDG 55-7

Project: Lightning Dock Geothermal Water Qualit

Collection Date: 11/27/2013 3:00:00 PM

Lab ID:

1312055-001

Matrix: AQUEOUS

Received Date: 12/2/2013 3:20:00 PM

| Analyses                       | Result | RL (   | Qual | Units         | DF | Date Analyzed        | Batch  |
|--------------------------------|--------|--------|------|---------------|----|----------------------|--------|
| EPA METHOD 8260B: VOLATILES    |        |        |      | 4.0           |    | Analyst              | cadg   |
| Tetrachloroethene (PCE)        | ND     | 1.0    |      | μg/L          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| trans-1,2-DCE                  | ND     | 1.0    |      | μg/L          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| trans-1,3-Dichloropropene      | ND     | 1.0    |      | μ <b>g</b> /L | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2,3-Trichlorobenzene         | ND     | 1.0    |      | μ <b>g</b> /L | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2,4-Trichlorobenzene         | ND     | 1.0    |      | μg/L          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1,1-Trichloroethane          | ND     | 1.0    |      | μg/L          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1,2-Trichloroethane          | ND     | 1.0    |      | μ <b>g</b> /L | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Trichloroethene (TCE)          | ND     | 1.0    |      | μg/L          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Trichlorofluoromethane         | ND     | 1.0    |      | μg/L          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2,3-Trichloropropane         | ND     | 2.0    |      | μg/L          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Vinyl chloride                 | ND     | 1.0    |      | μg/L          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Xylenes, Total                 | ND     | 1.5    |      | μg/L          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Surr: 1,2-Dichloroethane-d4    | 103    | 70-130 |      | %REC          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Surr: 4-Bromofluorobenzene     | 99.1   | 70-130 |      | %REC          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Surr: Dibromofluoromethane     | 102    | 70-130 |      | %REC          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Surr: Toluene-d8               | 100    | 70-130 |      | %REC          | 1  | 12/4/2013 6:48:43 PM | R15228 |
| EPA METHOD 418.1: TPH          |        |        |      |               |    | Analyst              | : JME  |
| Petroleum Hydrocarbons, TR     | ND     | 1.0    |      | mg/L          | 1  | 12/3/2013            | 10616  |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |               |    | Analyst              | : SCC  |
| Phenolics, Total Recoverable   | 25     | 2.5    |      | μg/L          | 1  | 12/9/2013            | 10711  |
| SM2510B: SPECIFIC CONDUCTANCE  |        |        |      |               |    | Analyst              | : JML  |
| Conductivity                   | 2100   | 0.010  |      | µmhos/cm      | 1  | 12/3/2013 7:58:15 PM | R15223 |
| SM4500-H+B: PH                 |        |        |      |               |    | Analyst              | : JML  |
| pH                             | 6.89   | 1.68   | Н    | pH units      | 1  | 12/3/2013 7:58:15 PM | R15223 |
| SM2320B: ALKALINITY            |        |        |      |               |    | Analyst              | : JML  |
| Bicarbonate (As CaCO3)         | 120    | 20     |      | mg/L CaCO3    | 1  | 12/3/2013 7:58:15 PM | R15223 |
| Carbonate (As CaCO3)           | ND     | 2.0    |      | mg/L CaCO3    | 1  | 12/3/2013 7:58:15 PM | R15223 |
| Total Alkalinity (as CaCO3)    | 120    | 20     |      | mg/L CaCO3    | 1  | 12/3/2013 7:58:15 PM | R15223 |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |               |    | Analys               | : KS   |
| Total Dissolved Solids         | 842    | 40.0   | *    | mg/L          | 1  | 12/5/2013 4:51:00 PM | 10626  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit



Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13120140-001

Client Sample ID: 1312055-001H LDG 55-7

Report Date: 12/13/13

Collection Date: 11/27/13 15:00 DateReceived: 12/04/13

Matrix: Aqueous

|                    |              |               | MCL/         |                        |
|--------------------|--------------|---------------|--------------|------------------------|
| Analyses           | Result Units | Qualifiers RL | . QCL Method | Analysis Date / By     |
| METALS - DISSOLVED |              |               |              |                        |
| Lithium            | 0.8 mg/L     | 0.1           | E200.7       | 12/09/13 18:40 / eli-b |
| Rubidium           | 0.3 mg/L     | 0.1           | E200.8       | 12/13/13 10:50 / eli-b |
| Tungsten           | ND mg/L      | 0.2           | E200.8       | 12/13/13 10:50 / eli-b |

### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13120140-002

Client Sample ID: 1312055-001J LDG 55-7

Report Date: 12/13/13

Collection Date: 11/27/13 15:00

DateReceived: 12/04/13

Matrix: Aqueous

| Analyses                             | Result | Units         | Qualifiers | RL    | MCL/<br>QCL | Method | Analysis Date / By     |
|--------------------------------------|--------|---------------|------------|-------|-------------|--------|------------------------|
| MAJOR IONS<br>Phosphorus, Total as P | 0.057  | m <b>g</b> /L |            | 0.005 |             | E365.1 | 12/12/13 10:26 / eli-b |



## **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 12/13/13

Work Order: C13120140

| Analyte    |                    | Count        | Result        | Units                 | RL          | %REC | Low Limit  | High Limit | RPD      | RPDLimit     | Qual      |
|------------|--------------------|--------------|---------------|-----------------------|-------------|------|------------|------------|----------|--------------|-----------|
| Method:    | E200.7             |              |               |                       |             |      |            |            | Analytic | cal Run: SUB | -B216225  |
| Sample ID: | ICV                | Co           | ntinuing Cali | ibration Verification | on Standard |      |            |            |          | 12/09        | /13 11:35 |
| Lithium    |                    |              | 1.29          | mg/L                  | 0.10        | 103  | 95         | 105        |          |              |           |
| Sample ID: | ICSA               | Inte         | erference Ch  | neck Sample A         |             |      |            |            |          | 12/09        | /13 11:47 |
| Lithium    |                    |              | -0.00206      | mg/L                  | 0.10        |      |            |            |          |              |           |
| Sample ID: | ICSAB              | Inte         | erference Ch  | neck Sample AB        |             |      |            |            |          | 12/09        | /13 11:51 |
| Lithium    |                    |              | 1.01          | mg/L                  | 0.10        | 101  | 80         | 120        |          |              |           |
| Method:    | E200.7             |              |               |                       |             |      |            |            |          | Batch: B     | R216225   |
| Sample ID: | MB-6500DIS131209A  | Me           | thod Blank    |                       |             |      | Run: SUB-E | 3216225    |          | 12/09        | /13 11:59 |
| Lithium    |                    |              | ND            | mg/L                  | 0.0003      |      |            |            |          |              |           |
| Sample ID: | LFB-6500DIS131209A | A Lab        | poratory Fort | ified Blark           |             |      | Run: SUB-E | 3216225    |          | 12/09        | /13 12:03 |
| Lithium    |                    |              | 1.00          | mg/L                  | 0.10        | 100  | 85         | 115        |          |              |           |
| Sample ID: | B13120529-002BMS2  | ≥ Sa         | mple Matrix   | Spike                 |             |      | Run: SUB-E | 3216225    |          | 12/09        | /13 18:29 |
| Lithium    |                    |              | 2.0           | mg/L                  | 0.10        | 100  | 70         | 130        |          |              |           |
| Sample ID: | B13120529-002BMSI  | <b>)2</b> Sa | mple Matrix   | Spike Duplicate       |             |      | Run: SUB-E | 3216225    |          | 12/09        | /13 18:33 |
| Lithium    |                    |              | 2.0           | mg/L                  | 0.10        | 99   | 70         | 130        | 8.0      | 20           |           |



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# **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 12/13/13

Work Order: C13120140

| Analyte    |                   | Count | Result              | Units            | RL    | %REC | Low Limit  | High Limit  | RPD      | RPDLimit    | Qual      |
|------------|-------------------|-------|---------------------|------------------|-------|------|------------|-------------|----------|-------------|-----------|
| Method:    | E200.8            |       |                     |                  |       |      |            |             | Analytic | al Run: SUB | -B216493  |
| Sample ID: | QCS               | 2     | Initial Calibration | Verification Sta | ndard |      |            |             |          | 12/13       | /13 09:32 |
| Rubidlum   |                   |       | 0.0533              | mg/L             | 0.010 | 107  | 90         | 110         |          |             |           |
| Tungsten   |                   |       | 0.0534              | mg/L             | 0.10  | 107  | 90         | 110         |          |             |           |
| Method:    | E200.8            |       |                     |                  |       |      |            |             |          | Batch: B    | R216493   |
| Sample ID: | LFB               | 2     | Laboratory Forti    | fied Blank       |       |      | Run: SUB-E | 3216493     |          | 12/13       | /13 09:34 |
| Rubidium   |                   |       | 0.0476              | mg/L             | 0.010 | 95   | 85         | <b>1</b> 15 |          |             |           |
| Tungsten   |                   |       | 0.0487              | mg/L             | 0.10  | 97   | 85         | 115         |          |             |           |
| Sample ID: | LRB               | 2     | Method Blank        |                  |       |      | Run: SUB-E | 3216493     |          | 12/13       | /13 09:56 |
| Rubidium   |                   |       | 0.03                |                  |       |      |            |             |          |             |           |
| Tungsten   |                   |       | 1,0                 |                  |       |      |            |             |          |             |           |
| Sample ID: | B13120270-001CMS  | 2     | Sample Matrix S     | Spike            |       |      | Run: SUB-E | 3216493     |          | 12/13       | /13 10:52 |
| Rubidium   |                   |       | 0.713               | mg/L             | 0.010 |      | 70         | 130         |          |             | Α         |
| Tungsten   |                   |       | 0.113               | mg/L             | 0.10  | 120  | 70         | 130         |          |             |           |
| Sample ID: | B13120270-001CMSE | 2     | Sample Matrix S     | Spike Duplicate  |       |      | Run: SUB-E | 3216493     |          | 12/13       | /13 10:54 |
| Rubidium   |                   |       | 0.715               | mg/L             | 0.010 |      | 70         | 130         | 0.3      | 20          | Α         |
| Tungsten   |                   |       | 0.113               | mg/L             | 0.10  | 120  | 70         | 130         | 0.0      | 20          |           |

RL - Analyte reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

## **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 12/13/13

Work Order: C13120140

| Analyte                     | Count   | Result     | Units              | RL     | %REC | Low Limit  | High Limit | RPD      | RPDLimit     | Qual      |
|-----------------------------|---------|------------|--------------------|--------|------|------------|------------|----------|--------------|-----------|
| Method: E365.1              | ***     |            |                    |        |      |            |            | Analytic | cal Run: SUB | -B216417  |
| Sample ID: ICV              | Initial | Calibratio | n Verification Sta | ndard  |      |            |            |          | 12/12        | /13 09:56 |
| Phosphorus, Total as P      |         | 0.258      | mg/L               | 0.0050 | 103  | 90         | 110        |          |              |           |
| Method: E365.1              |         |            |                    |        |      |            |            | `        | Batch        | B_76392   |
| Sample ID: MB-76392         | Meth    | od Blank   |                    |        |      | Run: SUB-E | 3216417    |          | 12/12        | /13 09:57 |
| Phosphorus, Total as P      |         | ND         | mg/L               | 0.004  |      |            |            |          |              |           |
| Sample ID: LCS-76392        | Labo    | ratory Con | trol Sample        |        |      | Run: SUB-E | 3216417    |          | 12/12        | /13 09:58 |
| Phosphorus, Total as P      |         | 0.208      | mg/L               | 0.0050 | 104  | 90         | 110        |          |              |           |
| Sample ID: B13120329-001BMS | Samp    | ole Matrix | Spike              |        |      | Run: SUB-E | 3216417    |          | 12/12        | /13 10:11 |
| Phosphorus, Total as P      |         | 0.255      | mg/L               | 0.0050 | 104  | 90         | 110        |          |              |           |
| Sample ID: B13120329-001BMS | D Sam   | ole Matrix | Spike Duplicate    |        |      | Run: SUB-E | 3216417    |          | 12/12        | /13 10:12 |
| Phosphorus, Total as P      |         | 0.255      | mg/L               | 0.0050 | 104  | 90         | 110        | 0.0      | 10           |           |

## all Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

AMEC

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB   | Samp     | Type: ME | BLK       | Tes         | tCode: E | PA Method | 200.7: Dissol | ved Metal | s        |      |
|----------------|----------|----------|-----------|-------------|----------|-----------|---------------|-----------|----------|------|
| Client ID: PBW | Bato     | h ID: R1 | 5213      | F           | RunNo: 1 | 5213      |               |           |          |      |
| Prep Date:     | Analysis | Date: 12 | 2/3/2013  | S           | SeqNo: 4 | 38573     | Units: mg/L   |           |          |      |
| Analyte        | Result   | PQL      | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD      | RPDLimit | Qual |
| Aluminum       | ND       | 0.020    |           |             |          |           |               |           |          |      |
| Barium         | ND       | 0.0020   |           |             |          |           |               |           |          |      |
| Boron          | ND       | 0.040    |           |             |          |           |               |           |          |      |
| Cadmium        | ND       | 0.0020   |           |             |          |           |               |           |          |      |
| Calcium        | ND       | 1.0      |           |             |          |           |               |           |          |      |
| Chromium       | ND       | 0.0060   |           |             |          |           |               |           |          |      |
| Cobalt         | ND       | 0.0060   |           |             |          |           |               |           |          |      |
| Copper         | ND       | 0.0060   |           |             |          |           |               |           |          |      |
| Iron           | ND       | 0.020    |           |             |          |           |               |           |          |      |
| Magnesium      | ND       | 1.0      |           |             |          |           |               |           |          |      |
| Manganese      | ND       | 0.0020   |           |             |          |           |               |           |          |      |
| Molybdenum     | ND       | 0.0080   |           |             |          |           |               |           |          |      |
| Nickel         | ND       | 0.010    |           |             |          |           |               |           |          |      |
| Potassium      | ND       | 1.0      |           |             |          |           |               |           |          |      |
| Sodium         | ND       | 1.0      |           |             |          |           |               |           |          |      |
| 7inc           | ND       | 0.010    |           |             |          |           |               |           |          |      |

| ample ID   | LCS  | Samp       | Type: <b>LC</b> | S         | Tes         | tCode: El | PA Method | 200.7: Dissol | ved Meta | ls       |      |
|------------|------|------------|-----------------|-----------|-------------|-----------|-----------|---------------|----------|----------|------|
| Client ID: | LCSW | Bato       | h 1D: <b>R1</b> | 5213      | F           | RunNo: 1  | 5213      |               |          |          |      |
| Prep Date: |      | Analysis I | Date: 12        | 2/3/2013  | S           | SeqNo: 4  | 38574     | Units: mg/L   |          |          |      |
| Analyte    |      | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |
| Aluminum   |      | 0.55       | 0.020           | 0.5000    | 0           | 111       | 85        | 115           |          |          |      |
| Barium     |      | 0.50       | 0.0020          | 0.5000    | 0           | 100       | 85        | 115           |          |          |      |
| Boron      |      | 0.51       | 0.040           | 0.5000    | 0           | 103       | 85        | 115           |          |          |      |
| Cadmium    |      | 0.51       | 0.0020          | 0.5000    | 0           | 101       | 85        | 115           |          |          |      |
| Calcium    |      | 50         | 1.0             | 50.00     | 0           | 100       | 85        | 115           |          |          |      |
| Chromium   |      | 0.52       | 0.0060          | 0.5000    | 0           | 104       | 85        | 115           |          |          |      |
| Cobalt     |      | 0.50       | 0.0060          | 0.5000    | 0           | 99.7      | 85        | 115           |          |          |      |
| Copper     |      | 0.49       | 0.0060          | 0.5000    | 0           | 97.8      | 85        | 115           |          |          |      |
| Iron       |      | 0.52       | 0.020           | 0.5000    | 0           | 104       | 85        | 115           |          |          |      |
| Magnesium  |      | 50         | 1.0             | 50.00     | 0           | 101       | 85        | 115           |          |          |      |
| Manganese  |      | 0.51       | 0.0020          | 0.5000    | 0           | 102       | 85        | 115           |          |          |      |
| Molybdenum |      | 0.51       | 0.0080          | 0.5000    | 0           | 102       | 85        | 115           |          |          |      |
| Nickel     |      | 0.49       | 0.010           | 0.5000    | 0           | 99.0      | 85        | 115           |          |          |      |
| Potassium  |      | 49         | 1.0             | 50.00     | 0           | 98.4      | 85        | 115           |          |          |      |
| Sodium     |      | 49         | 1.0             | 50.00     | 0           | 98.6      | 85        | 115           |          |          |      |
| Zinc       |      | 0.50       | 0.010           | 0.5000    | 0           | 99.8      | 85        | 115           |          |          |      |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
   Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID MB SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals

Client ID: PBW Batch ID: R15389 RunNo: 15389

Prep Date: Analysis Date: 12/10/2013 SeqNo: 443342 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Silver ND 0.0050

Sample ID LCS SampType: LCS TestCode: EPA Method 200.7: Dissolved Metals

Client ID: LCSW Batch ID: R15389 RunNo: 15389

Prep Date: Analysis Date: 12/10/2013 SeqNo: 443343 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Silver 0.088 0.0050 0.1000 0 87.6 85 115

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

RL Reporting Detection Limit

Page 8 of 28

# all Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client:

**AMEC** 

| Project:   |      | Lightning Dock G | eotherma         | ıl Water Qu  | ality Moni  |           |               |              |      |          |      |
|------------|------|------------------|------------------|--------------|-------------|-----------|---------------|--------------|------|----------|------|
| Sample ID  | LCS  | Samp             | Type: LC         | s            | Tes         | Code: El  | PA 200.8: [   | Dissolved Me | tals |          |      |
| Client ID: | LCSW | Bat              | ch ID: R1        | 5358         | R           | RunNo: 1  | 5358          |              |      |          |      |
| Prep Date: |      | Analysis         | Date: 12         | 2/9/2013     | S           | SeqNo: 4  | 42393         | Units: mg/L  |      |          |      |
| Analyte    |      | Result           | PQL              | SPK value    | SPK Ref Val | %REC      | LowLimit      | HighLimit    | %RPD | RPDLimit | Qual |
| Lead       |      | 0.024            | 0.0010           | 0.02500      | 0           | 96.9      | 85            | 115          |      |          |      |
| Uranium    |      | 0.025            | 0.0010           | 0.02500      | 0           | 101       | 85            | 115          |      |          |      |
| Sample ID  | LCS  | Samp             | Type: <b>LC</b>  | S            | Tes         | Code: El  | PA 200.8: (   | Dissolved Me | tals |          |      |
| Client ID: | LCSW | Bat              | ch ID: R1        | 5358         | R           | lunNo: 1  | 5358          |              |      |          |      |
| Prep Date: |      | Analysis         | Date: 12         | 2/9/2013     | S           | SeqNo: 4  | 42394         | Units: mg/L  |      |          |      |
| Analyte    |      | Result           | PQL              | SPK value    | SPK Ref Val | %REC      | LowLimit      | HighLimit    | %RPD | RPDLimit | Qual |
| Lead       |      | 0.024            | 0.0010           | 0.02500      | 0           | 97.3      | 85            | 115          |      |          |      |
| Uranium    |      | 0.026            | 0.0010           | 0.02500      | 0           | 105       | 85            | 115          |      |          |      |
| Sample ID  | MB   | Samp             | Type: ME         | BLK          | Tes         | tCode: El | PA 200.8: 1   | Dissolved Me | tals |          |      |
| Client ID: | PBW  | Bat              | ch ID: <b>R1</b> | <b>5</b> 358 | F           | RunNo: 1  | 5358          |              |      |          |      |
| Prep Date: |      | Analysis         | Date: 12         | 2/9/2013     | S           | SeqNo: 4  | 42395         | Units: mg/L  |      |          |      |
| Analyte    |      | Result           | PQL              | SPK value    | SPK Ref Val | %REC      | LowLimit      | HighLimit    | %RPD | RPDLimit | Qual |
| ď          |      | ND               | 0.0010           |              |             |           |               |              |      |          |      |
| .nium      |      | ND               | 0.0010           |              |             |           |               |              |      | *        |      |
| Sample ID  | MB   | Samp             | туре: <b>м</b> е | BLK          | Tes         | tCode: El | PA 200.8: (   | Dissolved Me | tals |          |      |
| Client ID: | PBW  | Bat              | ch ID: <b>R1</b> | 5358         | F           | RunNo: 1  | 53 <b>5</b> 8 |              |      |          |      |
| Prep Date: |      | Analysis         | Date: 12         | 2/9/2013     | S           | SeqNo: 4  | 42396         | Units: mg/L  |      |          |      |
| Analyte    |      | Result           | PQL              | SPK value    | SPK Ref Val | %REC      | LowLimit      | HighLimit    | %RPD | RPDLimit | Qual |
| Lead       |      | ND               | 0.0010           |              |             |           |               |              |      |          |      |
| Uranium    |      | ND.              | 0.0010           |              |             |           |               |              |      |          |      |
| Sample ID  | LCS  | Samp             | Type: LC         | s            | Tes         | tCode: El | PA 200.8: [   | Dissolved Me | tals |          |      |
| Client ID: | LCSW | Bat              | ch ID: R1        | 5360         | F           | RunNo: 1  | 5360          |              |      |          |      |
| Prep Date: |      | Analysis         | Date: 12         | 2/9/2013     | S           | SeqNo: 4  | 42459         | Units: mg/L  |      |          |      |
| Analyte    |      | Result           | PQL              | SPK value    | SPK Ref Val | %REC      | LowLimit      | HighLimit    | %RPD | RPDLimit | Qual |
| Arsenic    |      | 0.024            | 0.0010           | 0.02500      | 0           | 96.4      | 85            | 115          |      |          |      |
| Selenium   |      | 0.024            | 0.0010           | 0.02500      | 0           | 94.6      | 85            | 115          |      |          |      |
| Sample ID  | МВ   | Samp             | Туре: <b>МЕ</b>  | BLK          | Tes         | tCode: El | PA 200.8: I   | Dissolved Me | tals |          |      |
| Client ID: | PBW  | Bat              | ch ID: R1        | 5360         | F           | RunNo: 1  | 5360          |              |      |          |      |
| Prep Date: |      | Analysis         | Date: 12         | 2/9/2013     | 8           | SeqNo: 4  | 42460         | Units: mg/L  |      |          |      |
| Analyte    |      | Result           | PQL              | SPK value    | SPK Ref Val | %REC      | LowLimit      | HighLimit    | %RPD | RPDLimit | Quai |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL

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## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB

SampType: MBLK

SPK value SPK Ref Val %REC LowLimit

TestCode: EPA 200.8: Dissolved Metals

Client ID: Prep Date:

**PBW** 

Batch ID: R15360 Analysis Date: 12/9/2013 RunNo: 15360 SeqNo: 442460

Units: mg/L

HighLimit

%RPD

**RPDLimit** 

Qual

Analyte Arsenic

**PQL** ND 0.0010

Selenium

0.0010 ND

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detect on Limit

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## all Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10693

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

PBW Client ID:

Batch ID: 10693

RunNo: 15327

Prep Date: 12/7/2013

Analysis Date: 12/8/2013

Units: mg/L

Analyte

SeqNo: 441675

%RPD

HighLimit

**RPDLimit** 

Qual

Mercury

ND 0.00020

**PQL** 

Sample ID LCS-10693

SampType: LCS

TestCode: EPA Method 245.1: Mercury

%REC LowLimit

Client ID: LCSW Prep Date: 12/7/2013 Batch ID: 10693

RunNo: 15327

Units: mg/L

Result

Analysis Date: 12/8/2013

SeqNo: 441676

%RPD **RPDLimit** 

Qual

**PQL** 

0.005000

0.0052 0.00020

SPK value SPK Ref Val

SPK value SPK Ref Val %REC LowLimit

120

Mercury

103

80

HighLimit

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded

Sample pH greater than 2 for VOA and TOC only.

- ND Not Detected at the Reporting Limit
- Reporting Detection Limit RL

P

Page 11 of 28

## Hall Environmental Analysis Laboratory, Inc.

1312055

WO#:

16-Dec-13

Client: **AMEC** 

Lightning Dock Geothermal Water Quality Moni Project:

SampType: MS TestCode: EPA Method 300.0: Anions Sample ID 1312055-001EMS Client ID: LDG 55-7 Batch ID: R15216 RunNo: 15216 Analysis Date: 12/3/2013 SeqNo: 438864 Units: mg/L Prep Date: Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Bromide 2.9 0.10 2.500 0.4605 97.9 92 104

Sample ID 1312055-001EMSD SampType: MSD TestCode: EPA Method 300.0: Anions RunNo: 15216 Client ID: LDG 55-7 Batch ID: R15216 Prep Date: Analysis Date: 12/3/2013 SeqNo: 438865 Units: mg/L %RPD **RPDLimit** Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit Qual Analyte 2.9 0.10 2.500 0.4605 97.0 92 104 0.787 20 Bromide

| Sample ID A6                     | SampT      | ype: CC       | CV_6      | Tes         | tCode: El | 5        |             |      |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|----------|-------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5216      | F           | RunNo: 1  | 5216     |             |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/3/2013  | S           | SeqNo: 4  | 38867    | Units: mg/L |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | 2.4        | 0.10          | 2.400     | 0           | 100       | 90       | 110         |      |          |      |
| Chloride                         | 12         | 0.50          | 12.00     | 0           | 102       | 90       | 110         |      |          |      |
| Bromide                          | 12         | 0.10          | 12.00     | 0           | 102       | 90       | 110         |      |          |      |
| Phosphorus, Orthophosphate (As P | 12         | 0.50          | 12.00     | 0           | 99.8      | 90       | 110         |      |          |      |
| Sulfate                          | 31         | 0.50          | 30.00     | 0           | 103       | 90       | 110         |      |          |      |

| Sample ID A4                     | SampT      | ype: CC       | V_4       | Tes         | tCode: E | PA Method | 300.0: Anion | s    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|----------|-----------|--------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5216      | F           | RunNo: 1 | 5216      |              |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/3/2013  | 5           | SeqNo: 4 | 38879     | Units: mg/L  |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.96       | 0.10          | 1.000     | 0           | 96.1     | 90        | 110          |      |          |      |
| Chloride                         | 4.7        | 0.50          | 5.000     | 0           | 93.3     | 90        | 110          |      |          |      |
| Bromide                          | 4.9        | 0.10          | 5.000     | 0           | 97.8     | 90        | 110          |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.6        | 0.50          | 5.000     | 0           | 92.8     | 90        | 110          |      |          |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0           | 94.9     | 90        | 110          |      |          |      |

| Sample ID A5                     | SampType: CCV_5 Batch ID: R15216 |                          |           | TestCode: EPA Method 300.0: Anions |          |          |             |      |          |      |
|----------------------------------|----------------------------------|--------------------------|-----------|------------------------------------|----------|----------|-------------|------|----------|------|
| Client ID: BatchQC               | Batch                            | n ID: <b>R1</b>          | 5216      | F                                  | RunNo: 1 | 5216     |             |      |          |      |
| Prep Date:                       | Analysis D                       | Analysis Date: 12/3/2013 |           |                                    | SeqNo: 4 | 38891    | Units: mg/L |      |          |      |
| Analyte                          | Result                           | PQL                      | SPK value | SPK Ref Val                        | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.5                              | 0.10                     | 1.600     | 0                                  | 96.6     | 90       | 110         |      |          |      |
| Chloride                         | 7.7                              | 0.50                     | 8.000     | 0                                  | 96.5     | 90       | 110         |      |          |      |
| Bromide                          | 7.9                              | 0.10                     | 8.000     | 0                                  | 99.3     | 90       | 110         |      |          |      |
| Phosphorus, Orthophosphate (As P | 7.6                              | 0.50                     | 8.000     | 0 ,                                | 95.3     | 90       | 110         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Ε
- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#: 1312055 16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID A5       | SampType      | e: CCV_5      | Tes         | tCode: EP        | A Method | 300.0: Anions | i    |          |      |
|--------------------|---------------|---------------|-------------|------------------|----------|---------------|------|----------|------|
| Client ID: BatchQC | Batch ID      | : R15216      | F           | RunNo: <b>15</b> | 216      |               |      |          |      |
| Prep Date:         | Analysis Date | e: 12/3/2013  | S           | SeqNo: 43        | 8891     | Units: mg/L   |      |          |      |
| Analyte            | Result F      | PQL SPK value | SPK Ref Val | %REC             | LowLimit | HighLimit     | %RPD | RPDLimit | Qual |
| Sulfate            | 20            | 0.50 20.00    | 0           | 97.9             | 90       | 110           |      |          |      |

| Sample ID A4                     | Sampi      | ype: CC       | :V_4      | les         | tCode: El | PA Method | 300.0: Anions | i    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b> | 5216      | R           | RunNo: 1  | 5216      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/4/2013  | S           | SeqNo: 4  | 38903     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.94       | 0.10          | 1.000     | 0           | 94.5      | 90        | 110           |      |          |      |
| Chloride                         | 4.6        | 0.50          | 5.000     | 0           | 92.9      | 90        | 110           |      |          |      |
| Bromide                          | 4.8        | 0.10          | 5.000     | 0           | 96.8      | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.6        | 0.50          | 5.000     | 0           | 92.8      | 90        | 110           |      |          |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0           | 94.3      | 90        | 110           |      |          |      |

| Sample ID A4         | SampTyp      | e: CC          | V_4       | Test        | Code: El | PA Method | 300.0: Anions | 6    |          |      |
|----------------------|--------------|----------------|-----------|-------------|----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC   | Batch II     | D: <b>R1</b> : | 5288      | R           | lunNo: 1 | 5288      |               |      |          |      |
| Prep Date:           | Analysis Dat | te: 12         | /4/2013   | S           | eqNo: 4  | 40664     | Units: mg/L   |      |          |      |
| alyte                | Result       | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Nitrate+Nitrite as N | 4.8          | 0.20           | 5.000     | 0           | 96.4     | 90        | 110           |      |          |      |

| Sample ID A5         | SampT      | ype: CC         | CV_5      | Tes         | tCode: E | 5        |             |      |          |      |
|----------------------|------------|-----------------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: BatchQC   | Batch      | n ID: <b>R1</b> | 5288      | F           | RunNo: 1 | 5288     |             |      |          |      |
| Prep Date:           | Analysis D | )ate: 12        | 2/4/2013  | 8           | SeqNo: 4 | 40676    | Units: mg/L |      |          |      |
| Analyte              | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Nitrate+Nitrite as N | 8.0        | 0.20            | 8.000     | 0           | 101      | 90       | 110         |      |          |      |

| Sample ID A6         | SampT      | ype: CC       | V_6       | Tes         | Code: El | PA Method | 300.0: Anions | ;    |          |      |
|----------------------|------------|---------------|-----------|-------------|----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC   | Batch      | ID: <b>R1</b> | 5288      | F           | lunNo: 1 | 5288      |               |      |          |      |
| Prep Date:           | Analysis D | ate: 12       | 2/4/2013  | S           | SeqNo: 4 | 40688     | Units: mg/L   |      |          |      |
| Analyte              | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Nitrate+Nitrite as N | 13         | 0.20          | 12.00     | 0           | 105      | 90        | 110           |      |          |      |

| Sample ID A4         | SampType:      | CCV_4        | Test        | Code: El | ;        |             |      |          |      |
|----------------------|----------------|--------------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: BatchQC   | Batch ID:      | R15288       | R           | tunNo: 1 | 5288     |             |      |          |      |
| Prep Date:           | Analysis Date: | 12/4/2013    | S           | eqNo: 4  | 40700    | Units: mg/L |      |          |      |
| Analyte              | Result PO      | QL SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Nitrate+Nitrite as N | 4.8 0          | .20 5.000    | 0           | 95.9     | 90       | 110         |      |          |      |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
  - Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

| Client:              | AMEC  |
|----------------------|---|
| Project:             | Lightning Dock Geothermal Water Quality Moni                                |
| Sample ID A5         | SampType: CCV_5 TestCode: EPA Method 300.0: Anions                          |
| Client ID: Batch(    | QC Batch ID: R15288 RunNo: 15288  |
| Prep Date:           | Analysis Date: 12/4/2013 SeqNo: 440707 Units: mg/L                          |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | 8.0 0.20 8.000 0 99.9 90 110  |
| Sample ID A5         | SampType: CCV_5 TestCode: EPA Method 300.0: Anions                          |
| Client ID: Batch(    | QC Batch ID: R15288 RunNo: 15288  |
| Prep Date:           | Analysis Date: 12/4/2013 SeqNo: 440711 Units: mg/L                          |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | 8.0 0.20 8.000 0 100 90 110   |
| Sample ID MB         | SampType: MBLK TestCode: EPA Method 300.0: Anions                           |
| Client ID: PBW       | Batch ID: <b>R15288</b> RunNo: <b>15288</b>                                 |
| Prep Date:           | Analysis Date: 12/4/2013 SeqNo: 440712 Units: mg/L                          |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | ND 0.20   |
| Sample ID LCS        | SampType: LCS TestCode: EPA Method 300.0: Anions                            |
| Client ID: LCSW      | Batch ID: <b>R15288</b> RunNo: <b>15288</b>                                 |
| Prep Date:           | Analysis Date: 12/4/2013 SeqNo: 440713 Units: mg/L                          |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | 3.4 0.20 3.500 0 97.5 90 110  |
| Sample ID A6         | SampType: CCV_6 TestCode: EPA Method 300.0: Anions                          |
| Client ID: Batch     | QC Batch ID: R15288 RunNo: 15288  |
| Prep Date:           | Analysis Date: 12/4/2013 SeqNo: 440722 Units: mg/L                          |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | 13 0.20 12.00 0 105 90 110  |

## Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- $\mathbf{H}$ Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Р Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client:

AMEC

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-10616         | SampT      | ype: ME | BLK       | Test        | tCode: E | PA Method | 418.1: TPH  |      |          |      |
|----------------------------|------------|---------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: PBW             | Batch      | ID: 10  | 616       | R           | RunNo: 1 | 5202      |             |      |          |      |
| Prep Date: 12/3/2013       | Analysis D | ate: 12 | 2/3/2013  | S           | SeqNo: 4 | 38249     | Units: mg/L |      |          |      |
| Analyte                    | Result     | PQL     | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Petroleum Hydrocarbons, TR | ND         | 1.0     |           |             |          |           |             |      |          |      |

Sample ID LCS-10616 SampType: LCS TestCode: EPA Method 418.1: TPH Client ID: LCSW Batch ID: 10616 RunNo: 15202 SeqNo: 438250 Units: mg/L Prep Date: 12/3/2013 Analysis Date: 12/3/2013 SPK value SPK Ref Val %RPD %REC **RPDLimit** Qual Analyte Result PQL LowLimit HighLimit Petroleum Hydrocarbons, TR 4.6 1.0 5.000 92.4 80 120

| Sample ID LCSD-10616       | SampT      | ype: LC | SD        | Tes         | Code: El | PA Method | 418.1: TPH  |      |          |      |
|----------------------------|------------|---------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSS02          | Batch      | 1D: 10  | 616       | F           | RunNo: 1 | 5202      |             |      |          |      |
| Prep Date: 12/3/2013       | Analysis D | ate: 12 | 2/3/2013  | S           | SeqNo: 4 | 38251     | Units: mg/L |      |          |      |
| Analyte                    | Result     | PQL     | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Petroleum Hydrocarbons, TR | 4.6        | 1.0     | 5.000     | 0           | 91.2     | 80        | 120         | 1.31 | 20       |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
  - Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

exceeded

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1312055** *16-Dec-13* 

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-10640         | SampT      | ype: ME         | BLK       | Tes                    | tCode: El | PA Method |             |      |          |      |
|----------------------------|------------|-----------------|-----------|------------------------|-----------|-----------|-------------|------|----------|------|
| Client ID: PBW             | Batch      | n ID: <b>10</b> | 640       | F                      | RunNo: 1  | 5318      |             |      |          |      |
| Prep Date: 12/4/2013       | Analysis D | )ate: 12        | 2/8/2013  | SeqNo: <b>441621</b> L |           |           | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val            | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | ND         | 1.0             |           |                        |           |           |             |      |          |      |
| Aroclor 1221               | ND         | 1.0             |           |                        |           |           |             |      |          |      |
| Aroclor 1232               | ND         | 1.0             |           |                        |           |           |             |      |          |      |
| Aroclor 1242               | ND         | 1.0             |           |                        |           |           |             |      |          |      |
| Aroclor 1248               | ND         | 1.0             |           |                        |           |           |             |      |          |      |
| Arodor 1254                | ND         | 1.0             |           |                        |           |           |             |      |          |      |
| Aroclor 1260               | ND         | 1.0             |           |                        |           |           |             |      |          |      |
| Surr: Decachlorobiphenyl   | 2.4        |                 | 2.500     |                        | 97.6      | 17        | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 2.2        |                 | 2.500     |                        | 86.0      | 22.6      | 113         |      |          |      |

| Sample ID LCS-10640        | SampT      | ype: <b>LC</b> | S         | Tes         | tCode: E | PA Method |             |      |          |      |
|----------------------------|------------|----------------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSW            | Batch      | 1D: <b>10</b>  | 640       | F           | RunNo: 1 | 5318      |             |      |          |      |
| Prep Date: 12/4/2013       | Analysis D | ate: 12        | 2/8/2013  | \$          | SeqNo: 4 | 41622     | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | 3.5        | 1.0            | 5.000     | 0           | 69.6     | 18.6      | 134         |      |          |      |
| Aroclor 1260               | 4.7        | 1.0            | 5.000     | 0           | 94.8     | 35.7      | 137         |      |          |      |
| Surr: Decachlorobiphenyl   | 2.2        |                | 2.500     |             | 88.0     | 17        | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 2.0        |                | 2.500     |             | 78.0     | 22.6      | 113         |      |          |      |

| Sample ID 1312055-001LMS   | SampT      | уре: <b>М</b> S | 3         | Tes         | PA Method | 8082: PCB's |             |      |          |      |
|----------------------------|------------|-----------------|-----------|-------------|-----------|-------------|-------------|------|----------|------|
| Client ID: LDG 55-7        | Batch      | ID: <b>10</b>   | 640       | F           | RunNo: 1  |             |             |      |          |      |
| Prep Date: 12/4/2013       | Analysis D | ate: 12         | 2/8/2013  | 8           | SeqNo: 4  | 41776       | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit    | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | 3.7        | 1.0             | 5.000     | 0           | 74.4      | 70          | 130         |      |          |      |
| Aroclor 1260               | 3.0        | 1.0             | 5.000     | 0           | 60.6      | 61.1        | 129         |      |          | S    |
| Surr: Decachlorobiphenyl   | 1.9        |                 | 2.500     |             | 77.6      | 17          | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 1.6        |                 | 2.500     |             | 66.0      | 22.6        | 113         |      |          |      |

| Sample ID 1312055-001LMSE  | D SampType: MSD |               |           | Tes         | tCode: E     | PA Method |             |      |          |      |
|----------------------------|-----------------|---------------|-----------|-------------|--------------|-----------|-------------|------|----------|------|
| Client ID: LDG 55-7        | Batch           | ID: <b>10</b> | 640       | F           |              |           |             |      |          |      |
| Prep Date: 12/4/2013       | Analysis D      | ate: 12       | 2/8/2013  | 8           | SeqNo: 4     | 41777     | Units: µg/L |      |          |      |
| Analyte                    | Result          | PQL           | SPK value | SPK Ref Val | %REC         | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | 3.9             | 1.0           | 5.000     | 0           | 77.5         | 70        | 130         | 4.03 | 20       |      |
| Aroclor 1260               | 3.2             | 1.0           | 5.000     | 0           | 64.0         | 61.1      | 129         | 5.52 | 12.9     |      |
| Surr: Decachlorobiphenyl   | 2.1             |               | 2.500     |             | 83.2         | 17        | 123         | 0    | 0        |      |
| Surr: Tetrachloro-m-xylene | 1.8             |               | 2.500     |             | <b>7</b> 0.0 | 22.6      | 113         | 0    | 0        |      |
|                            |                 |               |           |             |              |           |             |      |          |      |

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Sample ID 5mL rb

Lightning Dock Geothermal Water Quality Moni

SampType: MBLK

| Sample ID 5mL rb            | SampT      | уре: МІ       | BLK       | TestCode: EPA Method 8260B: VOLATILES |          |          |            |      |          |      |
|-----------------------------|------------|---------------|-----------|---------------------------------------|----------|----------|------------|------|----------|------|
| Client ID: PBW              | Batch      | ID: <b>R1</b> | 5195      | F                                     | lunNo: 1 | 5195     |            |      |          |      |
| Prep Date:                  | Analysis D | ate: 12       | 2/3/2013  | S                                     | SeqNo: 4 | 38387    | Units: %RE | С    |          |      |
| Analyte                     | Result     | PQL           | SPK value | SPK Ref Val                           | %REC     | LowLimit | HighLimit  | %RPD | RPDLimit | Qual |
| Surr: 1,2-Dichloroethane-d4 | 9.6        |               | 10.00     |                                       | 96.4     | 70       | 130        |      |          |      |
| Surr: 4-Bromofluorobenzene  | 10         |               | 10.00     |                                       | 105      | 70       | 130        |      |          |      |
| Surr: Dibromofluoromethane  | 9.8        |               | 10.00     |                                       | 97.8     | 70       | 130        |      |          |      |
| Surr: Toluene-d8            | 9.9        |               | 10.00     |                                       | 98.7     | 70       | 130        |      |          |      |

| Sample ID 100ng Ics         | SampT      | SampType: LCS TestCode: EPA Method 8260B: VOLATILES |           |             |          |          |            |      |          |      |
|-----------------------------|------------|---|-----------|-------------|----------|----------|------------|------|----------|------|
| Client ID: LCSW             | Batch      | ID: <b>R1</b>                                       | 5195      | F           | RunNo: 1 | 5195     |            |      |          |      |
| Prep Date:                  | Analysis D | ate: 12   | 2/3/2013  | S           | SeqNo: 4 | 38389    | Units: %RE | С    |          |      |
| Analyte                     | Result     | PQL   | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit  | %RPD | RPDLimit | Qual |
| Surr: 1,2-Dichloroethane-d4 | 10         |   | 10.00     |             | 101      | 70       | 130        |      |          |      |
| Surr: 4-Bromofluorobenzene  | 10         |   | 10.00     |             | 103      | 70       | 130        |      |          |      |
| Surr: Dibromofluoromethane  | 10         |   | 10.00     |             | 99.5     | 70       | 130        |      |          |      |
| Surr: Toluene-d8            | 9.8        |   | 10.00     |             | 97.9     | 70       | 130        |      |          |      |

| Client ID: PBW                 | Batch ID: R15228 |         |           | F           | RunNo: 1 | 5228     |             |      |          |      |
|--------------------------------|------------------|---------|-----------|-------------|----------|----------|-------------|------|----------|------|
| p Date:                        | Analysis D       | ate: 12 | 2/4/2013  | S           | SeqNo: 4 | 39397    | Units: µg/L |      |          |      |
| Analyte                        | Result           | PQL     | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene                        | ND               | 1.0     |           |             |          |          |             |      |          |      |
| Toluene                        | ND               | 1.0     |           |             |          |          |             |      |          |      |
| Ethylbenzene                   | ND               | 1.0     |           |             |          |          |             |      |          |      |
| Methyl tert-butyl ether (MTBE) | ND               | 1.0     |           |             |          |          |             |      |          |      |
| 1,2,4-Trimethylbenzene         | ND               | 1.0     |           |             |          |          |             |      |          |      |
| 1,3,5-Trimethylbenzene         | ND               | 1.0     |           |             |          |          |             |      |          |      |
| 1,2-Dichloroethane (EDC)       | ND               | 1.0     |           |             |          |          |             |      |          |      |
| 1,2-Dibromoethane (EDB)        | ND               | 1.0     |           |             |          |          |             |      |          |      |
| Naphthalene                    | ND               | 2.0     |           |             |          |          |             |      |          |      |
| 1-Methylnaphthalene            | ND               | 4.0     |           |             |          |          |             |      |          |      |
| 2-Methylnaphthalene            | ND               | 4.0     |           |             |          |          |             |      |          |      |
| Acetone                        | ND               | 10      |           |             |          |          |             |      |          |      |
| Bromobenzene                   | ND               | 1.0     |           |             |          |          |             |      |          |      |
| Bromodichloromethane           | ND               | 1.0     |           |             |          |          |             |      |          |      |
| Bromoform                      | ND               | 1.0     |           |             |          |          |             |      |          |      |
| Bromomethane                   | ND               | 3.0     |           |             |          |          |             |      |          |      |
| 2-Butanone                     | ND               | 10      |           |             |          |          |             |      |          |      |
| Carbon disulfide               | ND               | 10      |           |             |          |          |             |      |          |      |
| Carbon Tetrachloride           | ND               | 1.0     |           |             |          |          |             |      |          |      |
| Chlorobenzene                  | ND               | 1.0     |           |             |          |          |             |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank

TestCode: EPA Method 8260B: VOLATILES

- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb            | SampT            | ype: <b>MBLK</b> | Tes           | TestCode: EPA Method 8260B: VOLATILES |               |      |          |      |  |
|-----------------------------|------------------|------------------|---------------|---------------------------------------|---------------|------|----------|------|--|
| Client ID: PBW              | Batch ID: R15228 |                  | F             | RunNo: <b>15228</b>                   |               |      |          |      |  |
| Prep Date:                  | Analysis D       | ate: 12/4/2013   | S             | SeqNo: <b>439397</b>                  | Units: µg/L   |      |          |      |  |
| Analyte                     | Result           |                  | e SPK Ref Val | %REC LowLin                           | nit HighLimit | %RPD | RPDLimit | Qual |  |
| Chloroethane                | ND               | 2.0              |               |                                       |               |      |          |      |  |
| Chloroform                  | ND               | 1.0              |               |                                       |               |      |          |      |  |
| Chloromethane               | ND               | 3.0              |               |                                       |               |      |          |      |  |
| 2-Chlorotoluene             | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 4-Chlorotoluene             | ND               | 1.0              |               |                                       |               |      |          |      |  |
| cis-1,2-DCE                 | ND               | 1.0              |               |                                       |               |      |          |      |  |
| cis-1,3-Dichloropropene     | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,2-Dibromo-3-chloropropane | ND               | 2.0              |               |                                       |               |      |          |      |  |
| Dibromochloromethane        | ND               | 1.0              |               |                                       |               |      |          |      |  |
| Dibromomethane              | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,2-Dichlorobenzene         | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,3-Dichlorobenzene         | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,4-Dichlorobenzene         | ND               | 1,0              |               |                                       |               |      |          |      |  |
| Dichlorodifluoromethane     | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,1-Dichloroethane          | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,1-Dichloroethene          | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,2-Dichloropropane         | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,3-Dichloropropane         | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 2,2-Dichloropropane         | ND               | 2.0              |               |                                       |               |      |          |      |  |
| 1,1-Dichloropropene         | ND               | 1.0              |               |                                       |               |      |          |      |  |
| Hexachlorobutadiene         | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 2-Hexanone                  | ND               | 10               |               |                                       |               |      |          |      |  |
| Isopropylbenzene            | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 4-Isopropyltoluene          | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 4-Methyl-2-pentanone        | ND               | 10               |               |                                       |               |      |          |      |  |
| Methylene Chloride          | ND               | 3.0              |               |                                       |               |      |          |      |  |
| n-Butylbenzene              | ND               | 3.0              |               |                                       |               |      |          |      |  |
| n-Propylbenzene             | ND               | 1.0              |               |                                       |               |      |          |      |  |
| sec-Butylbenzene            | ND               | 1.0              |               |                                       |               |      |          |      |  |
| Styrene                     | ND               | 1.0              |               |                                       |               |      |          |      |  |
| tert-Butylbenzene           | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,1,1,2-Tetrachloroethane   | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,1,2,2-Tetrachloroethane   | ND               | 2.0              |               |                                       |               |      |          |      |  |
| Tetrachloroethene (PCE)     | ND               | 1.0              |               |                                       |               |      |          |      |  |
| trans-1,2-DCE               | ND               | 1.0              |               |                                       |               |      |          |      |  |
| trans-1,3-Dichloropropene   | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,2,3-Trichlorobenzene      | ND               | 1.0              |               |                                       |               |      |          |      |  |
| 1,2,4-Trichlorobenzene      | ND               | 1.0              |               |                                       |               |      |          |      |  |
| • •                         |                  |                  |               |                                       |               |      |          |      |  |
| 1,1,1-Trichloroethane       | ND               | 1.0              |               |                                       |               |      |          |      |  |

### Qualifiers:

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- E Value above quantitation range
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- S Spike Recovery outside accepted recovery limits
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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb            | SampType: MBLK           |     |               | TestCode: EPA Method 8260B: VOLATILES |          |             |           |      |          |      |
|-----------------------------|--------------------------|-----|---------------|---------------------------------------|----------|-------------|-----------|------|----------|------|
| Client ID: PBW              | Batch ID: R15228         |     |               | F                                     | RunNo: 1 | 5228        |           |      |          |      |
| Prep Date:                  | Analysis Date: 12/4/2013 |     | SeqNo: 439397 |                                       |          | Units: µg/L |           |      |          |      |
| Analyte                     | Result                   | PQL | SPK value     | SPK Ref Val                           | %REC     | LowLimit    | HighLimit | %RPD | RPDLimit | Qual |
| 1,1,2-Trichloroethane       | ND                       | 1.0 |               |                                       |          |             |           |      |          |      |
| Trichloroethene (TCE)       | ND                       | 1.0 |               |                                       |          |             |           |      |          |      |
| Trichlorofluoromethane      | ND                       | 1.0 |               |                                       |          |             |           |      |          |      |
| 1,2,3-Trichloropropane      | ND                       | 2.0 |               |                                       |          |             |           |      |          |      |
| Vinyl chloride              | ND                       | 1.0 |               |                                       |          |             |           |      |          |      |
| Xylenes, Total              | ND                       | 1.5 |               |                                       |          |             |           |      |          |      |
| Surr: 1,2-Dichloroethane-d4 | 10                       |     | 10.00         |                                       | 100      | 70          | 130       |      |          |      |
| Surr: 4-Bromofluorobenzene  | 11                       |     | 10.00         |                                       | 105      | 70          | 130       |      |          |      |
| Surr: Dibromofluoromethane  | 9.9                      |     | 10.00         |                                       | 99.3     | 70          | 130       |      |          |      |
| Surr: Toluene-d8            | 9.7                      |     | 10.00         |                                       | 96.6     | 70          | 130       |      |          |      |

| Sample ID 100ng lcs         | SampT      | ype: LC       | s         | TestCode: EPA Method 8260B: VOLATILES |          |          |             |      |          |      |
|-----------------------------|------------|---------------|-----------|---------------------------------------|----------|----------|-------------|------|----------|------|
| Client ID: LCSW             | Batch      | 1D: <b>R1</b> | 5228      | F                                     | RunNo: 1 |          |             |      |          |      |
| Prep Date:                  | Analysis D | ate: 12       | 2/4/2013  | SeqNo: 439399                         |          |          | Units: µg/L |      |          |      |
| Analyte                     | Result     | PQL           | SPK value | SPK Ref Val                           | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene                     | 20         | 1.0           | 20.00     | 0                                     | 101      | 70       | 130         |      |          |      |
| lene                        | 19         | 1.0           | 20.00     | 0                                     | 97.3     | 82.2     | 124         |      |          |      |
| .rorobenzene                | 18         | 1.0           | 20.00     | 0                                     | 92.3     | 70       | 130         |      |          |      |
| 1,1-Dichloroethene          | 22         | 1.0           | 20.00     | 0                                     | 109      | 83.5     | 155         |      |          |      |
| Trichloroethene (TCE)       | 18         | 1.0           | 20.00     | 0                                     | 87.6     | 70       | 130         |      |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.8        |               | 10.00     |                                       | 98.2     | 70       | 130         |      |          |      |
| Surr: 4-Bromofluorobenzene  | 11         |               | 10.00     |                                       | 109      | 70       | 130         |      |          |      |
| Surr: Dibromofluoromethane  | 9.8        |               | 10.00     |                                       | 98.2     | 70       | 130         |      |          |      |
| Surr: Toluene-d8            | 10         |               | 10.00     |                                       | 101      | 70       | 130         |      |          |      |

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
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- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID mb-10639          | SampTy      | pe: MBLK         | TestCod          | TestCode: EPA Method 8270C: Semivolatiles |             |      |          |      |  |
|-----------------------------|-------------|------------------|------------------|---|-------------|------|----------|------|--|
| Client ID: PBW              | Batch       | ID: <b>10639</b> | RunN             | o: <b>15239</b>                           |             |      |          |      |  |
| Prep Date: 12/4/2013        | Analysis Da | nte: 12/4/2013   | SeqN             | o: <b>439467</b>                          | Units: µg/L |      |          |      |  |
| Analyte                     | Result      | PQL SPK valu     | e SPK Ref Val %F | EC LowLimit                               | HighLimit   | %RPD | RPDLimit | Qual |  |
| Acenaphthene                | ND          | 10               |                  |   |             |      |          |      |  |
| Acenaphthylene              | ND          | 10               |                  |   |             |      |          |      |  |
| Aniline                     | ND          | 10               |                  |   |             |      |          |      |  |
| Anthracene                  | ND          | 10               |                  |   |             |      |          |      |  |
| Azobenzene                  | ND          | 10               |                  |   |             |      |          |      |  |
| Benz(a)anthracene           | ND          | 10               |                  |   |             |      |          |      |  |
| Benzo(a)pyrene              | ND          | 10               |                  |   |             |      |          |      |  |
| Benzo(b)fluoranthene        | ND          | 10               |                  |   |             |      |          |      |  |
| Benzo(g,h,i)perylene        | ND          | 10               |                  |   |             |      |          |      |  |
| Benzo(k)fluoranthene        | ND          | 10               |                  |   |             |      |          |      |  |
| Benzoic acid                | ND          | 40               |                  |   |             |      |          |      |  |
| Benzyl alcohol              | ND          | 10               |                  |   |             |      |          |      |  |
| Bis(2-chloroethoxy)methane  | ND          | 10               |                  |   |             |      |          |      |  |
| Bis(2-chloroethyl)ether     | ND          | 10               |                  |   |             |      |          |      |  |
| Bis(2-chloroisopropyl)ether | ND          | 10               |                  |   |             |      |          |      |  |
| Bis(2-ethylhexyl)phthalate  | ND          | 10               |                  |   |             |      |          |      |  |
| 4-Bromophenyl phenyl ether  | ND          | 10               |                  |   |             |      |          |      |  |
| Butyl benzyl phthalate      | ND          | 10               |                  |   |             |      |          |      |  |
| Carbazole                   | ND          | 10               |                  |   |             |      |          |      |  |
| 4-Chloro-3-methylphenol     | ND          | 10               |                  |   |             |      |          |      |  |
| 4-Chloroaniline             | ND          | 10               |                  |   |             |      |          |      |  |
| 2-Chloronaphthalene         | ND          | 10               |                  |   |             |      |          |      |  |
| 2-Chlorophenol              | ND          | 10               |                  |   |             |      |          |      |  |
| 4-Chlorophenyl phenyl ether | ND          | 10               |                  |   |             |      |          |      |  |
| Chrysene                    | ND          | 10               |                  |   |             |      |          |      |  |
| Di-n-butyl phthalate        | ND          | 10               |                  |   |             |      |          |      |  |
| Di-n-octyl phthalate        | ND          | 10               |                  |   |             |      |          |      |  |
| Dibenz(a,h)anthracene       | ND          | 10               |                  |   |             |      |          |      |  |
| Dibenzofuran                | ND          | 10               |                  |   |             |      |          |      |  |
| 1,2-Dichlorobenzene         | ND          | 10               |                  |   |             |      |          |      |  |
| 1,3-Dichlorobenzene         | ND          | 10               |                  |   |             |      |          |      |  |
| 1,4-Dichlorobenzene         | ND          | 10               |                  |   |             |      |          |      |  |
| 3,3'-Dichlorobenzidine      | ND          | 10               |                  |   |             |      |          |      |  |
| Diethyl phthalate           | ND          | 10               |                  |   |             |      |          |      |  |
| Dimethyl phthalate          | ND          | 10               |                  |   |             |      |          |      |  |
| 2,4-Dichlorophenol          | ND          | 20               |                  |   |             |      |          |      |  |
| 2,4-Dimethylphenol          | ND          | 10               |                  |   |             |      |          |      |  |
| 4,6-Dinitro-2-methylphenol  | ND          | 20               |                  |   |             |      |          |      |  |
| 2,4-Dinitrophenol           | ND          | 20               |                  |   |             |      |          |      |  |
| -,                          |             |                  |                  |   |             |      |          |      |  |

#### Qualifiers:

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- E Value above quantitation range
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## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID mb-10639         | SampTy      | pe: <b>MBLK</b>       | Tes              | TestCode: EPA Method 8270C: Semivolatiles |                  |      |          |      |  |
|----------------------------|-------------|-----------------------|------------------|---|------------------|------|----------|------|--|
| Client ID: PBW             | Batch       | ID: 10639             |                  | RunNo: <b>15239</b>                       |                  |      |          |      |  |
| Prep Date: 12/4/2013       | Analysis Da | te: <b>12/4/201</b> : | 3                | SeqNo: <b>43946</b>                       | 7 Units: μg/L    |      |          |      |  |
| Analyte                    | Result      | PQL SPK v             | alue SPK Ref Val | %REC Lov                                  | wLimit HighLimit | %RPD | RPDLimit | Qual |  |
| 2,4-Dinitrotoluene         | ND          | 10                    |                  |   |                  |      |          |      |  |
| 2,6-Dinitrotoluene         | ND          | 10                    |                  |   |                  |      |          |      |  |
| Fluoranthene               | ND          | 10                    |                  |   |                  |      |          |      |  |
| Fluorene                   | ND          | 10                    |                  |   |                  |      |          |      |  |
| Hexachlorobenzene          | ND          | 10                    |                  |   |                  |      |          |      |  |
| Hexachlorobutadiene        | ND          | 10                    |                  |   |                  |      |          |      |  |
| Hexachlorocyclopentadiene  | ND          | 10                    |                  |   |                  |      |          |      |  |
| Hexachloroethane           | ND          | 10                    |                  |   |                  |      |          |      |  |
| Indeno(1,2,3-cd)pyrene     | ND          | 10                    |                  |   |                  |      |          |      |  |
| Isophorone                 | ND          | 10                    |                  |   |                  |      |          |      |  |
| 1-Methylnaphthalene        | ND          | 10                    |                  |   |                  |      |          |      |  |
| 2-Methylnaphthalene        | ND          | 10                    |                  |   |                  |      |          |      |  |
| 2-Methylphenol             | ND          | 10                    |                  |   |                  |      |          |      |  |
| 3+4-Methylphenol           | ND          | 10                    |                  |   |                  |      |          |      |  |
| N-Nitrosodi-n-propylamine  | ND          | 10                    |                  |   |                  |      |          |      |  |
| N-Nitrosodimethylamine     | ND          | 10                    |                  |   |                  |      |          |      |  |
| N-Nitrosodiphenylamine     | ND          | 10                    |                  |   |                  |      |          |      |  |
| hthalene                   | ND          | 10                    |                  |   |                  |      |          |      |  |
| . Vitroaniline             | ND          | 10                    |                  |   |                  |      |          |      |  |
| 3-Nitroaniline             | ND          | 10                    |                  |   |                  |      |          |      |  |
| 4-Nitroaniline             | ND          | 10                    |                  |   |                  |      |          |      |  |
| Nitrobenzene               | ND          | 10                    |                  |   |                  |      |          |      |  |
| 2-Nitrophenol              | ND          | 10                    |                  |   |                  |      |          |      |  |
| 4-Nitrophenol              | ND          | 10                    |                  |   |                  |      |          |      |  |
| Pentachlorophenol          | ND          | 20                    |                  |   |                  |      |          |      |  |
| Phenanthrene               | ND          | 10                    |                  |   |                  |      |          |      |  |
| Phenol                     | ND          | 10                    |                  |   |                  |      |          |      |  |
| Pyrene                     | ND          | 10                    |                  |   |                  |      |          |      |  |
| Pyridine                   | ND          | 10                    |                  |   |                  |      |          |      |  |
| 1,2,4-Trichlorobenzene     | ND          | 10                    |                  |   |                  |      |          |      |  |
| 2,4,5-Trichlorophenol      | ND          | 10                    |                  |   |                  |      |          |      |  |
| 2,4,6-Trichlorophenol      | ND          | 10                    |                  |   |                  |      |          |      |  |
| Surr: 2-Fluorophenol       | 120         | 2                     | 200.0            | 59.1                                      | 22.7 98          |      |          |      |  |
| Surr: Phenol-d5            | 89          |                       | 200.0            | 44.5                                      | 23.4 74.9        |      |          |      |  |
| Surr: 2,4,6-Tribromophenol | 170         |                       | 200.0            | 82.6                                      | 23.3 111         |      |          |      |  |
| Surr: Nitrobenzene-d5      | 76          |                       | 0.00             | 76.5                                      | 36.8 111         |      |          |      |  |
| Surr: 2-Fluorobiphenyl     | 7 <b>7</b>  |                       | 0.00             | 76.5                                      | 38.3 110         |      |          |      |  |
| Surr: 4-Terphenyl-d14      | 88          |                       | 00.0             | 88.1                                      | 52.1 116         |      |          |      |  |
| oun. 4 Torphonyi d 14      | -           |                       |                  | 33  |                  |      |          |      |  |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
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## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

AMEC

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID Ics-10639        | SampT           | ype: <b>LC</b> | s         | Tes         | Code: E  |          |             |      |          |      |
|----------------------------|-----------------|----------------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: LCSW            | Batch ID: 10639 |                |           | F           | tunNo: 1 | 5239     |             |      |          |      |
| Prep Date: 12/4/2013       | Analysis D      | ate: 12        | 2/4/2013  | S           | eqNo: 4  | 39468    | Units: µg/L |      |          |      |
| Analyte                    | Result          | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Acenaphthene               | 88              | 10             | 100.0     | 0           | 88.2     | 48       | 101         |      |          |      |
| 4-Chloro-3-methylphenol    | 170             | 10             | 200.0     | 0           | 84.2     | 47.9     | 109         |      |          |      |
| 2-Chlorophenol             | 160             | 10             | 200.0     | 0           | 80.9     | 40       | 105         |      |          |      |
| 1,4-Dichlorobenzene        | 77              | 10             | 100.0     | 0           | 77.2     | 40.8     | 94.3        |      |          |      |
| 2,4-Dinitrotoluene         | 80              | 10             | 100.0     | 0           | 79.7     | 28.3     | 131         |      |          |      |
| N-Nitrosodi-n-propylamine  | 87              | 10             | 100.0     | 0           | 87.1     | 46.2     | 119         |      |          |      |
| 4-Nitrophenol              | 86              | 10             | 200.0     | 0           | 42.9     | 10.5     | 67.9        |      |          |      |
| Pentachlorophenol          | 120             | 20             | 200.0     | 0           | 61.1     | 22.4     | 81.1        |      |          |      |
| Phenol                     | 97              | 10             | 200.0     | 0           | 48.7     | 21.4     | 72.9        |      |          |      |
| Pyrene                     | 79              | 10             | 100.0     | 0           | 79.4     | 46.9     | 109         |      |          |      |
| 1,2,4-Trichlorobenzene     | 76              | 10             | 100.0     | 0           | 76.5     | 43.1     | 98.4        |      |          |      |
| Surr: 2-Fluorophenol       | 110             |                | 200.0     |             | 57.4     | 22.7     | 98          |      |          |      |
| Surr: Phenol-d5            | 96              |                | 200.0     |             | 47.8     | 23.4     | 74.9        |      |          |      |
| Surr: 2,4,6-Tribromophenol | 180             |                | 200.0     |             | 90.0     | 23.3     | 111         |      |          |      |
| Surr: Nitrobenzene-d5      | 77              |                | 100.0     |             | 77.0     | 36.8     | 111         |      |          |      |
| Surr: 2-Fluorobiphenyl     | 80              |                | 100.0     |             | 79.7     | 38.3     | 110         |      |          |      |
| Surr: 4-Terphenyl-d14      | 92              |                | 100.0     |             | 91.9     | 52.1     | 116         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055 16-Dec-13

Client:

AMEC

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID LCS-10641   | SampType: LCS TestCode: EPA Method 8310: PAHs |          |           |             |          |          |             |      |          |      |
|-----------------------|---|----------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: LCSW       | Batch   | h ID: 10 | 641       | F           | RunNo: 1 | 5357     |             |      |          |      |
| Prep Date: 12/4/2013  | Analysis D                                    | Date: 12 | 2/9/2013  | S           | SeqNo: 4 | 42493    | Units: µg/L |      |          |      |
| Analyte               | Result  | PQL      | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 52  | 2.0      | 80.00     | 0           | 64.9     | 43.8     | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 37  | 2.0      | 80.20     | 0           | 46.1     | 41.3     | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 33  | 2.0      | 80.00     | 0           | 41.2     | 36.6     | 89.6        |      |          |      |
| Acenaphthylene        | 52  | 2.5      | 80.20     | 0           | 64.2     | 43.6     | 103         |      |          |      |
| Acenaphthene          | 37  | 5.0      | 80.00     | 0           | 46.0     | 42.4     | 87.6        |      |          |      |
| Fluorene              | 4.0   | 0.80     | 8.020     | 0           | 49.6     | 40.5     | 93.6        |      |          |      |
| Phenanthrene          | 2.6   | 0.60     | 4.020     | 0           | 63.4     | 43.9     | 111         |      |          |      |
| Anthracene            | 2.6   | 0.60     | 4.020     | 0           | 64.4     | 44.3     | 103         |      |          |      |
| Fluoranthene          | 5.4   | 0.30     | 8.020     | 0           | 68.0     | 43.5     | 109         |      |          |      |
| Pyrene                | 5.2   | 0.30     | 8.020     | 0           | 64.5     | 32.6     | 103         |      |          |      |
| Benz(a)anthracene     | 0.48  | 0.070    | 0.8020    | 0           | 59.9     | 43       | 114         |      |          |      |
| Chrysene              | 2.4   | 0.20     | 4.020     | 0           | 59.7     | 40.2     | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.65  | 0.10     | 1.002     | 0           | 64.9     | 44.4     | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.32  | 0.070    | 0.5000    | 0           | 64.0     | 41.5     | 120         |      |          |      |
| Benzo(a)pyrene        | 0.29  | 0.070    | 0.5020    | 0           | 57.8     | 34.5     | 118         |      |          |      |
| Dibenz(a,h)anthracene | 0.62  | 0.12     | 1.002     | 0           | 61.9     | 38.3     | 107         |      |          |      |
| Benzo(g,h,i)perylene  | 0.54  | 0.12     | 1.000     | 0           | 54.0     | 38.4     | 110         |      |          |      |
| no(1,2,3-cd)pyrene    | 1.4   | 0.25     | 2.004     | 0           | 72.4     | 42.4     | 113         |      |          |      |
| Surr: Benzo(e)pyrene  | 24  |          | 20.00     |             | 121      | 24.5     | 139         |      |          |      |

|             | /pe: MB  | LK   | TestCode: EPA Method 8310: PAH  |   |  |  |  |   |        |
|-------------|--|--|---|---|--|--|--|---|--------|
| Batch       | ID: 106  | 641  | R   | tunNo: 1  | 5357   |  |  |   |        |
| Analysis Da | ate: 12  | /9/2013  | S   | eqNo: 4   | 42494  | Units: µg/L  |  |   |        |
| Result      | PQL  | SPK value  | SPK Ref Val   | %REC  | LowLimit   | HighLimit  | %RPD   | RPDLimit  | Qual   |
| ND          | 2.0  |  |   |   |  |  |  |   |        |
| ND          | 2.0  |  |   |   |  |  |  |   |        |
| ND          | 2.0  |  |   |   |  |  |  |   |        |
| ND          | 2.5  |  |   |   |  |  |  |   |        |
| ND          | 5.0  |  |   |   |  |  |  |   |        |
| ND          | 0.80   |  |   |   |  |  |  |   |        |
| ND          | 0.60   |  |   |   |  |  |  |   |        |
| ND          | 0.60   |  |   |   |  |  |  |   |        |
| ND          | 0.30   |  |   |   |  |  |  |   |        |
| ND          | 0.30   |  |   |   |  |  |  |   |        |
| ND          | 0.070  |  |   |   |  |  |  |   |        |
| ND          | 0.20   |  |   |   |  |  |  |   |        |
| ND          | 0.10   |  |   |   |  |  |  |   |        |
| ND          | 0.070  |  |   |   |  |  |  |   |        |
|             | Result  ND | Result         PQL           ND         2.0           ND         2.0           ND         2.0           ND         2.5           ND         5.0           ND         0.80           ND         0.60           ND         0.30           ND         0.30           ND         0.070           ND         0.20           ND         0.10 | Result         PQL         SPK value           ND         2.0           ND         2.0           ND         2.5           ND         5.0           ND         0.80           ND         0.60           ND         0.30           ND         0.30           ND         0.070           ND         0.20           ND         0.10 | Result         PQL         SPK value         SPK Ref Val           ND         2.0           ND         2.0           ND         2.5           ND         5.0           ND         0.80           ND         0.60           ND         0.30           ND         0.30           ND         0.070           ND         0.20           ND         0.10 | Result         PQL         SPK value         SPK Ref Val         %REC           ND         2.0           ND         2.0           ND         2.5           ND         5.0           ND         0.80           ND         0.60           ND         0.30           ND         0.30           ND         0.070           ND         0.20           ND         0.10 | Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit           ND         2.0         ND         2.0         ND         2.0         ND         2.0         ND         2.0         ND         2.0         ND         ND         0.0         ND         ND         ND         0.0         ND         ND         ND         ND         ND         ND         0.0         ND         ND | Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit           ND         2.0         ND         2.0         ND         2.0         ND         2.0         ND         ND         1.0         ND         ND< | Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD           ND         2.0           ND         2.0           ND         2.0           ND         2.5           ND         5.0           ND         0.80           ND         0.60           ND         0.60           ND         0.30           ND         0.30           ND         0.070           ND         0.20           ND         0.10 | Result |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- J RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

17

WO#:

1312055 16-Dec-13

AMEC

Client: Project:

Surr: Benzo(e)pyrene

Lightning Dock Geothermal Water Quality Moni

TestCode: EPA Method 8310: PAHs SampType: MBLK Sample ID MB-10641 Client ID: PBW Batch ID: 10641 RunNo: 15357 SeqNo: 442494 Prep Date: 12/4/2013 Analysis Date: 12/9/2013 Units: µg/L Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Analyte 0.070 Benzo(a)pyrene ND ND 0.12 Dibenz(a,h)anthracene Benzo(g,h,i)perylene ND 0.12 ND 0.25 Indeno(1,2,3-cd)pyrene

86.4

24.5

139

20.00

| Sample ID 1312055-001CMS | SampT      | ype: MS       | 3         | Test        | tCode: E     | PA Method  | 8310: PAHs  |      |          |      |
|--------------------------|------------|---------------|-----------|-------------|--------------|------------|-------------|------|----------|------|
| Client ID: LDG 55-7      | Batch      | 1D: <b>10</b> | 641       | F           | RunNo: 1     | 5357       |             |      |          |      |
| Prep Date: 12/4/2013     | Analysis D | ate: 12       | 2/9/2013  | S           | SeqNo: 4     | 42956      | Units: µg/L |      |          |      |
| Analyte                  | Result     | PQL           | SPK value | SPK Ref Val | %REC         | LowLimit   | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene              | 43         | 2.0           | 80.00     | 1.140       | 52.4         | 70         | 130         |      |          | S    |
| 1-Methylnaphthalene      | 31         | 2.0           | 80.20     | 0           | 38.1         | 70         | 130         |      |          | S    |
| 2-Methylnaphthalene      | 28         | 2.0           | 80.00     | 0           | 35.6         | 70         | 130         |      |          | S    |
| Acenaphthylene           | 65         | 2.5           | 80.20     | 10.28       | 68.8         | 70         | 130         |      |          | S    |
| Acenaphthene             | 30         | 5.0           | 80.00     | 0           | 37.4         | 70         | 130         |      |          | S    |
| Fluorene                 | 3.5        | 0.80          | 8.020     | 0           | 43.4         | 70         | 130         |      |          | S    |
| Phenanthrene             | 2.8        | 0.60          | 4.020     | 0.6500      | 53. <b>7</b> | 70         | 130         |      |          | S    |
| Anthracene               | 2.1        | 0.60          | 4.020     | 0           | 53.0         | 70         | 130         |      |          | S    |
| Fluoranthene             | 4.3        | 0.30          | 8.020     | 0           | 53.6         | 70         | 130         |      |          | S    |
| Pyrene                   | 4.4        | 0.30          | 8.020     | 0.7100      | 46.5         | 70         | 130         |      |          | S    |
| Benz(a)anthracene        | 0.39       | 0.070         | 0.8020    | 0           | 48.6         | 70         | 130         |      |          | S    |
| Chrysene                 | 2.0        | 0.20          | 4.020     | 0.08000     | 46.8         | 70         | 130         |      |          | S    |
| Benzo(b)fluoranthene     | 0.48       | 0.10          | 1.002     | 0           | 47.9         | 70         | 130         |      |          | S    |
| Benzo(k)fluoranthene     | 0.22       | 0.070         | 0.5000    | 0           | 44.0         | 70         | 130         |      |          | S    |
| Benzo(a)pyrene           | 0.24       | 0.070         | 0.5020    | 0           | 47.8         | <b>7</b> 0 | 130         |      |          | S    |
| Dibenz(a,h)anthracene    | 0.50       | 0.12          | 1.002     | 0           | 49.9         | 70         | 130         |      |          | S    |
| Benzo(g,h,i)perylene     | 0.90       | 0.12          | 1.000     | 0.4400      | 46.0         | 70         | 130         |      |          | S    |
| Indeno(1,2,3-cd)pyrene   | 1.2        | 0.25          | 2.004     | 0.1000      | 52.4         | 70         | 130         |      |          | \$   |
| Surr: Benzo(e)pyrene     | 13         |               | 20.00     |             | 67.2         | 24.5       | 139         |      |          |      |

| Sample ID 1312055-001CMS | SD SampT   | ype: MS | SD        | Tes         | tCode: El | PA Method | 8310: PAHs  |       |          |      |
|--------------------------|------------|---------|-----------|-------------|-----------|-----------|-------------|-------|----------|------|
| Client ID: LDG 55-7      | Batch      | ID: 10  | 641       | F           | RunNo: 1  | 5357      |             |       |          |      |
| Prep Date: 12/4/2013     | Analysis D | ate: 12 | 2/9/2013  | S           | SeqNo: 4  | 42957     | Units: µg/L |       |          |      |
| Analyte                  | Result     | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD  | RPDLimit | Qual |
| Naphthalene              | 46         | 2.0     | 80.00     | 1.140       | 56.3      | 70        | 130         | 7.02  | 20       | S    |
| 1-Methylnaphthalene      | 32         | 2.0     | 80.20     | 0           | 39.3      | 70        | 130         | 3.13  | 20       | S    |
| 2-Methylnaphthalene      | 28         | 2.0     | 80.00     | 0           | 35.5      | 70        | 130         | 0.457 | 20       | S    |
| Acenaphthylene           | 72         | 2.5     | 80.20     | 10.28       | 77.3      | 70        | 130         | 9.95  | 20       |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 1312055-001CMSD SampType: MSD TestCode: EPA Method 8310: PAHs |            |                 |           |             |               |          |             |      |          |      |
|---|------------|-----------------|-----------|-------------|---------------|----------|-------------|------|----------|------|
| Client ID: LDG 55-7   | Batch      | h ID: <b>10</b> | 641       | R           | RunNo: 1      | 5357     |             |      |          |      |
| Prep Date: 12/4/2013  | Analysis D | Date: 12        | 2/9/2013  | S           | SeqNo: 4      | 42957    | Units: µg/L |      |          |      |
| Analyte   | Result     | PQL             | SPK value | SPK Ref Val | %REC          | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Acenaphthene  | 31         | 5.0             | 80.00     | 0           | 38.3          | 70       | 130         | 2.18 | 20       | S    |
| Fluorene  | 3.6        | 0.80            | 8.020     | 0           | 45.3          | 70       | 130         | 4.22 | 20       | S    |
| Phenanthrene  | 3.0        | 0.60            | 4.020     | 0.6500      | 5 <b>7</b> .2 | 70       | 130         | 4.86 | 20       | S    |
| Anthracene  | 2.2        | 0.60            | 4.020     | 0           | 55.7          | 70       | 130         | 5.03 | 20       | S    |
| Fluoranthene  | 4.5        | 0.30            | 8.020     | 0           | 55.7          | 70       | 130         | 3.88 | 20       | S    |
| Pyrene  | 4.7        | 0.30            | 8.020     | 0.7100      | 49.3          | 70       | 130         | 4.84 | 20       | S    |
| Benz(a)anthracene   | 0.42       | 0.070           | 0.8020    | 0           | 52.4          | 70       | 130         | 7.41 | 20       | S    |
| Chrysene  | 2.1        | 0.20            | 4.020     | 0.08000     | 50.5          | 70       | 130         | 7.37 | 20       | S    |
| Benzo(b)fluoranthene  | 0.52       | 0.10            | 1.002     | 0           | 51.9          | 70       | 130         | 8.00 | 20       | S    |
| Benzo(k)fluoranthene  | 0.25       | 0.070           | 0.5000    | 0           | 50.0          | 70       | 130         | 12.8 | 20       | S    |
| Benzo(a)pyrene  | 0.27       | 0.070           | 0.5020    | 0           | 53.8          | 70       | 130         | 11.8 | 20       | S    |
| Dibenz(a,h)anthracene   | 0.54       | 0.12            | 1.002     | 0           | 53.9          | 70       | 130         | 7.69 | 20       | S    |
| Benzo(g,h,i)perylene  | 1.2        | 0.12            | 1.000     | 0.4400      | 71.0          | 70       | 130         | 24.4 | 20       | R    |
| Indeno(1,2,3-cd)pyrene  | 1.2        | 0.25            | 2.004     | 0.1000      | 57.4          | 70       | 130         | 8.33 | 20       | S    |
| Surr: Benzo(e)pyrene  | 14         |                 | 20.00     |             | 72.4          | 24.5     | 139         | 0    |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- ' Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

**Client: AMEC** 

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10711 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: **PBW** Batch ID: 10711 RunNo: 15336

Prep Date: 12/9/2013 Analysis Date: 12/9/2013 SegNo: 441860 Units: µg/L

Analyte **PQL** SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual LowLimit

ND 2.5 Phenolics, Total Recoverable

Sample ID LCS-10711 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 10711 RunNo: 15336

Prep Date: 12/9/2013 Analysis Date: 12/9/2013 SegNo: 441861 Units: µg/L

SPK value SPK Ref Val %REC LowLimit **RPDLimit** Result PQL HighLimit %RPD Qual Analyte

2.5 20.00 23 74.1 Phenolics, Total Recoverable 113

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID mb-2

SampType: mblk

TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R15223

RunNo: 15223

Prep Date:

Analyte

Analysis Date: 12/3/2013

SeqNo: 439031

Units: mg/L CaCO3

Qual

Total Alkalinity (as CaCO3)

Result **PQL** ND

Result

SPK value SPK Ref Val %REC 20

LowLimit

LowLimit

HighLimit

%RPD

%RPD

**RPDLimit** 

SampType: Ics

TestCode: SM2320B: Alkalinity

Sample ID Ics-2 Client ID:

LCSW

Batch ID: R15223

RunNo: 15223 SeqNo: 439032

Units: mg/L CaCO3

Prep Date: Analyte

Analysis Date: 12/3/2013

SPK value SPK Ref Val %REC

**RPDLimit** 

Qual

Total Alkalinity (as CaCO3)

110

HighLimit

PQL 98.1 90 79 20 80.00 0

#### Qualifiers:

- Value exceeds Maximum Contaminant Level. Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit Ο
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits S
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η

Sample pH greater than 2 for VOA and TOC only.

- ND Not Detected at the Reporting Limit
- RLReporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client:

AMEC

Project:

Lightning Dock Geothermal Water Quality Moni

TestCode: SIM2540C MOD: Total Dissolved Solids Sample ID MB-10626 SampType: MBLK PBW Batch ID: 10626 RunNo: 15274 Client ID: Units: mg/L Analysis Date: 12/5/2013 SeqNo: 440340 Prep Date: 12/3/2013 SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Result **PQL** Analyte

Total Dissolved Solids ND 20.0

TestCode: SIM2540C MOD: Total Dissolved Solids Sample ID LCS-10626 SampType: LCS Client ID: LCSW Batch ID: 10626 RunNo: 15274 SeqNo: 440341 Prep Date: 12/3/2013 Analysis Date: 12/5/2013 Units: mg/L Result PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** LowLimit Qual Analyte 1020 1000 102 120 Total Dissolved Solids 20.0

Qualifiers:

\* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greate: than 2 for VOA and TOC only.

RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX; 505-345-4107

Website: www.hallenvironmental.com

# Sample Log-In Check List

Client Name: AMEC Work Order Number: 1312055 RcptNo: 1 12/62/13 Received by/date: anne Sham 12/2/2013 3:20:00 PM Logged By: **Anne Thorne** Completed By: Anne Thorne 12/3/2013 Reviewed By Chain of Custody 1. Custody seals intact on sample bottles? No Not Present ✓ Not Present 2. Is Chain of Custody complete? Yes V Nο 3. How was the sample delivered? Client Log In No [ NA . 4. Was an attempt made to cool the samples? Yes 🗸 5. Were all samples received at a temperature of >0° C to 6.0°C No .... NA 🗍 Sample(s) in proper container(s)? No 7. Sufficient sample volume for indicated test(s)? No 8. Are samples (except VOA and ONG) properly preserved? No Yes 9. Was preservative added to bottles? Yes 🗸 No : NA HNO3, HNO3 No 🛄 10. VOA vials have zero headspace? Yes No VOA Vials 🗹 No 🗸 11. Were any sample containers received broken? Yes -# of preserved bottles checked 12. Does paperwork match bottle labels? No . for pH: or >12 unless noted) (Note discrepancies on chain of custody) No 13. Are matrices correctly identified on Chain of Custody? No Checked by: 15 12/03/13 14. Is it clear what analyses were requested? Yes 15. Were all holding times able to be met? No 🗸 Yes (If no, notify customer for authorization.) Special Handling (if applicable) 16. Was client notified of all discrepancies with this order? Yes 🗔 No [] NA 🗸 Person Notified: Date By Whom: Via: eMail Fax In Person Phone Regarding: Client Instructions: 17. Additional remarks: SAMPLE POURED OFF FOR RADON ANALYSIS-(RADON OUT OF HOLD) DISSOLVED METALS SAMPLE POURED OFF, FILTERED AND PRESERVED IN LAB/at 12/3/13 18. Cooler Information Radan Sample broke during shipment to Sub lab; unable to analyze the Radon / 12/04/13 Page 1 of 2



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

# Sample Log-In Check List

Client Name: AMEC

Work Order Number: 1312055

RcptNo: 1

| - | Cooler No | Temp ℃ | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|-----------|--------|-----------|-------------|---------|-----------|-----------|
|   | 1         | 4.7    |           | Not Present |         |           |           |

| C        | hain-        | of-Cu       | stody Record                             | Turn-Around                                      |                       |                                   | HALL ENVIRONM |                  |                  | 4E   | NT/                | ٨L            |   |                 |                  |                 |             |  |                   |               |
|----------|--------------|-------------|--|--|-----------------------|-----------------------------------|---------------|------------------|------------------|--|--------------------|---------------|---|-----------------|------------------|-----------------|-------------|--|-------------------|---------------|
| Client:  | AM           | 36-2        | thuronments                              | ★ Standard                                       | □ Rush                |                                   |               |                  |                  |  |                    |               |   |                 |                  |                 |             | TO   |                   |               |
|          | Thy          | Frast.      | acture. In.                              | Project Name                                     | ):<br>- Dark          | water<br>o vality                 |               |                  |                  | w  | ww.ha              | ilenv         | /ironi  | ment            | al.cc            | m               |             |  |                   |               |
| Mailing  | Address      | 851         | inture Inc<br>9 JeffersonSt NE           | Lightning  | Dock Coothe           | mal) mountaining                  |               | 490              | )1 Ha            | awkin  | NE ·               | - Alt         | ouque   | arqu            | e, NI            | M 87            | 109         |  |                   |               |
|          | AB(          | DIN         | M 87113                                  | Project #:                                       | 517-001               | (1)2 A <b>E</b>                   |               | Te               | 1. 50            | 5 <b>-</b> 345                               | -3975              | F             | Fax (   | \$05-           | 345-             | 410             | 7           |  |                   |               |
| Phone    |              |             | 21-1801                                  | 1  | 517-001               | 02,08                             |               |                  |                  |  | ,                  | Anal          | ysis  | Req             | uest             |                 |             |  |                   |               |
|          |              |             | janney Bamer, con                        | Project Mana                                     | ger:                  |                                   | =             | <u>Ş</u>         | (les             |  |                    |               | 04)   |                 |                  |                 | Ru M        |  |                   |               |
| QA/QC    | Package:     |             | ,  | David  | Jankey                | 7                                 | (8021)        | + TPH (Gas only) | (Gas/Diesel)     |  |                    |               | S,4,  | CB's            |                  |                 | 정           | 5  |                   |               |
| X Stan   |              |             | ☐ Level 4 (Full Validation)              | ļ  |                       | <del></del>                       | 3.s (         | 9                | Gas              |  |                    |               | ),PC  | (8082 PCB'      |                  |                 | 7           | 2  |                   |               |
| Accredi  |              | - O#-       | _  | Sampler: <b>£</b>                                | Fric Ku               | ehig                              | TMB's         | 百                |                  | $\exists$                                    | F                  |               | ON,   | (జ)             |                  |                 | 8           | Z  |                   | Î             |
| □ NEL    |              | □ Othe      |  | On Ice:<br>Sample Tem                            | X Yes *               |                                   | +             | +<br>Ш           | 801              | 418.1)                                       | PAH)               | 8             | No.   | y sə            | ,                | QA)             | Š           | 20   |                   | Y or          |
| EDD      | (Type)_      | EX          | (e) # 12/06/15                           | Sample Tem                                       | perature: 👟           | ALCONOMICA CONTRACTOR             |               | + MTBE           | g                | pod .  | A 0                | Neta          | ,<br>D,   | ticid           | OA)              | j-j-            | M           | 2  | A                 | ) se          |
| Date     | Time         | Matrix      | Sample Request ID                        | Container  | Preservative          | HEAL No.                          | BTEX + MTBE   | +                | TPH Method 8015B | TPH (Method                                  | 8310 (PNA or PAH)  | RCRA 8 Metals | Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> ) | 8081 Pesticides | 8260B (VOA)      | 8270 (Semi-VOA) | Metals Plus | 0109   | Phenots           | qq            |
| Date     | 11116        | Mallix      | Sample Request 15                        | Type and #                                       | Туре                  | 10 10 3                           | 핕             | втех             | 핆                | E  | 310                | S. S.         | njor  | 081             | 260              | 270             | 2           | 770  | 43                | i B           |
| 1/24/13  |              |             | 172                                      |  |                       | 13/2000                           | in in         | <u>m</u>         | -                | <u>                                     </u> | 1 8<br>8           | <u> </u>      | <u> </u>  | <u>®</u>        | \<br>\           | × ×             | 7           | 3/2  |                   | 4             |
|          |              |             | MW-1B                                    | <u> </u>   |                       | 1                                 | -             | +                |                  |  | <del>-   -  </del> | $\vdash$      |   |                 |                  |                 | -           | 7  | $\overline{\Box}$ | $\exists$     |
| 11/27/13 | 1500         | Water       | LDG 55-7                                 | Û  |                       | -001                              | $\square$     |                  |                  | $\times$  >                                  | < X                | <u> </u>      | X   | X               | X                | ×               | X           | $\times\!$ | X                 | _             |
|          |              |             |  |  |                       |                                   |               |                  |                  |  |                    |               |   |                 |                  |                 |             |  |                   |               |
|          |              |             |  |  | ,                     |                                   |               |                  |                  |  |                    |               |   |                 |                  |                 |             | $\perp$  |                   |               |
|          |              |             |  |  |                       |                                   |               |                  |                  |  |                    |               |   |                 |                  |                 |             |  |                   |               |
|          |              |             |  |  |                       |                                   |               |                  |                  |  |                    |               |   |                 |                  |                 |             |  |                   |               |
|          |              |             |  |  |                       |                                   |               |                  |                  |  |                    |               |   |                 |                  |                 |             |  |                   |               |
|          |              |             |  |  |                       |                                   |               |                  |                  |  |                    |               |   | <b></b>         |                  |                 |             |  | 11                | $\sqcap$      |
|          |              |             |  |  |                       |                                   |               | $\neg$           | -                | +  | +                  | $\vdash$      |   |                 | -                |                 |             | $\dashv$   | ++                | $\dashv$      |
|          |              |             |  |  |                       |                                   | $\vdash$      |                  |                  | +  | _                  | <del> </del>  |   |                 |                  | $\vdash$        |             | _  | +                 | $\neg$        |
|          | -            |             |  |  |                       |                                   |               | $\dashv$         |                  | +  | +-                 | -             | -   |                 |                  | _               |             | -  | ++                | $\dashv$      |
|          |              |             |  | <del>                                     </del> | h 1                   |                                   |               | -                |                  | -  | +                  | -             | <del> </del>  |                 |                  |                 | $\dashv$    |  | -                 | $\dashv$      |
| Date:    | Time:        | Relinquish  | ed by:                                   | Received by:                                     | <u> </u>              | Date Time                         | Ren           | narks            |                  | <u>n</u>                                     | <u> </u>           |               | 630   | L.              | <u></u>          | 110             |             | Porti  |                   | الوري         |
| 12/1/12  | 15:20        | 400         | To Kony                                  | 12   | 1/12                  | 162/13/52                         |               |                  | <br>P. 1         | AH   | cho                | zl'           | Fo  | T 1             | Lu               | lla             | nal         | ste  | ₹5071<br><b>S</b> | ACM           |
| Date:    | Time:        | Relinquish  | ed by:                                   | Received by:                                     |                       | Date Time                         |               | 112              | +                |  | Plan               | _<br>         |   | ·               |                  | سل              |             | 100  | - C 1 - C 1       | 6             |
|          |              |             | ,  |  |                       |                                   | F             | epo              | w+               | for  | - th               | 7 <b>E</b>    | 94  | シル・             | اسماعه<br>حداً د | Pe              |             | yte<br>sev<br>& CY   | BA.               |               |
| 1:       | f necessary, | samples sub | mitted to Hall Environmental may be subc | ontracted to other a                             | ccredited laboratorie | es. This serves as notice of this | s possit      | ility. A         | Any sub          | o-contra                                     | ted data           | will be       | e clear   | ly nota         | ted on           | the ar          | nalytica    | report.  | משטים<br>מי       | 122¥<br>1,2√1 |
|          |              |             |  |  |                       |                                   |               |                  |                  |  |                    |               |   |                 |                  |                 |             |  | 11-12/            | ,,,,,         |



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

OrderNo.: 1312666

January 22, 2014

David Janney Cyrq Energy Inc PO Box 86 Animas, NM 88020

TEL: (505) 796-7276

FAX

RE: Lightning Dock CYRQ ENERGY

Dear David Janney:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/16/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

### **Analytical Report**

#### Lab Order 1312666

Date Reported: 1/22/2014

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: 53-7

Project: Lightning Dock CYRQ ENERGY Collection Date: 12/13/2013 2:00:00 PM

Lab ID: 1312666-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:03:00 AM

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed Bate         | ch   |
|-----------------------------------|--------|----------|------|-------|----|----------------------------|------|
| EPA METHOD 3011/504.1: EDB        |        |          |      |       |    | Analyst: LRV               | w    |
| 1,2-Dibromoethane                 | СИ     | 0.010    |      | μg/L  | 1  | 12/16/2013 9:59:38 PM 108  | 22   |
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Analyst: SCO               | С    |
| Aroclor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 107  | '96  |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 1079 | 96   |
| Aroclor 1232                      | NĐ     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 1079 | 96   |
| Aroclor 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 1079 | 96   |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 107  | 96   |
| Aroclor 1254                      | ND     | 1.0      |      | µg/L  | 1  | 12/18/2013 5:01:00 AM 107  | 96   |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 107  | 96   |
| Surr: Decachlorobiphenyl          | 86.0   | 17-123   |      | %REC  | 1  | 12/18/2013 5:01:00 AM 107  | '96  |
| Surr: Tetrachloro-m-xylene        | 66.4   | 22.6-113 |      | %REC  | 1  | 12/18/2013 5:01:00 AM 107  | 96   |
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst: SC                | С    |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | 97   |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | 97   |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | 97   |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | 97   |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | 97   |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | 97   |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | '97  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | 97   |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | 97   |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | '97  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | '97  |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | '97  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | '97  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | µg/L  | 1  | 12/17/2013 10:29:26 PM 107 | '97  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | '97  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | 797  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | µg/L  | 1  | 12/17/2013 10:29:26 PM 107 | '97  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 107 | '97  |
| Surr: Benzo(e)pyrene              | 42.4   | 24.5-139 |      | %REC  | 1  | 12/17/2013 10:29:26 PM 107 | '97  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst: JRI               | R    |
| Fluoride                          | 1.4    | 0.10     |      | mg/L  | 1  | 12/16/2013 10:09:50 PM R15 | 5551 |
| Chloride                          | 33     | 10       |      | mg/L  | 20 | 12/16/2013 10:22:15 PM R15 | 5551 |
| Phosphorus, Orthophosphate (As P) | ND     | 0.50     | Н    | mg/L  | 1  | 12/16/2013 10:09:50 PM R15 | 5551 |
| Sulfate                           | 120    | 10       |      | mg/L  | 20 | 12/16/2013 10:22:15 PM R15 | 5551 |
| Nitrate+Nitrite as N              | ND     | 1.0      |      | mg/L  | 5  | 12/17/2013 4:59:32 AM R15  | 5551 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R. RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 1 of 28
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1312666

Hall Environmental Analysis Laboratory, Inc. Date Reported: 1/22/2014

Client Sample ID: 53-7 **CLIENT:** Cyrq Energy Inc

Collection Date: 12/13/2013 2:00:00 PM Project: Lightning Dock CYRQ ENERGY Received Date: 12/16/2013 9:03:00 AM Lab ID: 1312666-001 Matrix: AQUEOUS

| Analyses                       | Result | RL Qu   | al Units | DF | Date Analyzed         | Batch          |
|--------------------------------|--------|---------|----------|----|-----------------------|----------------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |          |    | Analys                | st: JLF        |
| Aluminum                       | ND     | 0.020   | mg/L     | 1  | 12/19/2013 5:40:30 PI | M R15612       |
| Barium                         | 0.038  | 0.0020  | mg/L     | 1  | 12/19/2013 5:40:30 PI | M R15612       |
| Boron                          | 0.12   | 0.040   | mg/L     | 1  | 12/19/2013 5:40:30 PI | M R15612       |
| Cadmium                        | ND     | 0.0020  | mg/L     | 1  | 12/19/2013 5:40:30 PI | M R15612       |
| Calcium                        | 26     | 1.0     | mg/L     | 1  | 12/19/2013 5:40:30 PI | M R15612       |
| Chromium                       | ND     | 0.0060  | mg/L     | 1  | 12/19/2013 5:40:30 PI | M R15612       |
| Cobalt                         | ND     | 0.0060  | mg/L     | 1  | 12/19/2013 5:40:30 P  | M R15612       |
| Copper                         | ND     | 0.0060  | mg/L     | 1  | 12/19/2013 5:40:30 P  | M R15612       |
| Iron                           | ND     | 0.020   | mg/L     | 1  | 12/19/2013 5:40:30 P  | M R15612       |
| Magnesium                      | 1.9    | 1.0     | mg/L     | 1  | 12/19/2013 5:40:30 P  | M R15612       |
| Manganese                      | 0.067  | 0.0020  | * mg/L   | 1  | 12/19/2013 5:40:30 P  |                |
| Molybdenum                     | ND     | 0.0080  | mg/L     | 1  | 12/19/2013 5:40:30 P  | M R15612       |
| Nickel                         | ND     | 0.010   | mg/L     | 1  | 12/19/2013 5:40:30 P  | M R15612       |
| Potassium                      | 3.9    | 1.0     | mg/L     | 1  | 12/19/2013 5:40:30 P  |                |
| Silver                         | ND     | 0.0050  | mg/L     | 1  | 12/19/2013 5:40:30 P  |                |
| Sodium                         | 72     | 1.0     | mg/L     | 1  | 12/19/2013 5:40:30 P  |                |
| Zinc                           | 0.049  | 0.010   | mg/L     | 1  | 12/19/2013 5:40:30 P  | M R15612       |
| EPA 200.8: DISSOLVED METALS    |        |         |          |    | Analys                | st: <b>DBD</b> |
| Arsenic                        | ND     | 0.0010  | mg/L     | 1  | 1/6/2014 5:09:54 PM   | R15909         |
| Lead                           | ND     | 0.0010  | mg/L     | 1  | 1/6/2014 5:09:54 PM   | R15909         |
| Uranium                        | ND     | 0.0010  | mg/L     | 1  | 1/7/2014 6:07:19 PM   | R15934         |
| EPA METHOD 245.1: MERCURY      |        |         |          |    | Analys                | st: IDC        |
| Mercury                        | ND     | 0.00020 | mg/L     | 1  | 1/3/2014 3:52:08 PM   | 11064          |
| EPA METHOD 8270C: SEMIVOLATIL  | ES     |         |          |    | Analy                 | st: <b>DAM</b> |
| Acenaphthene                   | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31   | AM 10800       |
| Acenaphthylene                 | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31   | AM 10800       |
| Aniline                        | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31   | AM 10800       |
| Anthracene                     | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31   | AM 10800       |
| Azobenzene                     | ND     | 10      | µg/∟     | 1  | 12/18/2013 10:03:31   | AM 10800       |
| Benz(a)anthracene              | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31   | AM 10800       |
| Benzo(a)pyrene                 | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31   | AM 10800       |
| Benzo(b)fluoranthene           | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31   | AM 10800       |
| Benzo(g,h,i)perylene           | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31   |                |
| Benzo(k)fluoranthene           | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31   |                |
| Benzoic acid                   | ND     | 40      | μg/L     | 1  | 12/18/2013 10:03:31   |                |
| Benzyl alcohol                 | ND     | 10      | µg/Ľ     | 1  | 12/18/2013 10:03:31   |                |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31   |                |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31   | AM 10800       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits J
- $\mathbf{o}$ RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded H
- ND Not Detected at the Reporting Limit

  - Not Detected at the Reporting Limit Page 2 of 28 Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

#### **Analytical Report**

#### Lab Order 1312666

Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc

Client Sample ID: 53-7

Project: Lightning Dock CYRQ ENERGY

**Collection Date:** 12/13/2013 2:00:00 PM

Lab ID: 1312666-001

Matrix: AQUEOUS

Received Date: 12/16/2013 9:03:00 AM

| Analyses                    | Result | RL Qu                                 | al Units | DF | Date Analyzed      | Batch            |
|-----------------------------|--------|---------------------------------------|----------|----|--------------------|------------------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  | · · · · · · · · · · · · · · · · · · · |          |    | Ana                | lyst: <b>DAM</b> |
| Bis(2-chloroisopropyl)ether | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Bis(2-ethylhexyl)phthalate  | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 4-Bromophenyl phenyl ether  | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Butyl benzyl phthalate      | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Carbazole                   | ND     | 10                                    | µg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 4-Chloro-3-methylphenol     | ND     | 10                                    | µg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 4-Chloroaniline             | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 2-Chloronaphthalene         | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 2-Chlorophenol              | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 4-Chlorophenyl phenyl ether | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Chrysene                    | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Di-n-butyl phthalate        | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Di-n-octyl phthalate        | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Dibenz(a,h)anthracene       | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Dibenzofuran                | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 1,2-Dichlorobenzene         | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 1,3-Dichlorober zene        | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 1,4-Dichloroberizene        | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 3,3'-Dichlorobenzidine      | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Diethyl phthalate           | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Dimethyl phthalate          | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 2,4-Dichlorophenol          | ND     | 20                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 2,4-Dimethylphenol          | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 4,6-Dinitro-2-methylphenol  | ND     | 20                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 2,4-Dinitrophenol           | ND     | 20                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 2,4-Dinitrotoluene          | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 2,6-Dinitrotoluene          | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Fluoranthene                | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Fluorene                    | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Hexachlorobenzene           | ND     | 10                                    | µg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Hexachlorobutadiene         | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Hexachlorocyclopentadiene   | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Hexachloroethane            | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Indeno(1,2,3-cd)pyrene      | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| Isophorone                  | ND     | 10                                    | µg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 1-Methylnaphthalene         | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 2-Methylnaphthalene         | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 2-Methylphenol              | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |
| 3+4-Methylphenol            | ND     | 10                                    | μg/L     | 1  | 12/18/2013 10:03:3 | 1 AM 10800       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 3 of 28

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### Lab Order 1312666

Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: 53-7

Project: Lightning Dock CYRQ ENERGY Collection Date: 12/13/2013 2:00:00 PM

Lab ID: 1312666-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:03:00 AM

| Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed        | Batch           |
|--------------------------------|--------|-----------|----------|----|----------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLAT    | ILES   |           |          |    | Anal                 | yst: <b>DAM</b> |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| N-Nitrosodiphenylamine         | ND     | 10        | µg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Naphthalene                    | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| 2-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| 3-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| 4-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Nitrobenzene                   | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| 2-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| 4-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Phenol                         | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Pyrene                         | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Pyridine                       | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Surr: 2-Fluorophenol           | 49.9   | 22.7-98   | %REC     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Surr: Phenol-d5                | 40.5   | 23.4-74.9 | %REC     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Surr: 2,4,6-Tribromophenol     | 90.1   | 23.3-111  | %REC     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Surr: Nitrobenzene-d5          | 80.1   | 36.8-111  | %REC     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Surr: 2-Fluorobiphenyl         | 95.9   | 38.3-110  | %REC     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| Surr: 4-Terphenyl-d14          | 91.6   | 52.1-116  | %REC     | 1  | 12/18/2013 10:03:31  | AM 10800        |
| EPA METHOD 8260B: VOLATILES    | ;      |           |          |    | Anal                 | yst: JMP        |
| Benzene                        | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55 [ | PM R1552        |
| Toluene                        | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |
| Ethylbenzene                   | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |
| Naphthalene                    | ND     | 2.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R155         |
| Acetone                        | ND     | 10        | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |
| Bromobenzene                   | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |
| Bromodichloromethane           | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55   | PM R1552        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded H
- Not Detected at the Reporting Limit ND
- Not Detected at the Reporting Limit Page 4 of 28 Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

#### **Analytical Report**

#### Lab Order 1312666

Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: 53-7

Project:Lightning Dock CYRQ ENERGYCollection Date: 12/13/2013 2:00:00 PMLab ID:1312666-001Matrix: AQUEOUSReceived Date: 12/16/2013 9:03:00 AM

| Analyses                    | Result | RL Qu                                 | al Units      | DF | Date Analyzed         | Batch  |
|-----------------------------|--------|---------------------------------------|---------------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES |        | · · · · · · · · · · · · · · · · · · · |               |    | Analyst:              | JMP    |
| Bromoform                   | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Bromomethane                | ND     | 3.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 2-Butanone                  | ND     | 10                                    | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Carbon disulfide            | ND     | 10                                    | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Carbon Tetrachloride        | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Chlorobenzene               | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Chloroethane                | ND     | 2.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Chloroform                  | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Chloromethane               | ND     | 3.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 2-Chlorotoluene             | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 4-Chlorotoluene             | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| cis-1,2-DCE                 | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| cis-1,3-Dichloropropene     | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Dibromochloromethane        | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Dibromomethane              | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,2-Dichlorobenzene         | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,3-Dichlorobenzene         | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,4-Dichlorober zene        | ND     | 1.0                                   | μ <b>g</b> /L | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Dichlorodifluoromethane     | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,1-Dichloroethane          | ND     | 1.0                                   | μ <b>g</b> /L | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,1-Dichloroethene          | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,2-Dichloropropane         | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,3-Dichloropropane         | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 2,2-Dichloropropane         | ND     | 2.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,1-Dichloropropene         | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Hexachlorobutadiene         | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 2-Hexanone                  | ND     | 10                                    | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Isopropylbenzene            | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 4-Isopropyltoluene          | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 4-Methyl-2-pentanone        | ND     | 10                                    | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Methylene Chloride          | ND     | 3.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| n-Butylbenzene              | ND     | 3.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| n-Propylbenzere             | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| sec-Butylbenzene            | ND     | 1.0                                   | μ <b>g</b> /L | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Styrene                     | ND     | 1.0                                   | μg/L          | 1  | 12/16/2013 5:06:55 PM | R15529 |
| tert-Butylbenzene           | ND     | 1.0                                   | μ <b>g</b> /L | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0                                   | μ <b>g</b> /L | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0                                   | μ <b>g</b> /L | 1  | 12/16/2013 5:06:55 PM | R15529 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 5 of 28

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/22/2014

CLIENT: Cyrq Energy Inc

Client Sample ID: 53-7

Project: Lightning Dock CYRQ ENERGY

Collection Date: 12/13/2013 2:00:00 PM

Lab ID:

1312666-001

Matrix: AQUEOUS

Received Date: 12/16/2013 9:03:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|--------|------|------------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analyst:              | JMP    |
| Tetrachloroethene (PCE)        | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| trans-1,2-DCE                  | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| trans-1,3-Dichloropropene      | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,2,3-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,2,4-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,1,1-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,1,2-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Trichloroethene (TCE)          | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Trichlorofluoromethane         | , ND   | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| 1,2,3-Trichloropropane         | ND     | 2.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Vinyl chloride                 | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Xylenes, Total                 | ND     | 1.5    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Surr: 1,2-Dichloroethane-d4    | 90.1   | 70-130 |      | %REC       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Surr: 4-Bromofluorobenzene     | 97.4   | 70-130 |      | %REC       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Surr: Dibromofluoromethane     | 91.6   | 70-130 |      | %REC       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| Surr: Toluene-d8               | 93.2   | 70-130 |      | %REC       | 1  | 12/16/2013 5:06:55 PM | R15529 |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analyst               | BCN    |
| Petroleum Hydrocarbons, TR     | ND     | 1.0    |      | mg/L       | 1  | 12/17/2013            | 10820  |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |            |    | Analyst               | scc    |
| Phenolics, Total Recoverable   | 7.6    | 2.5    |      | μg/L       | 1  | 12/19/2013            | 10891  |
| SM4500-H+B: PH                 |        |        |      |            |    | Analyst               | SRM    |
| рН                             | 7.53   | 1.68   | Н    | pH units   | 1  | 12/16/2013 6:15:25 PM | R15528 |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analyst               | SRM    |
| Bicarbonate (As CaCO3)         | 53     | 20     |      | mg/L CaCO3 | 1  | 12/16/2013 6:15:25 PM | R15528 |
| Carbonate (As CaCO3)           | ND     | 2.0    |      | mg/L CaCO3 | 1  | 12/16/2013 6:15:25 PM | R15528 |
| Total Alkalinity (as CaCO3)    | 53     | 20     |      | mg/L CaCO3 | 1  | 12/16/2013 6:15:25 PM | R15528 |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analyst               | : KS   |
| Total Dissolved Solids         | 321    | 20.0   |      | mg/L       | 1  | 12/19/2013 8:53:00 PM | 10881  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit

- Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

Attn:

HALL ENVIRONMENTAL ANALYSIS LAB

131218047

Address:

4901 HAWKINS NE SUITE D

**Project Name:** 

Batch #:

1312666

ALBUQUERQUE, NM 87109

**ANDY FREEMAN** 

### **Analytical Results Report**

Sample Number

131218047-001

Sampling Date

12/13/2013

Date/Time Received 12/17/2013 12:36 PM

Client Sample ID

1312666-001K / 53-7

Sampling Time 2:00 PM

Matrix

Water

Comments

Metals samples received unfiltered and preserved with HNO3.

| Parameter          | Result | Units | PQL   | Analysis Date | Analyst | Method    | Qualifier |
|--------------------|--------|-------|-------|---------------|---------|-----------|-----------|
| Dissolved Lithium  | 0.0887 | mg/L  | 0.001 | 1/21/2014     | ETL     | EPA 200.8 |           |
| Dissolved Rubidium | 0.0127 | mg/L  | 0.001 | 1/21/2014     | ETL     | EPA 200.8 |           |
| Dissolved Tungsten | ND     | mg/L  | 0.01  | 1/21/2014     | ETL     | EPA 200.8 |           |

Sample Number

131218047-002 1312666-001L / 53-7 Sampling Date 12/13/2013 Sampling Time 2:00 PM

Date/Time Received 12/17/2013 12:36 PM

Client Sample ID Matrix

Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 12/23/2013    | ETL     | EPA 335.4 |           |

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CD:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095

Tuesday, January 21, 2014 Page 1 of 2

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: Address: HALL ENVIRONMENTAL ANALYSIS LAB

4901 HAWKINS NE SUITE D

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

Batch #:

131218047

**Project Name:** 

1312666

### **Analytical Results Report**

Sample Number

131218047-003

Sampling Date Sampling Time 12/13/2013

2:00 PM

Date/Time Received 12/17/2013 12:36 PM

Client Sample ID Matrix

1312666-001M / 53-7

Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method   | Qualifler |
|-----------|--------|-------|------|---------------|---------|----------|-----------|
| Total P   | 0.0131 | mg/L  | 0.01 | 1/7/2014      | CRW     | SM4500PF |           |

Authorized Signature

John Coddington, Lab Manager

MCL

EPA's Maximum Contaminant Level

ND

Not Detected

PQL

Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory. The results reported relate only to the samples indicated.

Soil/solid results are reported on a dry-weight basis unless otherwise noted.



Helena, NT 817-472-0711 · Billings, MT 800-735-4489 · Caspar, WY 888-235-9515 Gillette, WY 868-666-7 75 • Rapid City, SD 888-672-1225 • College Station, TX 888-698-2218

#### LABORATORY ANALYTICAL FIEPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

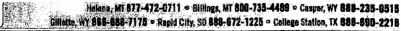
C13120621-001 Client Sample ID: 1312666-001O 53-7 Report Date: 12/23/13

Collection Date: 12/13/13 14:00

DateReceived: 12/18/13

Matrix: Aqueous

| Analyses                | Result Unit | Qualifiers | IRL | MCL/<br>QCL | Method   | Analysis Date / By   |
|-------------------------|-------------|------------|-----|-------------|----------|----------------------|
| RADIONUCLIDES - TOTAL   |             |            |     |             |          |                      |
| Radon 222               | -67.8 pÇi/l | . U        |     |             | D5072-92 | 12/18/13 18:01 / dpb |
| Radon 222 precision (±) | 74.1 pCi/l  | -          |     |             | D5072-92 | 12/18/13 18:01 / dpb |
| Radon 222 MDC           | 130 pCi/l   | -          |     |             | D5072-92 | 12/18/13 18:01 / dpb |



# **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Report Date: 12/23/13

Project: Not Indicated

Work Order: C13120621

| Analyte  | Count        | Result       | Units         | RL      | %REC | Low Limit | High Limit  | RPD     | RPDLImit | Qual      |
|--|--------------|--------------|---------------|---------|------|-----------|-------------|---------|----------|-----------|
| Method: D5072-92                                     |              | ·····        |               |         |      |           |             |         | Batch:   | R181914   |
| Sample ID: C13120621-001ADU                          | P 3 Sa       | mple Duplica | ite           |         |      | Run: PACK | ARD 3100TR  | 131218A | 12/18    | /13 18:01 |
| Radon 222  |              | 1.6          | pCi/L         |         |      |           |             | 210     | 20       | UR        |
| Radon 222 precision (±)                              |              | 75.1         | pCi/L         |         |      |           |             |         |          |           |
| Radon 222 MDC  |              | 130          | pCi/L         |         |      |           |             |         |          |           |
| <ul> <li>The Sample and the Duplicate are</li> </ul> | both below t | he MDC. The  | RPD is accept | otable. |      |           |             |         |          |           |
| Sample ID: MB-R181914                                | 3 Me         | thod Blank   |               |         |      | Run: PACK | ARD 3100TR_ | 131218A | 12/18/   | /13 18:01 |
| Radon 222  |              | 7            | pCi/L         |         |      |           |             |         |          | U         |
| Radon 222 precision (±)                              |              | 30           | pCi/L         |         |      |           |             |         |          |           |
| Radon 222 MDC  |              | 50           | pCi/L         |         |      |           |             |         |          |           |
| Sample ID: LCS-R181914                               | Lal          | boratory Con | trol Sample   |         |      | Run: PACK | ARD 3100TR_ | 131218A | 12/18    | /13 18:01 |
| Radon 222  |              | 552          | pCi/L         |         | 96   | 80        | 120         |         |          |           |



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

#### **ANALYTICAL RESULTS**

Project:

1312666

Pace Project No.: 30109791

Radium-228

Sample: 1312666-001 53-7

Lab ID: 30109791001

Act ± Unc (MDC)

Collected: 12/13/18 14:00 Received: 12/17/13 11:00 Matrix: Water

PWS:

Site ID: Method Sample Type:

CAS No.

Qual

Parameters Radium-226

EPA 903.1 EPA 904.0 0.166 ± 0.380 (0.225) 0.414 ± 0.460 (0.931) pCi/L pCi/L

Units

12/23/13 12:34 13982-63-3 01/02/14 16:27 15262-20-1

Analyzed



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

#### **QUALITY CONTROL DATA**

Project:

1312666

Pace Project No.:

30109791

QC Batch:

RADC/18124

Analysis Method:

EPA 903.1

QC Batch Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples:

30109791001

Matrix: Water

METHOD BLANK: 671631 Associated Lab Samples:

30109791001

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-226

 $-0.536 \pm 0.648$  (0.960)

pCi/L

12/23/13 10:50

#### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc..



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#### QUALITY CONTROL DATA

Project:

1312666

Pace Project No.:

30109791

QC Batch:

RADC/18128

Analysis Method:

EPA 904.0

QC Batch Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples:

METHOD BLANK: 671635

Matrix: Water

Associated Lab Samples:

30109791001

30109791001

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-228

 $0.134 \pm 0.301$  (0.670)

pCi/l\_

01/02/14 13:25

# all Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB   | SampType: MBLK   |          |           | Tes         | tCode: El | PA Method | 200.7: Dissol | ved Meta | s        |      |
|----------------|------------------|----------|-----------|-------------|-----------|-----------|---------------|----------|----------|------|
| Client ID: PBW | Batch ID: R15612 |          |           | F           | RunNo: 1  | 5612      |               |          |          |      |
| Prep Date:     | Analysis         | Date: 12 | 2/19/2013 | S           | SeqNo: 4  | 49740     | Units: mg/L   |          |          |      |
| Analyte        | Result           | PQL      | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |
| Aluminum       | ND               | 0.020    |           |             |           |           |               |          |          |      |
| Barium         | ND               | 0.0020   |           |             |           |           |               |          |          |      |
| Boron          | ND               | 0.040    |           |             |           |           |               |          |          |      |
| Cadmium        | ND               | 0.0020   |           |             |           |           |               |          |          |      |
| Calcium        | ND               | 1.0      |           |             |           |           |               |          |          |      |
| Chromium       | ND               | 0.0060   |           |             |           |           |               |          |          |      |
| Cobalt         | ND               | 0.0060   |           |             |           |           |               |          |          |      |
| Copper         | ND               | 0.0060   |           |             |           |           |               |          |          |      |
| Iron           | ND               | 0.020    |           |             |           |           |               |          |          |      |
| Magnesium      | ND               | 1.0      |           |             |           |           |               |          |          |      |
| Manganese      | ND               | 0.0020   |           |             |           |           |               |          |          |      |
| Molybdenum     | ND               | 0.0080   |           |             |           |           |               |          |          |      |
| Nickel         | ND               | 0.010    |           |             |           |           |               |          |          |      |
| Potassium      | ND               | 1.0      |           |             |           |           |               |          |          |      |
| Silver         | ND               | 0.0050   |           |             |           |           |               |          |          |      |
| °ndium         | ND               | 1.0      |           |             |           |           |               |          |          |      |
| ;              | ND               | 0.010    |           |             |           |           |               |          |          |      |

| Sample ID LCS   | Samp     | Type: <b>LC</b> | S         | Tes         | TestCode: EPA Method 200.7: Dissolved Metals |          |             |      |          |      |  |
|-----------------|----------|-----------------|-----------|-------------|--|----------|-------------|------|----------|------|--|
| Client ID: LCSW | Bato     | th ID: R1       | 5612      | F           | RunNo: 1                                     | 5612     |             |      |          |      |  |
| Prep Date:      | Analysis | Date: 12        | 2/19/2013 | 8           | SeqNo: 4                                     | 49741    | Units: mg/L |      |          |      |  |
| Analyte         | Result   | PQL             | SPK value | SPK Ref Val | %REC   | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |  |
| Aluminum        | 0.54     | 0.020           | 0.5000    | 0           | 109  | 85       | 115         |      |          |      |  |
| Barium          | 0.49     | 0.0020          | 0.5000    | 0           | 98.4   | 85       | 115         |      |          |      |  |
| Boron           | 0.52     | 0.040           | 0.5000    | 0           | 104  | 85       | 115         |      |          |      |  |
| Cadmium         | 0.51     | 0.0020          | 0.5000    | 0           | 101  | 85       | 115         |      |          |      |  |
| Calcium         | 49       | 1.0             | 50.00     | 0           | 97.2   | 85       | 115         |      |          |      |  |
| Chromium        | 0.52     | 0.0060          | 0.5000    | 0           | 104  | 85       | 115         |      |          |      |  |
| Cobalt          | 0.49     | 0.0060          | 0.5000    | 0           | 98.4   | 85       | 115         |      |          |      |  |
| Copper          | 0.48     | 0.0060          | 0.5000    | 0           | 96.7   | 85       | 115         |      |          |      |  |
| Iron            | 0.49     | 0.020           | 0.5000    | 0           | 98.4   | 85       | 115         |      |          |      |  |
| Magnesium       | 49       | 1.0             | 50.00     | 0           | 98.0   | 85       | 115         |      |          |      |  |
| Manganese       | 0.50     | 0.0020          | 0.5000    | 0           | 100  | 85       | 115         |      |          |      |  |
| Molybdenum      | 0.51     | 0.0080          | 0.5000    | 0           | 102  | 85       | 115         |      |          |      |  |
| Nickel          | 0.51     | 0.010           | 0.5000    | 0           | 102  | 85       | 115         |      |          |      |  |
| Potassium       | 48       | 1.0             | 50.00     | 0           | 95.1   | 85       | 115         |      |          |      |  |
| Silver          | 0.10     | 0.0050          | 0.1000    | 0           | 103  | 85       | 115         |      |          |      |  |
| Sodium          | 48       | 1.0             | 50.00     | 0           | 95.2   | 85       | 115         |      |          |      |  |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit Ο
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID LCS

SampType: LCS

TestCode: EF'A Method 200.7: Dissolved Metals

Client ID: LCSW

Batch ID: R15612

0.010

RunNo: 15612

Prep Date:

Analysis Date: 12/19/2013

SeqNo: 449741

Units: mg/L

PQL

SPK value SPK Ref Val

%RPD

Analyte

Result

%REC 99.2

85

115

**RPDLimit** 

Qual

Zinc

0.50

0.5000

0

LowLimit

HighLimit

Qualifiers:

Value exceeds Maximum Contaminant Level.

E Value above quantitation range

Analyte detected below quantitation limits J

RSD is greater than RSD limit O

RPD outside accepted recovery limits R

Spike Recovery outside accepted recovery limits S

E Analyte detected in the associated Method Blank

 $\mathbf{H}$ Holding times for preparation or analysis exceeded

NID Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only. P

Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#: 1312666 22-Jan-14

Page 9 of 28

|                     | 1 7 21 0 | milental Amalysis Laborat                     | or y, the   | 22-Jun-14 |
|---------------------|----------|---|---|-----------|
| Client:<br>Project: |          | Cyrq Energy Inc<br>Lightning Dock CYRQ ENERGY |   |           |
| Sample ID           | LCS      | SampType: LCS                                 | TestCode: EPA 200.8: Dissolved Metals             |           |
| Client ID:          | LCSW     | Batch ID: R15909                              | RunNo: 15909                                      |           |
| Prep Date:          |          | Analysis Date: 1/6/2014                       | SeqNo: <b>458860</b> Units: <b>mg/L</b>           |           |
| Analyte             |          | Result PQL SPK value                          | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual      |
| Arsenic             |          | 0.026 0.0010 0.02500                          |   |           |
| Lead                |          | 0.027 0.0010 0.02500                          | 0 106 85 115                                      |           |
| Sample ID           | LCS      | SampType: <b>LCS</b>                          | TestCode: EPA 200.8: Dissolved Metals             |           |
| Client ID:          | LCSW     | Batch ID: R15909                              | RunNo: 15909                                      |           |
| Prep Date:          |          | Analysis Date: 1/6/2014                       | SeqNo: <b>458861</b> Units: <b>mg/L</b>           |           |
| Analyte             |          | Result PQL SPK value                          | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual      |
| Arsenic             |          | 0.025 0.0010 0.02500                          |   |           |
| Lead                |          | 0.026 0.0010 0.02500                          | 0 105 85 115                                      |           |
| Sample ID           | мв       | SampType: <b>MBLK</b>                         | TestCode: EPA 200.8: Dissolved Metals             |           |
| Client ID:          | PBW      | Batch ID: R15909                              | RunNo: 15909                                      |           |
| Prep Date:          |          | Analysis Date: 1/6/2014                       | SeqNo: <b>458863</b> Units: <b>mg/L</b>           |           |
| Analyte             |          | Result PQL SPK value                          | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual      |
| enic                |          | ND 0.0010                                     |   |           |
| Jd.                 |          | ND 0.0010                                     |   |           |
| Sample ID           | мв       | SampType: <b>MBLK</b>                         | TestCode: EPA 200.8: Dissolved Metals             |           |
| Client ID:          | PBW      | Batch ID: R15909                              | RunNo: 15909                                      |           |
| Prep Date:          |          | Analysis Date: 1/6/2014                       | SeqNo: 458864 Units: mg/L                         |           |
| Analyte             |          | Result PQL SPK value                          | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual      |
| Arsenic             |          | ND 0.0010                                     |   |           |
| Lead                |          | ND 0.0010                                     |   |           |
| Sample ID           | LCS      | SampType: <b>LCS</b>                          | TestCode: EPA 200.8: Dissolved Metals             |           |
| Client ID:          | LCSW     | Batch ID: <b>R15934</b>                       | RunNo: 15934                                      |           |
| Prep Date:          |          | Analysis Date: 1/7/2014                       | SeqNo: <b>459484</b> Units: <b>mg/L</b>           |           |
| Analyte             |          | Result PQL SPK value                          | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual      |
| Uranium             |          | 0.028 0.0010 0.02500                          | 0 111 85 115                                      |           |
| Sample ID           | LCS      | SampType: <b>LCS</b>                          | TestCode: EPA 200.8: Dissolved Metals             |           |
| Client ID:          |          | Batch ID: R15934                              | RunNo: 15934                                      |           |
| Prep Date:          |          | Analysis Date: 1/7/2014                       | SeqNo: <b>459485</b> Units: <b>mg/L</b>           |           |
| Analyte             |          |   | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual      |
| Uranium             |          | 0.027 0.0010 0.02500                          |   | Qual      |
|                     |          |   |   |           |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW

Batch ID: R15934

RunNo: 1:5934

Prep Date:

Analysis Date: 1/7/2014

SeqNo: 4:59486

Units: mg/L

**RPDLimit** 

Qual

Analyte

Result

PQL

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

Uranium

ND 0.0010

SPK value SPK Ref Val %REC LowLimit

TestCode: EPA 200.8: Dissolved Metals

Quai

Sample ID MB Client ID: PBW SampType: MBLK

Batch ID: R15934

RunNo: 1:5934 SeqNo: 4:59487

Units: mg/L

HighLimit

%RPD

**RPDLimit** 

Analyte

**PQL** 

Analysis Date: 1/7/2014

Uranium

Prep Date:

ND 0.0010

Result

#### Qualifiers:

- Value exceeds Maximura Contaminant Level.
- Value above quantitation range E
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- $\mathbf{B}$ Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only.
- RĹ Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#:

1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-11064

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID:

PBW

Batch ID: 11064

RunNo: 15897

Prep Date: 1/3/2014

Prep Date: 1/3/2014

Analysis Date: 1/3/2014

SeqNo: 458393

Units: mg/L

Analyte

Client ID:

SPK value SPK Ref Val %REC LowLimit **PQL** 

HighLimit

**RPDLimit** %RPD

Qual

Mercury

ND 0.00020

Sample ID LCS-11064 LCSW

SampType: LCS

TestCode: EPA Method 245.1: Mercury

Batch ID: 11064 Analysis Date: 1/3/2014 RunNo: 15897

%REC

Units: mg/L

SeqNo: 458394

HighLimit

**RPDLimit** %RPD

Qual

SPK value SPK Ref Val PQL

97.9

LowLimit

Analyte Mercury

0.0049 0.00020 0.005000

120

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

Analyte detected in the associated Method Blank В

Η Holding times for preparation or analysis exceeded

Sample pH greater than 2 for VOA and TOC only.

Not Detected at the Reporting Limit ND

Reporting Detection Limit RL

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB                     | SampType: MBLK   |                          |           | Tes         | tCode: El     | PA Method | ;             |             |          |      |
|----------------------------------|------------------|--------------------------|-----------|-------------|---------------|-----------|---------------|-------------|----------|------|
| Client ID: PBW                   | Batch ID: R15551 |                          |           | F           | RunNo: 15551  |           |               |             |          |      |
| Prep Date:                       | Analysis D       | nalysis Date: 12/16/2013 |           |             | SeqNo: 447258 |           |               | Units: mg/L |          |      |
| Analyte                          | Result           | PQL                      | SPK value | SPK Ref Val | %REC          | LowLimit  | HighLimit     | %RPD        | RPDLimit | Qual |
| Fluoride                         | ND               | 0.10                     |           |             |               |           |               |             |          |      |
| Chloride                         | ND               | 0.50                     |           |             |               |           |               |             |          |      |
| Phosphorus, Orthophosphate (As F | ND               | 0.50                     |           |             |               |           |               |             |          |      |
| Sulfate                          | ND               | 0.50                     |           |             |               |           |               |             |          |      |
| Nitrate+Nitrite as N             | ND               | 0.20                     |           |             |               |           |               |             |          |      |
| Sample ID 1 CS                   | CamaT            | ivne: LC                 | •         | Tos         | tCodo: E      | DA Mothod | 300 0: Anions |             |          |      |

| Sample ID LCS                    | SampT      | ype: LC       | s         | Test          | 300.0: Anions | 5        |              |      |          |      |
|----------------------------------|------------|---------------|-----------|---------------|---------------|----------|--------------|------|----------|------|
| Client ID: LCSW                  | Batch      | ID: <b>R1</b> | 5551      | F             | RunNo: 15551  |          |              |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/16/2013 | SeqNo: 447259 |               |          | Units: mg/L  |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val   | %REC          | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.49       | 0.10          | 0.5000    | 0             | 98.7          | 90       | 110          |      |          |      |
| Chloride                         | 4.7        | 0.50          | 5.000     | 0             | 93.2          | 90       | 110          |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50          | 5.000     | 0             | 94.4          | 90       | 110          |      |          |      |
| Sulfate                          | 9.5        | 0.50          | 10.00     | 0             | 95.4          | 90       | 110          |      |          |      |
| Nitrate+Nitrite as N             | 3.4        | 0.20          | 3.500     | 0             | 97.2          | 90       | 1 <b>1</b> 0 |      |          |      |

| Sample ID A4                     | SampT      | ype: CC       | :V_4      | Tes         | TestCode: EPA Method 300.0: Anions |          |           |             |                                       |      |
|----------------------------------|------------|---------------|-----------|-------------|------------------------------------|----------|-----------|-------------|---------------------------------------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b> | 5551      | F           | RunNo: 1                           | 5551     |           |             |                                       |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/16/2013 | S           | SeqNo: 4417268                     |          |           | Units: mg/L |                                       |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC                               | LowLimit | HighLimit | %RPD        | RPDLimit                              | Qual |
| Fluoride                         | 0.97       | 0.10          | 1.000     | 0           | 97.2                               | 90       | 110       |             | · · · · · · · · · · · · · · · · · · · |      |
| Chloride                         | 4.6        | 0.50          | 5.000     | 0           | 92.6                               | 90       | 110       |             |                                       |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50          | 5.000     | 0           | 93.4                               | 90       | 110       |             |                                       |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0           | 93.9                               | 90       | 110       |             |                                       |      |
| Nitrate+Nitrite as N             | 4.8        | 0.20          | 5.000     | 0           | 95.8                               | 90       | 110       |             |                                       |      |

| Sample ID A5                      | SampT      | ype: CC | :V_5      | Test          | tCode: El | 300.0: Anions | ;           |      |          |      |
|-----------------------------------|------------|---------|-----------|---------------|-----------|---------------|-------------|------|----------|------|
| Client ID: BatchQC                | Batch      | ID: R1  | 5551      | R             | RunNo: 1  | 5551          |             |      |          |      |
| Prep Date:                        | Analysis D | ate: 12 | 2/16/2013 | SeqNo: 447280 |           |               | Units: mg/L |      |          |      |
| Analyte                           | Result     | PQL     | SPK value | SPK Ref Val   | %REC      | LowLimit      | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                          | 1.6        | 0.10    | 1.600     | 0             | 97.6      | 90            | 110         |      |          |      |
| Chloride                          | 7.7        | 0.50    | 8.000     | 0             | 96.8      | 90            | 110         |      |          |      |
| Phosphorus, Orthophosphate (As F) | 7.8        | 0.50    | 8.000     | 0             | 97.2      | 90            | 110         |      |          |      |
| Sulfate                           | 20         | 0.50    | 20.00     | 0             | 98.5      | 90            | 110         |      |          |      |
| Nitrate+Nitrite as N              | 8.0        | 0.20    | 8.000     | 0             | 101       | 90            | 110         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSD limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- E Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- F Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#: **1312666 22-Jan-14** 

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

| Sample ID A6                     | SampT  | ype: CC         | V_6       | Tes         | tCode: E | s        |             |      |          |      |
|----------------------------------|--|-----------------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: BatchQC               | Batch  | ı ID: <b>R1</b> | 5551      | F           | RunNo: 1 | 5551     |             |      |          |      |
| Prep Date:                       | Analysis D   | ate: 12         | 2/16/2013 | Ş           | SeqNo: 4 | 47292    | Units: mg/L |      |          |      |
| Analyte                          | Result   | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | 2.4  | 0.10            | 2.400     | 0           | 98.4     | 90       | 110         |      |          |      |
| Chloride                         | 12   | 0.50            | 12.00     | 0           | 101      | 90       | 110         |      |          |      |
| Phosphorus, Orthophosphate (As P | 12   | 0.50            | 12.00     | 0           | 100      | 90       | 110         |      |          |      |
| Sulfate                          | 31   | 0.50            | 30.00     | 0           | 102      | 90       | 110         |      |          |      |
| Nitrate+Nitrite as N             | 13   | 0.20            | 12.00     | 0           | 105      | 90       | 110         |      |          |      |
| Sample ID A4                     | SampType: CCV 4 TestCode: FPA Method 300 0: Anions |                 |           |             |          |          |             |      |          |      |

| Sample ID A4                     | SampT      | ype: CC       | V_4       | Tes         | tCode: E | PA Method | 300.0: Anions | •    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5551      | F           | RunNo: 1 | 5551      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/17/2013 | S           | SeqNo: 4 | 47304     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.94       | 0.10          | 1.000     | 0           | 93.6     | 90        | 110           |      |          |      |
| Chloride                         | 4.6        | 0.50          | 5.000     | 0           | 92.5     | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50          | 5.000     | 0           | 93.2     | 90        | 110           |      |          |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0           | 94.1     | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N             | 4.8        | 0.20          | 5.000     | 0           | 95.4     | 90        | 110           |      |          |      |

| ample ID A5                      | SampT      | ype: CC       | CV_5      | Tes         | tCode: El | PA Method | 300.0: Anion | 5    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|--------------|------|----------|------|
| Client iD: BatchQC               | Batch      | 1D: <b>R1</b> | 5551      | F           | RunNo: 1  | 5551      |              |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/17/2013 | S           | SeqNo: 4  | 47316     | Units: mg/L  |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.6        | 0.10          | 1.600     | 0           | 96.9      | 90        | 110          |      |          |      |
| Chloride                         | 7.7        | 0.50          | 8.000     | 0           | 96.8      | 90        | 110          |      |          |      |
| Phosphorus, Orthophosphate (As P | 7.8        | 0.50          | 8.000     | 0           | 97.3      | 90        | 110          |      |          |      |
| Sulfate                          | 20         | 0.50          | 20.00     | 0           | 98.1      | 90        | 110          |      |          |      |
| Nitrate+Nitrite as N             | 8.0        | 0.20          | 8.000     | 0           | 100       | 90        | 110          |      |          |      |

| Sample ID A4                     | SampT      | ype: CC       | CV_4      | TestCode: EPA Method 300.0: Anions |          |               |             |      |          |      |
|----------------------------------|------------|---------------|-----------|------------------------------------|----------|---------------|-------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5551      | F                                  | RunNo: 1 | 5551          |             |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/17/2013 | S                                  | SeqNo: 4 | 4732 <b>7</b> | Units: mg/L |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val                        | %REC     | LowLimit      | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.95       | 0.10          | 1.000     | 0                                  | 95.2     | 90            | 110         |      |          |      |
| Chloride                         | 4.6        | 0.50          | 5.000     | 0                                  | 92.9     | 90            | 110         |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50          | 5.000     | 0                                  | 93.2     | 90            | 110         |      |          |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0                                  | 94.1     | 90            | 110         |      |          |      |
| Nitrate+Nitrite as N             | 4.8        | 0.20          | 5.000     | 0                                  | 95.7     | 90            | 110         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

22-Jan-14

1312666

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-10820

SampType: MBLK Batch ID: 10820

TestCode: EPA Method 418.1: TPH

Client ID:

**PBW** 

RunNo: 15560

Prep Date: 12/16/2013

Result

Result

5.0

4.7

ND

Units: mg/L

HighLimit

Analyte

Analysis Date: 12/17/2013

SeqNo: 447701

%REC LowLimit

Qual

Petroleum Hydrocarbons, TR

PQL 1.0

SPK value SPK Ref Val

TestCode: EPA Method 418.1: TPH

**RPDLimit** %RPD

SampType: LCS

Sample ID LCS-10820

Client ID: LCSW

RunNo: 15560

WO#:

Prep Date: 12/16/2013

Batch ID: 10820

Analysis Date: 12/17/2013

SeqNo: 447702

99.8

Units: mg/L

120

Analyte

PQL

1.0

SPK value SPK Ref Val %REC 0

0

LowLimit

HighLimit

**RPDLimit** 

Qual

Petroleum Hydrocarbons, TR

Sample ID LCSD-10820

SampType: LCSD

Analysis Date: 12/17/2013

1.0

TestCode: EPA Method 418.1: TPH

Client ID: LCSS02

Prep Date: 12/16/2013

Batch ID: 10820

RunNo: 15560 SeqNo: 447704

80

Units: mg/L

**RPDLimit** Qual

Analyte Petroleum Hydrocarbons, TR

Result **PQL** 

SPK value SPK Ref Val

5.000

5.000

%REC 94.8

LowLimit 80 HighLimit 120 %RPD 5.14

%RPD

20

Qualifiers:

Ε

S

RSD is greater than RSDlimit 0

RPD outside accepted recovery limits R

Value above quantitation range

Value exceeds Maximum Contaminant Level.

Analyte detected below quantitation limits

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Η Holding times for preparation or analysis exceeded

Sample pH greater than 2 for VOA and TOC only.

ND Not Detected at the Reporting Limit

RLReporting Detection Limit

P

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### all Environmental Analysis Laboratory, Inc.

WO#:

1312666 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-10822

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW

Analyte

Batch ID: 10822

RunNo: 15527

Prep Date: 12/16/2013 Analysis Date: 12/16/2013 **PQL** 

SeqNo: 447079

Units: µg/L **HighLimit** 

%RPD **RPDLimit** 

Qual

1,2-Dibromoethane

ND 0.010

Result

SampType: LCS

TestCode: EPA Method 8011/504.1: EDB

SPK value SPK Ref Val %REC LowLimit

Sample ID LCS-10822

Client ID: LCSW

Prep Date: 12/16/2013

Batch ID: 10822 Analysis Date: 12/16/2013 RunNo: 15527

SeqNo: 447080

Units: µg/L

Analyte

Result **PQL**  SPK value SPK Ref Val

%REC

HighLimit

**RPDLimit** 

Qual

1,2-Dibromoethane

0.010

0.1000

113

70

TestCode: EPA Method 8011/504.1: EDB

LowLimit

%RPD

0.11

0

130

Sample ID LCSD-10822 Client ID: LCSS02

SampType: LCSD

Batch ID: 10822

RunNo: 15527

SeqNo: 447081

Units: µg/L

4.52

Qual

Analyte

Prep Date: 12/16/2013 Analysis Date: 12/16/2013

%RPD **RPDLimit** 

20

Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit 1,2-Dibromoethane 0.11 0.010 0.1000 0 108 130

#### Qualifiers:

R

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
- P
- Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

Н

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB-10796         | SampT      | ype: ME | BLK       | Tes         | TestCode: EF'A Method 8082: PCB's |          |             |      |          |      |
|----------------------------|------------|---------|-----------|-------------|-----------------------------------|----------|-------------|------|----------|------|
| Client ID: PBW             | Batch      | ID: 10  | 796       | F           | RunNo: 1                          | 5544     |             |      |          |      |
| Prep Date: 12/16/2013      | Analysis D | ate: 12 | 2/17/2013 | S           | SeqNo: 4                          | 47133    | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL     | SPK value | SPK Ref Val | %REC                              | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Arodor 1016                | ND         | 1.0     |           |             |                                   |          |             |      |          |      |
| Aroclor 1221               | ND         | 1.0     |           |             |                                   |          |             |      |          |      |
| Aroclor 1232               | ND         | 1.0     |           |             |                                   |          |             |      |          |      |
| Aroclor 1242               | ND         | 1.0     |           |             |                                   |          |             |      |          |      |
| Aroclor 1248               | ND         | 1.0     |           |             |                                   |          |             |      |          |      |
| Aroclor 1254               | ND         | 1.0     |           |             |                                   |          |             |      |          |      |
| Aroclor 1260               | ND         | 1.0     |           |             |                                   |          |             |      |          |      |
| Surr: Decachlorobiphenyl   | 1.8        |         | 2.500     |             | 73.2                              | 17       | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 1.8        |         | 2.500     |             | 74.0                              | 22.6     | <b>1</b> 13 |      |          |      |

| Sample ID LCS-10796        | SampT      | ype: <b>LC</b> | s         | Tes         | tCode: El | F'A Method | 8082: PCB's |      |          |      |
|----------------------------|------------|----------------|-----------|-------------|-----------|------------|-------------|------|----------|------|
| Client ID: LCSW            | Batch      | 1D: <b>10</b>  | 796       | F           | RunNo: 1  | 5544       |             |      |          |      |
| Prep Date: 12/16/2013      | Analysis D | ate: 12        | 2/17/2013 | S           | SeqNo: 4  | 4.7135     | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit   | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | 3.2        | 1.0            | 5.000     | 0           | 63.8      | 18.6       | 134         |      |          |      |
| Aroclor 1260               | 3.8        | 1.0            | 5.000     | 0           | 75.7      | 35.7       | 137         |      |          |      |
| Surr: Decachlorobiphenyl   | 1.7        |                | 2.500     |             | 68.8      | 17         | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 1.6        |                | 2.500     |             | 64.4      | 22.6       | 113         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#: 1312666 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID 5mL rb               | SampTy      | уре: <b>МВ</b>  | LK        | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|--------------------------------|-------------|-----------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: PBW                 | Batch       | ID: <b>R1</b> 5 | 5529      | F           | RunNo: 1  | 5529      |             |        |          |      |
| Prep Date:                     | Analysis Da | ate: 12         | /16/2013  | S           | SeqNo: 4  | 46644     | Units: µg/L |        |          |      |
| Analyte                        | Result      | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND          | 1.0             |           |             |           |           |             |        |          |      |
| Toluene                        | ND          | 1.0             |           |             |           |           |             |        |          |      |
| Ethylbenzene                   | ND          | 1.0             |           |             |           |           |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND          | 1.0             |           |             |           |           |             |        |          |      |
| Naphthalene                    | ND          | 2.0             |           |             |           |           |             |        |          |      |
| 1-Methylnaphthalene            | ND          | 4.0             |           |             |           |           |             |        |          |      |
| 2-Methylnaphthalene            | ND          | 4.0             |           |             |           |           |             |        |          |      |
| Acetone                        | ND          | 10              |           |             |           |           |             |        |          |      |
| Bromobenzene                   | ND          | 1.0             |           |             |           |           |             |        |          |      |
| Bromodichloromethane           | ND          | 1.0             |           |             |           |           |             |        |          |      |
| Bromoform                      | ND          | 1.0             |           |             |           |           |             |        |          |      |
| □ romomethane                  | ND          | 3.0             |           |             |           |           |             |        |          |      |
| utanone                        | ND          | 10              |           |             |           |           |             |        |          |      |
| arbon disulfide                | ND          | 10              |           |             |           |           |             |        |          |      |
| Carbon Tetrachloride           | ND          | 1.0             |           |             |           |           |             |        |          |      |
| Chlorobenzene                  | ND          | 1.0             |           |             |           |           |             |        |          |      |
| Chloroethane                   | ND          | 2.0             |           |             |           |           |             |        |          |      |
| Chloroform                     | ND          | 1.0             |           |             |           |           |             |        |          |      |
| Chloromethane                  | ND          | 3.0             |           |             |           |           |             |        |          |      |
| 2-Chlorotoluene                | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 4-Chlorotoluene                | ND          | 1.0             |           |             |           |           |             |        |          |      |
| cis-1,2-DCE                    | ND          | 1.0             |           |             |           |           |             |        |          |      |
| cis-1,3-Dichloropropene        | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,2-Dibromo-3-chloropropane    | ND          | 2.0             |           |             |           |           |             |        |          |      |
| Dibromochloromethane           | ND          | 1.0             |           |             |           |           |             |        |          |      |
| Dibromomethane                 | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,2-Dichlorobenzene            | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,3-Dichlorobenzene            | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,4-Dichlorobenzene            | ND          | 1.0             |           |             |           |           |             |        |          |      |
| Dichlorodifluoromethane        | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethane             | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethene             | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,2-Dichloropropane            | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 1,3-Dichloropropane            | ND          | 1.0             |           |             |           |           |             |        |          |      |
| 2,2-Dichloropropane            | ND          | 2.0             |           |             |           |           |             |        |          |      |
| ,                              |             |                 |           |             |           |           |             |        |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666 22-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

| Sample ID 5mL rb            | SampT      | ype: <b>ME</b> | BLK       | Tes         | Code: E  | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|----------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch      | ID: <b>R1</b>  | 5529      | R           | lunNo: 1 | 5529      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 12        | 2/16/2013 | s           | SeqNo: 4 | 46644     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,1-Dichloropropene         | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Hexachlorobutadiene         | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 2-Hexanone                  | ND         | 10             |           |             |          |           |             |        |          |      |
| Isopropylbenzene            | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 4-Isopropyltoluene          | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 4-Methyl-2-pentanone        | ND         | 10             |           |             |          |           |             |        |          |      |
| Methylene Chloride          | ND         | 3.0            |           |             |          |           |             |        |          |      |
| n-Butylbenzene              | ND         | 3.0            |           |             |          |           |             |        |          |      |
| n-Propylbenzene             | ND         | 1.0            |           |             |          |           |             |        |          |      |
| sec-Butylbenzene            | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Styrene                     | ND         | 1.0            |           |             |          |           |             |        |          |      |
| tert-Butylbenzene           | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND         | 2.0            |           |             |          |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND         | 1.0            |           |             |          |           |             |        |          |      |
| trans-1,2-DCE               | ND         | 1.0            |           |             |          |           |             |        |          |      |
| trans-1,3-Dichloropropene   | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,2,3-Trichlorobenzene      | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,2-Trichloroethane       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Trichloroethene (TCE)       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Trichlorofluoromethane      | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,2,3-Trichloropropane      | ND         | 2.0            |           |             |          |           |             |        |          |      |
| Vinyl chloride              | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Xylenes, Total              | ND         | 1.5            |           |             |          |           |             |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.0        |                | 10.00     |             | 90.4     | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 9.6        |                | 10.00     |             | 96.4     | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 9.4        |                | 10.00     |             | 93.8     | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 9.7        |                | 10.00     |             | 96.9     | 70        | 130         |        |          |      |

| Sample ID 100ng lcs20 | Ong aca SampT | ype: LC         | s         | TestCode: EF'A Method 8260B: VOLATILES |          |          |             |      |          |      |
|-----------------------|---------------|-----------------|-----------|--|----------|----------|-------------|------|----------|------|
| Client ID: LCSW       | Batch         | n ID: <b>R1</b> | 5529      | F                                      | RunNo: 1 | 5529     |             |      |          |      |
| Prep Date:            | Analysis D    | Date: 12        | 2/16/2013 | S                                      | SeqNo: 4 | 46646    | Units: µg/L |      |          |      |
| Analyte               | Result        | PQL             | SPK value | SPK Ref Val                            | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene               | 20            | 1.0             | 20.00     | 0                                      | 100      | 70       | 130         |      |          |      |
| Toluene               | 20            | 1.0             | 20.00     | 0                                      | 102      | 82.2     | 124         |      |          |      |
| Chlorobenzene         | 20            | 1.0             | 20.00     | 0                                      | 99.9     | 70       | 130         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#: 1312666 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID 100ng lcs200ng    | aca SampTy  | pe: LC        | S         | TestCode: EPA Method 8260B: VOLATILES |          |          |             |      |          |      |
|-----------------------------|-------------|---------------|-----------|---------------------------------------|----------|----------|-------------|------|----------|------|
| Client ID: LCSW             | Batch       | ID: <b>R1</b> | 5529      | F                                     | RunNo: 1 | 5529     |             |      |          |      |
| Prep Date:                  | Analysis Da | ate: 12       | 2/16/2013 | S                                     | SeqNo: 4 | 46646    | Units: µg/L |      |          |      |
| Analyte                     | Result      | PQL           | SPK value | SPK Ref Val                           | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| 1,1-Dichloroethene          | 21          | 1.0           | 20.00     | 0                                     | 107      | 83.5     | 155         |      |          |      |
| Trichloroethene (TCE)       | 19          | 1.0           | 20.00     | 0                                     | 95.6     | 70       | 130         |      |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.0         |               | 10.00     |                                       | 90.3     | 70       | 130         |      |          |      |
| Surr: 4-Bromofluorobenzene  | 9.7         |               | 10.00     |                                       | 97.4     | 70       | 130         |      |          |      |
| Surr: Dibromofluoromethane  | 9.0         |               | 10.00     |                                       | 90.3     | 70       | 130         |      |          |      |
| Surr: Toluene-d8            | 9.4         |               | 10.00     |                                       | 94.1     | 70       | 130         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID mb-10800          | SampType       | MBLK         | Tes         | tCode: EF'A Method | 8270C: Semi | olatiles |          |      |
|-----------------------------|----------------|--------------|-------------|--------------------|-------------|----------|----------|------|
| Client ID: PBW              | Batch ID:      | 10800        | F           | RunNo: 15530       |             |          |          |      |
| Prep Date: 12/16/2013       | Analysis Date: |              |             | SeqNo: 446854      | Units: µg/L |          |          |      |
| Analyte                     | Result P       | QL SPK value | SPK Ref Val | %REC LowLimit      | HighLimit   | %RPD     | RPDLimit | Qual |
| Acenaphthene                | ND             | 10           |             |                    |             | . 10*    |          |      |
| Acenaphthylene              | ND             | 10           |             |                    |             |          |          |      |
| Aniline                     | ND             | 10           |             |                    |             |          |          |      |
| Anthracene                  | ND             | 10           |             |                    |             |          |          |      |
| Azobenzene                  | ND             | 10           |             |                    |             |          |          |      |
| Benz(a)anthracene           | ND             | 10           |             |                    |             |          |          |      |
| Benzo(a)pyrene              | ND             | 10           |             |                    |             |          |          |      |
| Benzo(b)fluoranthene        | ND             | 10           |             |                    |             |          |          |      |
| Benzo(g,h,i)perylene        | ND             | 10           |             |                    |             |          |          |      |
| Benzo(k)fluoranthene        | ND             | 10           |             |                    |             |          |          |      |
| Benzoic acid                | ND             | 40           |             |                    |             |          |          |      |
| Benzyl alcohol              | ND             | 10           |             |                    |             |          |          |      |
| Bis(2-chloroethoxy)methane  | ND             | 10           |             |                    |             |          |          |      |
| Bis(2-chloroethyl)ether     | ND             | 10           |             |                    |             |          |          |      |
| Bis(2-chloroisopropyl)ether | ND             | 10           |             |                    |             |          |          |      |
| Bis(2-ethylhexyl)phthalate  | ND             | 10           |             |                    |             |          |          |      |
| 4-Bromophenyl phenyl ether  | ND             | 10           |             |                    |             |          |          |      |
| Butyl benzyl phthalate      | ND             | 10           |             |                    |             |          |          |      |
| Carbazole                   | ND             | 10           |             |                    |             |          |          |      |
| 4-Chloro-3-methylphenol     | ND             | 10           |             |                    |             |          |          |      |
| 4-Chloroaniline             | ND             | 10           |             |                    |             |          |          |      |
| 2-Chloronaphthalene         | ND             | 10           |             |                    |             |          |          |      |
| 2-Chlorophenol              | ND             | 10           |             |                    |             |          |          |      |
| 4-Chlorophenyl phenyl ether | ND             | 10           |             |                    |             |          |          |      |
| Chrysene                    | ND             | 10           |             |                    |             |          |          |      |
| Di-n-butyl phthalate        | ND             | 10           |             |                    |             |          |          |      |
| Di-n-octyl phthalate        | ND             | 10           |             |                    |             |          |          |      |
| Dibenz(a,h)anthracene       | ND             | 10           |             |                    |             |          |          |      |
| Dibenzofuran                | ND             | 10           |             |                    |             |          |          |      |
| 1,2-Dichlorobenzene         | ND             | 10           |             |                    |             |          |          |      |
| 1,3-Dichlorobenzene         | ND             | 10           |             |                    |             |          |          |      |
| 1,4-Dichlorobenzene         | ND             | 10           |             |                    |             |          |          |      |
| 3,3´-Dichlorobenzidine      | ND             | 10           |             |                    |             |          |          |      |
| Diethyl phthalate           | ND             | 10           |             |                    |             |          |          |      |
| Dimethyl phthalate          | ND             | 10           |             |                    |             |          |          |      |
| 2,4-Dichlorophenol          | ND             | 20           |             |                    |             |          |          |      |
| 2,4-Dimethylphenol          | ND             | 10           |             |                    |             |          |          |      |
| 4,6-Dinitro-2-methylphenol  | ND             | 20           |             |                    |             |          |          |      |
| 2,4-Dinitrophenol           | ND             | 20           |             |                    |             |          |          |      |
|                             |                |              |             |                    |             |          |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSD limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID mb-10800         | SampT       | ype: MBLK       | TestCode: E      | PA Method | 8270C: Semiv | olatiles |          |      |
|----------------------------|-------------|-----------------|------------------|-----------|--------------|----------|----------|------|
| Client ID: PBW             | Batch       | ID: 10800       | RunNo:           | 5530      |              |          |          |      |
| Prep Date: 12/16/2013      | Analysis Da | ate: 12/16/2013 | SeqNo: 4         | 146854    | Units: µg/L  |          |          |      |
| Analyte                    | Result      |                 | SPK Ref Val %REC | LowLimit  | HighLimit    | %RPD     | RPDLimit | Qual |
| 2,4-Dinitrotoluene         | ND          | 10              |                  |           |              |          |          |      |
| 2,6-Dinitrotoluene         | ND          | 10              |                  |           |              |          |          |      |
| Fluoranthene               | ND          | 10              |                  |           |              |          |          |      |
| Fluorene                   | ND          | 10              |                  |           |              |          |          |      |
| Hexachlorobenzene          | ND          | 10              |                  |           |              |          |          |      |
| Hexachlorobutadiene        | ND          | 10              |                  |           |              |          |          |      |
| Hexachlorocyclopentadiene  | ND          | 10              |                  |           |              |          |          |      |
| Hexachloroethane           | ND          | 10              |                  |           |              |          |          |      |
| Indeno(1,2,3-cd)pyrene     | ND          | 10              |                  |           |              |          |          |      |
| Isophorone                 | ND          | 10              |                  |           |              |          |          |      |
| 1-Methylnaphthalene        | ND          | 10              |                  |           |              |          |          |      |
| 2-Methylnaphthalene        | ND          | 10              |                  |           |              |          |          |      |
| 2-Methylphenol             | ND          | 10              |                  |           |              |          |          |      |
| 3+4-Methylphenol           | ND          | 10              |                  |           |              |          |          |      |
| N-Nitrosodi-n-propylamine  | ND          | 10              |                  |           |              |          |          |      |
| N-Nitrosodimethylamine     | ND          | 10              |                  |           |              |          |          |      |
| trosodiphenylamine         | ND          | 10              |                  |           |              |          |          |      |
| aphthalene                 | ND          | 10              |                  |           |              |          |          |      |
| 2-Nitroaniline             | ND          | 10              |                  |           |              |          |          |      |
| 3-Nitroaniline             | ND          | 10              |                  |           |              |          |          |      |
| 4-Nitroaniline             | ND          | 10              |                  |           |              |          |          |      |
| Nitrobenzene               | ND          | 10              |                  |           |              |          |          |      |
| 2-Nitrophenol              | ND          | 10              |                  |           |              |          |          |      |
| 4-Nitrophenol              | ND          | 10              |                  |           |              |          |          |      |
| Pentachlorophenol          | ND          | 20              |                  |           |              |          |          |      |
| Phenanthrene               | ND          | 10              |                  |           |              |          |          |      |
| Phenol                     | ND          | 10              |                  |           |              |          |          |      |
| Pyrene                     | ND          | 10              |                  |           |              |          |          |      |
| Pyridine                   | ND          | 10              |                  |           |              |          |          |      |
| 1,2,4-Trichlorobenzene     | ND          | 10              |                  |           |              |          |          |      |
| 2,4,5-Trichlorophenol      | ND          | 10              |                  |           |              |          |          |      |
| 2,4,6-Trichlorophenol      | ND          | 10              |                  |           |              |          |          |      |
| Surr: 2-Fluorophenol       | 90          | 200.0           | 45.2             | 22.7      | 98           |          |          |      |
| Surr: Phenol-d5            | 79          | 200.0           | 39.3             | 23.4      | 74.9         |          |          |      |
| Surr: 2,4,6-Tribromophenol | 130         | 200.0           | 63.8             | 23.3      | 111          |          |          |      |
| Surr: Nitrobenzene-d5      | 64          | 100.0           | 64.0             |           | 111          |          |          |      |
| Surr: 2-Fluorobiphenyl     | 68          | 100.0           | 68.2             | 38.3      | 110          |          |          |      |
| Surr: 4-Terphenyl-d14      | 75          | 100.0           | 74.7             | 52.1      | 116          |          |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
  - Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

**Project:** 

Lightning Dock CYRQ ENERGY

| Sample ID Ics-10800        | SampT      | ype: <b>LC</b> | s         | Tes         | tCode: El | 'A Method | 8270C: Semi | volatiles |          | -    |
|----------------------------|------------|----------------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: LCSW            | Batch      | ID: 108        | 800       | F           | RunNo: 1  | 5530      |             |           |          |      |
| Prep Date: 12/16/2013      | Analysis D | ate: 12        | 2/16/2013 | S           | SeqNo: 4  | 46855     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL            | SPK value | SFK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 89         | 10             | 100.0     | 0           | 89.4      | 48        | 101         |           |          |      |
| 4-Chloro-3-methylphenol    | 190        | 10             | 200.0     | 0           | 94.8      | 47.9      | 109         |           |          |      |
| 2-Chlorophenol             | 180        | 10             | 200.0     | 0           | 92.5      | 40        | 105         |           |          |      |
| 1,4-Dichlorobenzene        | 96         | 10             | 100.0     | 0           | 96.4      | 40.8      | 94.3        |           |          | S    |
| 2,4-Dinitrotoluene         | 87         | 10             | 100.0     | 0           | 86.8      | 28.3      | 131         |           |          |      |
| N-Nitrosodi-n-propylamine  | 100        | 10             | 100.0     | 0           | 101       | 46.2      | 119         |           |          |      |
| 4-Nitrophenol              | 88         | 10             | 200.0     | 0           | 43.8      | 10.5      | 67.9        |           |          |      |
| Pentachlorophenol          | 130        | 20             | 200.0     | 0           | 65.2      | 22.4      | 81.1        |           |          |      |
| Phenol                     | 110        | 10             | 200.0     | 0           | 54.2      | 21.4      | 72.9        |           |          |      |
| Pyrene                     | 83         | 10             | 100.0     | 0           | 83.0      | 46.9      | 109         |           |          |      |
| 1,2,4-Trichlorobenzene     | 93         | 10             | 100.0     | 0           | 93.3      | 43.1      | 98.4        |           |          |      |
| Surr: 2-Fluorophenol       | 120        |                | 200.0     |             | 59.7      | 22.7      | 98          |           |          |      |
| Surr: Phenol-d5            | 110        |                | 200.0     |             | 53.4      | 23.4      | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 180        |                | 200.0     |             | 91.9      | 23.3      | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 81         |                | 100.0     |             | 81.5      | 36.8      | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 85         |                | 100.0     |             | 84.8      | 38.3      | 110         |           |          |      |
| Surr: 4-Terphenyl-d14      | 88         |                | 100.0     |             | 87.8      | 52.1      | 116         |           |          |      |

| Sample ID lcsd-10800       | SampType: LCSD TestCode: EPA Method 8270C: Semivolatiles |                 |           |             |          |          |             |       |          |      |
|----------------------------|--|-----------------|-----------|-------------|----------|----------|-------------|-------|----------|------|
| Client ID: LCSS02          | Batch  | 1D: <b>10</b> 8 | 300       | F           | RunNo: 1 | 5530     |             |       |          |      |
| Prep Date: 12/16/2013      | Analysis D   | ate: 12         | 2/16/2013 | S           | SeqNo: 4 | 46856    | Units: µg/L |       |          |      |
| Analyte                    | Result   | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD  | RPDLimit | Qual |
| Acenaphthene               | 90   | 10              | 100.0     | 0           | 89.9     | 48       | 101         | 0.558 | 25       |      |
| 4-Chloro-3-methylphenol    | 180  | 10              | 200.0     | 0           | 92.1     | 47.9     | 109         | 2.84  | 32.7     |      |
| 2-Chlorophenol             | 170  | 10              | 200.0     | 0           | 83.9     | 40       | 105         | 9.78  | 20       |      |
| 1,4-Dichlorobenzene        | 83   | 10              | 100.0     | 0           | 82.6     | 40.8     | 94.3        | 15.4  | 20       |      |
| 2,4-Dinitrotoluene         | 81   | 10              | 100.0     | 0           | 80.8     | 28.3     | 131         | 7.11  | 29.9     |      |
| N-Nitrosodi-n-propylamine  | 90   | 10              | 100.0     | 0           | 90.4     | 46.2     | 119         | 10.9  | 23.1     |      |
| 4-Nitrophenol              | 78   | 10              | 200.0     | 0           | 39.0     | 10.5     | 67.9        | 11.6  | 40.5     |      |
| Pentachlorophenol          | 110  | 20              | 200.0     | 0           | 54.5     | 22.4     | 81.1        | 17.8  | 37.3     |      |
| Phenol                     | 92   | 10              | 200.0     | 0           | 46.2     | 21.4     | 72.9        | 15.9  | 20       |      |
| Pyrene                     | 83   | 10              | 100.0     | 0           | 83.1     | 46.9     | 109         | 0.193 | 26.5     |      |
| 1,2,4-Trichlorobenzene     | 84   | 10              | 100.0     | 0           | 83.8     | 43.1     | 98.4        | 10.7  | 27.2     |      |
| Surr: 2-Fluorophenol       | 110  |                 | 200.0     |             | 55.0     | 22.7     | 98          | 0     | 0        |      |
| Surr: Phenol-d5            | 93   |                 | 200.0     |             | 46.5     | 23.4     | 74.9        | 0     | 0        |      |
| Surr: 2,4,6-Tribromophenol | 160  |                 | 200.0     |             | 79.0     | 23.3     | 111         | 0     | 0        |      |
| Surr: Nitrobenzene-d5      | 81   |                 | 100.0     |             | 80.8     | 36.8     | 111         | 0     | 0        |      |
| Surr: 2-Fluorobiphenyl     | 83   |                 | 100.0     |             | 82.9     | 38.3     | 110         | 0     | 0        |      |

#### Qualifiers:

S

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range E
- Analyte detected below quantitation limits
- O RSD is greater than RSD limit
- RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

- Analyte detected ir the associated Method Blank
- $\mathbf{H}$ Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

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WO#: 1312666

22-Jan-14

Client: Cyrq Energy Inc

Surr: 4-Terphenyl-d14

Project: Lightning Dock CYRQ ENERGY

Sample ID losd-10800 SampType: LCSD TestCode: EPA Method 8270C: Semivolatiles

100.0

Client ID: LCSS02 Batch ID: 10800 RunNo: 15530

Prep Date: 12/16/2013 Analysis Date: 12/16/2013 SeqNo: 446856 Units: µg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

82.9

52.1

116

0

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
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- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB-10797     | SampT      | ype: MB   | LK        | Test        | tCode: El | A Method     | 8310: PAHs  |      |          |      |
|------------------------|------------|-----------|-----------|-------------|-----------|--------------|-------------|------|----------|------|
| Client ID: PBW         | Batch      | n ID: 107 | 797       | R           | tunNo: 1  | 5541         |             |      |          |      |
| Prep Date: 12/16/2013  | Analysis D | )ate: 12  | /17/2013  | S           | SeqNo: 4  | <b>47054</b> | Units: µg/L |      |          |      |
| Analyte                | Result     | PQL       | SPK value | SPK Ref Val | %REC      | LowLimit     | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene            | ND         | 2.0       |           |             |           |              |             |      |          |      |
| 1-Methylnaphthalene    | ND         | 2.0       |           |             |           |              |             |      |          |      |
| 2-Methylnaphthalene    | ND         | 2.0       |           |             |           |              |             |      |          |      |
| Acenaphthylene         | ND         | 2.5       |           |             |           |              |             |      |          |      |
| Acenaphthene           | ND         | 5.0       |           |             |           |              |             |      |          |      |
| Fluorene               | ND         | 0.80      |           |             |           |              |             |      |          |      |
| Phenanthrene           | ND         | 0.60      |           |             |           |              |             |      |          |      |
| Anthracene             | ND         | 0.60      |           |             |           |              |             |      |          |      |
| Fluoranthene           | ND         | 0.30      |           |             |           |              |             |      |          |      |
| Pyrene                 | ND         | 0.30      |           |             |           |              |             |      |          |      |
| Benz(a)anthracene      | ND         | 0.070     |           |             |           |              |             |      |          |      |
| Chrysene               | ND         | 0.20      |           |             |           |              |             |      |          |      |
| Benzo(b)fluoranthene   | ND         | 0.10      |           |             |           |              |             |      |          |      |
| Benzo(k)fluoranthene   | ND         | 0.070     |           |             |           |              |             |      |          |      |
| Benzo(a)pyrene         | ND         | 0.070     |           |             |           |              |             |      |          |      |
| Dibenz(a,h)anthracene  | ND         | 0.12      |           |             |           |              |             |      |          |      |
| Benzo(g,h,i)perylene   | ND         | 0.12      |           |             |           |              |             |      |          |      |
| Indeno(1,2,3-cd)pyrene | ND         | 0.25      |           |             |           |              |             |      |          |      |
| Surr: Benzo(e)pyrene   | 21         |           | 20.00     |             | 104       | 24.5         | 139         |      |          |      |

| Sample ID LCS-10797   | SampType: <b>LCS</b>      |                 |           | Test        | Code: El | PA Method | 8310: PAHs  |      |          |      |
|-----------------------|---------------------------|-----------------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSW       | Batcl                     | 1D: <b>10</b> 7 | 797       | R           | tunNo: 1 | 5541      |             |      |          |      |
| Prep Date: 12/16/2013 | Analysis Date: 12/17/2013 |                 |           | S           | eqNo: 4  | 47058     | Units: µg/L |      |          |      |
| Analyte               | Result                    | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 41                        | 2.0             | 80.00     | 0           | 51.6     | 43.8      | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 36                        | 2.0             | 80.20     | 0           | 44.8     | 41.3      | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 34                        | 2.0             | 80.00     | 0           | 42.0     | 36.6      | 89.6        |      |          |      |
| Acenaphthylene        | 46                        | 2.5             | 80.20     | 0           | 57.7     | 43.6      | 103         |      |          |      |
| Acenaphthene          | 37                        | 5.0             | 80.00     | 0           | 46.1     | 42.4      | 87.6        |      |          |      |
| Fluorene              | 3.9                       | 0.80            | 8.020     | 0           | 48.1     | 40.5      | 93.6        |      |          |      |
| Phenanthrene          | 2.2                       | 0.60            | 4.020     | 0           | 53.7     | 43.9      | 111         |      |          |      |
| Anthracene            | 2.2                       | 0.60            | 4.020     | 0           | 56.0     | 44.3      | 103         |      |          |      |
| Fluoranthene          | 4.6                       | 0.30            | 8.020     | 0           | 57.5     | 43.5      | 109         |      |          |      |
| Pyrene                | 4.8                       | 0.30            | 8.020     | 0           | 59.7     | 32.6      | 103         |      |          |      |
| Benz(a)anthracene     | 0.46                      | 0.070           | 0.8020    | 0           | 57.4     | 43        | 114         |      |          |      |
| Chrysene              | 2.2                       | 0.20            | 4.020     | 0           | 54.0     | 40.2      | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.57                      | 0.10            | 1.002     | 0           | 56.9     | 44.4      | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.29                      | 0.070           | 0.5000    | 0           | 58.0     | 41.5      | 120         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Ε
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- Р Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#:

1312666 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID LCS-10797    | SampT          | SampType: LCS             |             |             | tCode: E | PA Method | 8310: PAHs  |      |          |      |
|------------------------|----------------|---------------------------|-------------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSW        | Batch          | Batch ID: 10797           |             |             | RunNo: 1 | 5541      |             |      |          |      |
| Prep Date: 12/16/2013  | Analysis D     | Analysis Date: 12/17/2013 |             |             | SeqNo: 4 | 47058     | Units: µg/L |      |          |      |
| Analyte                | Result         | PQL                       | SPK value   | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Benzo(a)pyrene         | 0.28           | 0.070                     | 0.5020      | 0           | 55.8     | 34.5      | 118         |      |          |      |
| Dibenz(a,h)anthracene  | 0.59           | 0.12                      | 1.002       | 0           | 58.9     | 38.3      | 107         |      |          |      |
| Benzo(g,h,i)perylene   | 0.55           | 0.12                      | 1.000       | 0           | 55.0     | 38.4      | 110         |      |          |      |
| Indeno(1,2,3-cd)pyrene | 1.3 0.25 2.004 |                           | 0 64.4 42.4 |             | 113      |           |             |      |          |      |
| Surr: Benzo(e)pyrene   | 15 20.00       |                           |             | 74.8 24.5   |          |           |             |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666 22-Jan-14

Cyrq Energy Inc Client:

Project: Lightning Dock CYRQ ENERGY

TestCode: Total Phenolics by SW-846 9067 Sample ID MB-10891 SampType: MBLK

Client ID: **PBW** Batch ID: 10891 RunNo: 15597

Prep Date: 12/19/2013 SeqNo: 449210 Analysis Date: 12/19/2013 Units: µg/L

**RPDLimit** Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Qual

Phenolics, Total Recoverable ND 2.5

Sample ID LCS-10891 SampType: LCS TestCode: Total Phenolics by SW-846 9067

RunNo: 1:5597 Client ID: LCSW Batch ID: 10891

Prep Date: 12/19/2013 Analysis Date: 12/19/2013 SeqNo: 449211 Units: µg/L

%RPD **RPDLimit** Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit Qual Analyte

Phenolics, Total Recoverable 21 2.5 20.00 0 103 73.7 135

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#:

1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID mb-1

SampType: MBLK

TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R15528

RunNo: 15528

SPK value SPK Ref Val %REC LowLimit

Prep Date:

Analyte

Analysis Date: 12/16/2013

PQL

20

SeqNo: 446604

Units: mg/L CaCO3

%RPD HighLimit

**RPDLimit** Qual

Total Alkalinity (as CaCO3)

Sample ID Ics-1

ND

Result

SampType: LCS

TestCode: SM2320B: Alkalinity

90

Units: mg/L CaCO3

%RPD

Analyte

Client ID:

Prep Date:

LCSW Analysis Date: 12/16/2013

Batch ID: R15528

RunNo: 15528 SeqNo: 446605

HighLimit

Total Alkalinity (as CaCO3)

Batch ID: R15528

**PQL** 

PQL

20

%REC 0 99.4

110

**RPDLimit** 

Qual

Sample ID mb-2

PBW

SampType: MBLK

RunNo: 15528

TestCode: SM2320B: Alkalinity

Client ID: Prep Date:

Result

80

Analysis Date: 12/16/2013

SeaNo: 446624

Units: mg/L CaCO3

Qual

Analyte

ND 20 SPK value SPK Ref Val %REC LowLimit

SPK value SPK Ref Val

80.00

HighLimit

%RPD

**RPDLimit** 

Total Alkalinity (as CaCO3)

sample ID Ics-2

LCSW

SampType: LCS

TestCode: SM2320B: Alkalinity

RunNo: 15528

.ient ID: Prep Date: Batch ID: R15528

SeqNo: 446625

Units: mg/L CaCO3

81

Analysis Date: 12/16/2013

%REC

LowLimit

Qual

Analyte

SPK value SPK Ref Val

101

%RPD

**RPDLimit** 

Total Alkalinity (as CaCO3)

Result

**PQL** 20

80.00

HighLimit 110

# Qualifiers:

R

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. P
- Page 27 of 28

RLReporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-10881

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID:

PBW

Batch ID: 10881

**PQL** 

20.0

RunNo: 15624

Prep Date: 12/18/2013

Analysis Date: 12/19/2013

SeqNo: 450504

SPK value SPK Ref Val %REC LowLimit

Units: mg/L HighLimit

Qual

Total Dissolved Solids

ND

Result

%RPD

Analyte

Sample ID LCS-10881

SampType: LCS

RunNo: 15624

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW

Batch ID: 10881

SeqNo: 450505

Units: mg/L

**RPDLimit** 

Analyte

Prep Date: 12/18/2013

Analysis Date: 12/19/2013

SPK value SPK Ref Val %REC LowLimit HighLimit %RPD

**PQL** 

20.0

**RPDLimit** 

Qual

Total Dissolved Solids

1020

Result

1000

102

120

#### Qualifiers:

S

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

- Value above quantitation range E
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit О
- RPD outside accepted recovery limits R

- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded H
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

# Sample Log-In Check List

| Client  | Name:       | AMEC                          |  | Work Ord  | der Number:  | 1312666   |                       |              | RcptNo:   | 1                    |        |
|---------|-------------|-------------------------------|--|---|--|-----------|-----------------------|--------------|---|----------------------|--------|
| Receive | ed by/dat   | te:                           | 15 1.  | 2//6/1  | ′つ   |           |                       |              |   |                      |        |
| Logged  | Ву:         | Anne Thor                     | ne   | 12/16/2013  | 9:03:00 AM   |           | 4                     | Anne Sham    | -   |                      |        |
| Comple  | eted By:    | Anne Thor                     | ne   | 12/16/2013  | ;  |           | 4                     | ane Am       | _   |                      |        |
| Review  | ed By:      | A                             | 12/16/1  | 3   |  |           |                       |              |   |                      |        |
| Chain   | of Cus      |                               | 1-71011  |   |  |           |                       |              |   |                      |        |
| 1, Cus  | stody sea   | als intact on sa              | ample bottles?   |   |  | Yes 🗆     | ]                     | No 🗆         | Not Present 🗹   |                      |        |
| 2. Is C | Chain of (  | Custody comp                  | lete?  |   |  | Yes 🗸     | ]                     | No 🗌         | Not Present   |                      |        |
| 3. Hov  | w was the   | e sample deliv                | ered?  |   |  | Client    |                       |              |   |                      |        |
| Log li  | <u>n</u>    |                               |  |   |  |           |                       |              |   |                      |        |
| 4. Wa   | as an atte  | empt made to                  | cool the samples                                       | ?   |  | Yes 🛂     | •                     | No 🗌         | na 🗀  |                      |        |
| 5. We   | ere all sa  | mples received                | d at a temperature                                     | e of >0°C to  | 6.0°C  | Yes 🗹     |                       | No 🗌         | na 🗆  |                      |        |
| 6. Sa   | mple(s) i   | in proper conta               | ainer(s)?  |   |  | Yes 🗸     | 2                     | No 🗌         |   |                      |        |
| 7. Suf  | fficient sa | ample volume                  | for indicated test(                                    | (s)?  |  | Yes 🗹     | ]                     | No $\square$ |   |                      |        |
| 8. Are  | samples     | s (except VOA                 | and ONG) prope   | rly preserved                                       | 1?   | Yes 🗹     | }                     | No 🗌         |   |                      |        |
| 9. Wa   | ıs preser   | vative added to               | o bottles?   |   |  | Yes 🗌     | ]                     | No 🔽         | NA []   |                      |        |
| 10.VO   | A vials h   | ave zero head                 | Ispace?  |   |  | Yes 🗸     | }                     | No 🗌         | No VOA Vials  |                      | 4/6/19 |
|         |             |                               | ers received brok                                      | en?   |  | Yes [     | ]                     | No 🗹 [       |   | Arta                 | - 1101 |
|         |             |                               |  |   |  |           |                       |              | # of preserved bottles checked  | i 🖋                  |        |
|         |             | work match bo                 | ottle labels?<br>nain of custody)                      |   |  | Yes 🗹     | ]                     | No 📙         | for pH: 0   | or £12 unless noted) |        |
| -       |             | •                             | ntified on Chain o                                     | f Custody?  |  | Yes 🗹     | 1                     | No 🗆         | Adjusted?   |                      |        |
|         |             |                               | vere requested?  |   |  | Yes 🗹     |                       | No 🗆         | -   | A 344                | 13     |
|         |             | lding times abl               | le to be met?<br>authorization.)                       |   |  | Yes 🗹     | ]                     | No 🗆         | Checked by:   | A 12/161             | 7      |
| Specia  | al Hang     | dling (if app                 | olicable)  |   |  |           |                       |              |   |                      |        |
| 16. Wa  | as client i | notified of all d             | iscrepancies with                                      | this order?   |  | Yes       | ]                     | No 🗆         | NA 🗹  |                      |        |
|         | Perso       | n Notified:                   |  |   | Date   |           | W. with resonance and |              |   |                      |        |
|         | By W        | hom:                          |  |   | Via: [   | eMail     | Pho                   | ne 🗌 Fax     | ☐ In Person   |                      |        |
|         | Rega        | rding:                        | - Last experiments as an experimental experimental ex- | program to programme a survivative or all exercises | and the state of t |           |                       |              |   |                      |        |
|         | Ctient      | Instructions:                 | A STATE OF THE LOCAL PROPERTY AND                      |   |  |           | Marina de Antonio     |              | A AND THE REAL PROPERTY OF THE PARTY OF THE |                      |        |
| 17. Ad  | lditional : | remarks:                      |  |   |  |           |                       |              |   |                      |        |
| 111-    | Cooler Info | ormation<br>No Temp °C<br>2.9 |  | Seal Intact<br>ot Present                           | Seal No  | Seal Date | , Şi                  | gned By      |   |                      |        |

|                    | hain             | -of-Cu      | stody Record                          | Turn-Around                      | Time:                |                                       | HALL ENVIRONMENTA ANALYSIS LABORATOR  |             |                             |   |                           | L             |   |                        |             |                 |     |      |        |                      |
|--------------------|------------------|-------------|---------------------------------------|----------------------------------|----------------------|---------------------------------------|---|-------------|-----------------------------|---|---------------------------|---------------|---|------------------------|-------------|-----------------|-----|------|--------|----------------------|
| Client:            | AM E             | R E         | +I, INC                               | □ Standard                       | □ Rush               |                                       | ] -   | 236         |                             |   |                           |               |   |                        |             |                 |     |      |        |                      |
|                    |                  |             |                                       | Project Name                     |                      | 7                                     |   |             |                             |   | w.hal                     |               |   |                        |             |                 |     |      |        |                      |
| Mailing            | Address          | 85          | 19 Jefferson                          | Lighter                          | ing Doc              | K/CYRQ Energy<br>20102                |   | 490         | )1 Hav                      | wkins .                                   | NE -                      | Alb           | ouque   | erqu                   | e, Ni       | И 87            | 109 |      |        |                      |
|                    | Ai               |             |                                       | Project #:                       | 7 7                  | · · · · · · · · · · · · · · · · · · · |   | Te          | I. <b>5</b> 05              | -345-3                                    | 975                       | F             | ∃ax ⊹   | 505-                   | 345-        | 4107            |     |      |        |                      |
| Phone:             | #:               | 505-        | eri-leci                              | 1 11-5                           | 317-60               | 20102                                 | Analysis Request  |             |                             |   |                           |               |   |                        |             |                 |     |      |        |                      |
| email o            |                  |             | annere Amecicam                       | Project Mana                     |                      |                                       | (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)   |             |                             |   |                           |               |   |                        |             |                 |     |      |        |                      |
| QA/QC I            | Package:<br>dard |             | □ Level 4 (Full Validation)           | DAV                              | npt Oi               | ine.v                                 | TMB's (8021) TPH (Gas only) D / DRO / MRO) 3.1) 270 SIMS) 1.002, PO4, SO4) 1.8082 PCB's 1.9 |             |                             |   |                           |               |   |                        |             |                 |     |      |        |                      |
| Accred             |                  | •           |                                       | Sampler:                         | たナド                  | R                                     | 3.1)<br>TPH (<br>3.1)<br>1.00 <sub>2</sub> ,<br>1.8082                                      |             |                             |   |                           |               | 2   |                        |             |                 |     |      |        |                      |
| □ NEL              |                  | ☐ Othe      | <u> </u>                              |                                  | Yes :                |                                       | +   | +           | 윉                           | 504<br>504                                | or 82                     | SI            | Š   | es/                    |             | (OA)            |     |      |        | ō                    |
| □ EDD              | (Type)_<br>Time  | Matrix      | Sample Request ID                     | Sample Tem  Container Type and # | Preservative<br>Type | 2-9<br>HEAL NO.<br>1312/4/6           | BTEX + MTBE   | BTEX + MTBE | TPH 8015B (GRO / DRO / MRO) | I PH (Method 418.1)<br>EDB (Method 504.1) | PAH's (8310 or 8270 SIMS) | RCRA 8 Metals | Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> ) | 8081 Pesticides / 8082 | 8260B (VOA) | 8270 (Semi-VOA) |     |      |        | Air Bubbles (Y or N) |
| 2-13-13            | 147.00           | Hzo         | 53-7                                  |                                  |                      | -701                                  |   |             |                             |   |                           |               |   |                        |             |                 |     |      |        |                      |
|                    |                  |             |                                       |                                  |                      |                                       |   |             |                             |   |                           |               |   |                        |             |                 |     |      |        |                      |
|                    |                  |             |                                       |                                  |                      |                                       |   |             |                             |   |                           |               |   |                        |             |                 | +   |      |        |                      |
|                    |                  |             |                                       |                                  |                      |                                       |   |             |                             |   |                           |               |   |                        |             |                 |     |      |        |                      |
|                    |                  |             |                                       |                                  |                      |                                       |   |             |                             |   |                           |               |   |                        |             |                 |     | 1    |        |                      |
|                    |                  |             |                                       |                                  |                      |                                       |   |             |                             |   |                           |               |   |                        |             |                 |     | 1    |        |                      |
| Date: 2/6-13 Date: | Time:            | Relinquishe | - M otter                             | Received by:                     | hSZ                  | Date Time 12/10/13 9:03               | Rer   | narks       | _                           | EE  | - A                       | 170           | <u> </u>  | El.                    | Ш<br>Э      | AA              | JAL | YTE: | ⊥<br>S |                      |
| 2410.              |                  | . comiquion | · · · · · · · · · · · · · · · · · · · |                                  |                      |                                       |   |             |                             | Lis                                       |                           |               |   |                        |             |                 |     |      |        |                      |



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

OrderNo.: 1312A59

January 14, 2014

David Janney Cyrq Energy Inc PO Box 86 Animas, NM 88020

TEL: (505) 796-7276

**FAX** 

RE: Lightning Dock Geothermal GW Quality Monitoring

Dear David Janney:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/21/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

### **Analytical Report**

#### Lab Order 1312A59

Date Reported: 1/14/2014

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc

**Project:** Lightning Dock Geothermal GW Quality

Lab ID: 1312A59-001

Client Sample ID: LDG 45-7

**Collection Date:** 12/19/2013 11:00:00 AM

Received Date: 12/21/2013 10:00:00 AM

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed        | Batch          |
|-----------------------------------|--------|----------|------|-------|----|----------------------|----------------|
| EPA METHOD 8011/504.1: EDB        |        |          |      |       |    | Analy                | st: <b>LRW</b> |
| 1,2-Dibromoethane                 | ND     | 0.010    |      | μg/L  | 1  | 12/26/2013 2:31:48 P | M 10989        |
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Analy                | st: SCC        |
| Aroclor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 A | M 10979        |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 A |                |
| Aroclor 1232                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 A |                |
| Aroclor 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 A |                |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 A |                |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 A |                |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 A |                |
| Surr: Decachlorobiphenyl          | 93.6   | 17-123   |      | %REC  | 1  | 12/30/2013 2:42:39 A |                |
| Surr: Tetrachloro-m-xylene        | 98.0   | 22.6-113 |      | %REC  | 1  | 12/30/2013 2:42:39 A |                |
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analy                | st: SCC        |
| Naphthalene                       | ND     | 100      |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| 1-Methylnaphthalene               | ND     | 100      |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| 2-Methylnaphthalene               | ND     | 100      |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| Acenaphthylene                    | ND     | 120      |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| Acenaphthene                      | ND     | 250      |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| Fluorene                          | ND     | 40       |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| Phenanthrene                      | ND     | 30       |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| Anthracene                        | ND     | 30       |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| Fluoranthene                      | ND     | 15       |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| Pyrene                            | ND     | 15       |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| Benz(a)anthracene                 | ND     | 3.5      |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| Chrysene                          | ND     | 10       |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| Benzo(b)fluoranthene              | ND     | 5.0      |      | μg/L  | 50 | 12/28/2013 3:37:14 A |                |
| Benzo(k)fluoranthene              | ND     | 3.5      |      | μg/L  | 50 | 12/28/2013 3:37:14 A | M 10981        |
| Benzo(a)pyrene                    | ND     | 3.5      |      | μg/L  | 50 | 12/28/2013 3:37:14 A | M 10981        |
| Dibenz(a,h)anthracene             | ND     | 6.2      |      | μg/L  | 50 | 12/28/2013 3:37:14   | M 10981        |
| Benzo(g,h,i)perylene              | ND     | 6.2      |      | μg/L  | 50 | 12/28/2013 3:37:14 A | M 10981        |
| Indeno(1,2,3-cd)pyrene            | ND     | 12       |      | μg/L  | 50 | 12/28/2013 3:37:14   |                |
| Surr: Benzo(e)pyrene              | 113    | 24.5-139 |      | %REC  | 50 | 12/28/2013 3:37:14 A | M 10981        |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analy                | st: JRR        |
| Fluoride                          | 14     | 0.50     | *    | mg/L  | 5  | 12/24/2013 3:52:17 F | M R1574        |
| Chloride                          | 97     | 2.5      |      | mg/L  | 5  | 12/23/2013 9:15:25 F |                |
| Bromide                           | ND     | 0.50     |      | mg/L  | 5  | 12/23/2013 9:15:25 F |                |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 12/24/2013 3:52:17 F |                |
| Sulfate                           | 540    | 10       | *    | mg/L  | 20 | 12/23/2013 9:27:49 F |                |
| Nitrate+Nitrite as N              | ND     | 1.0      |      | mg/L  | 5  | 12/23/2013 11:31:56  |                |

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page
- NOT Detected at the Reporting Limit Page 1 of 48

  P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/14/2014

CLIENT: Cyrq Energy Inc

Client Sample ID: LDG 45-7

Project: Lightning Dock Geothermal GW Quality

Collection Date: 12/19/2013 11:00:00 AM

Lab ID:

1312A59-001

Matrix: AQUEOUS

Received Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL      | Qual | Units | DF | Date Analyzed         | Batch         |
|--------------------------------|--------|---------|------|-------|----|-----------------------|---------------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |      |       |    | Analysi               | : JLF         |
| Aluminum                       | 0.21   | 0.020   | *    | mg/L  | 1  | 12/23/2013 6:00:22 PM | R15707        |
| Barium                         | 0.065  | 0.0020  |      | mg/L  | 1  | 12/23/2013 6:00:22 PM | R15707        |
| Boron                          | 0.46   | 0.040   |      | mg/L  | 1  | 12/23/2013 6:00:22 PM | R15707        |
| Cadmium                        | ND     | 0.0020  |      | mg/L  | 1  | 12/23/2013 6:00:22 PM | R15707        |
| Calcium                        | 23     | 1.0     |      | mg/L  | 1  | 12/30/2013 12:25:16 P | M R15805      |
| Cobalt                         | ND     | 0.0060  |      | mg/L  | 1  | 12/23/2013 6:00:22 PM | R15707        |
| Copper                         | ND     | 0.0060  |      | mg/L  | 1  | 12/27/2013 2:35:33 PM | 1 R15768      |
| Iron                           | ND     | 0.020   |      | mg/L  | 1  | 12/30/2013 12:25:16 P | M R15805      |
| Magnesium                      | ND     | 1.0     |      | mg/L  | 1  | 12/30/2013 12:25:16 P | M R15805      |
| Manganese                      | 0.018  | 0.0020  |      | mg/L  | 1  | 12/23/2013 6:00:22 PM | 1 R15707      |
| Molybdenum                     | 0.026  | 0.0080  |      | mg/L  | 1  | 12/23/2013 6:00:22 PM | 1 R15707      |
| Nickel                         | ND     | 0.010   |      | mg/L  | 1  | 12/27/2013 2:35:33 PM | 1 R15768      |
| Potassium                      | 30     | 1.0     |      | mg/L  | 1  | 12/30/2013 12:25:16 P | M R15805      |
| Silver                         | ND     | 0.0050  |      | mg/L  | 1  | 12/23/2013 6:00:22 PM | 1 R15707      |
| Sodium                         | 300    | 5.0     |      | mg/L  | 5  | 12/30/2013 12:27:09 P | M R15805      |
| Zinc                           | ND     | 0.010   |      | mg/L  | 1  | 12/27/2013 2:35:33 PM | 1 R15768      |
| EPA 200.8: DISSOLVED METALS    |        |         |      |       |    | Analys                | t: <b>DBD</b> |
| Arsenic                        | 0.012  | 0.0010  | *    | mg/L  | 1  | 1/7/2014 2:57:12 PM   | R15933        |
| Lead                           | ND     | 0.0010  | 1    | mg/L  | 1  | 1/7/2014 2:57:12 PM   | R15933        |
| Selenium                       | 0.0017 | 0.0010  | ı    | mg/L  | 1  | 1/7/2014 2:57:12 PM   | R15933        |
| Uranium                        | ND     | 0.0010  | 1    | mg/L  | 1  | 1/7/2014 6:09:59 PM   | R15934        |
| EPA METHOD 245.1: MERCURY      |        |         |      |       |    | Analys                | t: JML        |
| Mercury                        | ND     | 0.00020 | )    | mg/L  | 1  | 1/7/2014 2:11:45 PM   | 11092         |
| EPA METHOD 8270C: SEMIVOLATIL  | ES     |         |      |       |    | Analys                | t: JDC        |
| Acenaphthene                   | ND     | 10      | )    | μg/L  | 1  | 12/26/2013 10:13:19 P | M 10980       |
| Acenaphthylene                 | ND     | 10      | )    | μg/L  | 1  | 12/26/2013 10:13:19 P | M 10980       |
| Aniline                        | ND     | 10      | )    | μg/L  | 1  | 12/26/2013 10:13:19 P | M 10980       |
| Anthracene                     | ND     | 10      | )    | μg/L  | 1  | 12/26/2013 10:13:19 P | M 10980       |
| Azobenzene                     | ND     | 10      | )    | μg/L  | 1  | 12/26/2013 10:13:19 P | M 10980       |
| Benz(a)anthracene              | ND     | 10      | )    | μg/L  | 1  | 12/26/2013 10:13:19 P | M 10980       |
| Benzo(a)pyrene                 | ND     | 10      | )    | µg/L  | 1  | 12/26/2013 10:13:19 P | M 10980       |
| Benzo(b)fluoranthene           | ND     | 10      | )    | μg/L  | 1  | 12/26/2013 10:13:19 P | M 10980       |
| Benzo(g,h,i)perylene           | ND     | 10      | )    | μg/L  | 1  | 12/26/2013 10:13:19 F | M 10980       |
| Benzo(k)fluoranthene           | ND     | 10      | )    | μg/L  | 1  | 12/26/2013 10:13:19 F | M 10980       |
| Benzoic acid                   | ND     | 40      | )    | µg/L  | 1  | 12/26/2013 10:13:19 F | M 10980       |
| Benzyl alcohol                 | ND     | 10      | )    | µg/L  | 1  | 12/26/2013 10:13:19 F | M 10980       |
| Bis(2-chloroethoxy)methane     | ND     | 10      | )    | µg/L  | 1  | 12/26/2013 10:13:19 F | M 10980       |
| Bis(2-chloroethyl)ether        | ND     | 10      | )    | µg/L  | 1  | 12/26/2013 10:13:19 F | M 10980       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2 of 48
  - Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 45-7

Project:Lightning Dock Geothermal GW QualityCollection Date: 12/19/2013 11:00:00 AMLab ID:1312A59-001Matrix: AQUEOUSReceived Date: 12/21/2013 10:00:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed      | Batch           |
|-----------------------------|--------|-------|----------|----|--------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  |       |          |    | Ana                | yst: <b>JDC</b> |
| Bis(2-chloroisopropyl)ether | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | PM 10980        |
| Bis(2-ethylhexyl)phthalate  | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 4-Bromophenyl phenyl ether  | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | PM 10980        |
| Butyl benzyl phthalate      | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Carbazole                   | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 4-Chloro-3-methylphenol     | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 4-Chloroaniline             | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 2-Chloronaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 2-Chlorophenol              | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 4-Chlorophenyl phenyl ether | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Chrysene                    | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Di-n-butyl phthalate        | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Di-n-octyl phthalate        | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Dibenz(a,h)anthracene       | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Dibenzofuran                | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 3,3'-Dichlorobenzidine      | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Diethyl phthalate           | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Dimethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 2,4-Dichlorophenol          | N·D    | 20    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 2,4-Dimethylphenol          | ٧D     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 4,6-Dinitro-2-methylphenol  | V.D    | 20    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 2,4-Dinitrophenol           | ٨D     | 20    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 2,4-Dinitrotoluene          | ٧D     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 2,6-Dinitrotoluene          | ٧٠D    | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Fluoranthene                | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Fluorene                    | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Hexachlorobenizene          | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Hexachlorobutadiene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Hexachlorocyclopentadiene   | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Hexachloroethane            | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Indeno(1,2,3-cd)pyrene      | ٨D     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| Isophorone                  | ND     | 10    | µg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 1-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 2-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 2-Methylphenol              | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |
| 3+4-Methylphenol            | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1 | 9 PM 10980      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 3 of 48
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 45-7

Project: Lightning Dock Geothermal GW Quality Collection Date: 12/19/2013 11:00:00 AM 1312A59-001 Matrix: AQUEOUS Lab ID: Received Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL Qu     | ıal Units | DF Date A | Analyzed        | Batch          |
|--------------------------------|--------|-----------|-----------|-----------|-----------------|----------------|
| EPA METHOD 8270C: SEMIVOLATII  | LES    |           |           |           | Analy           | st: <b>JDC</b> |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19 ( | PM 10980       |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Naphthalene                    | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| 2-Nitroaniline                 | ND     | 10        | μg/L      |           | 2013 10:13:19   |                |
| 3-Nitroaniline                 | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19 ( | PM 10980       |
| 4-Nitroaniline                 | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19 ( | PM 10980       |
| Nitrobenzene                   | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| 2-Nitrophenol                  | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| 4-Nitrophenol                  | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Pentachlorophenol              | ND     | 20        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Phenanthrene                   | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Phenol                         | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Pyrene                         | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Pyridine                       | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19 I | PM 10980       |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Surr: 2-Fluorophenol           | 58.0   | 22.7-98   | %REC      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Surr: Phenol-d5                | 43.6   | 23.4-74.9 | %REC      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Surr: 2,4,6-Tribromophenol     | 86.2   | 23.3-111  | %REC      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Surr: Nitrobenzene-d5          | 83.6   | 36.8-111  | %REC      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Surr: 2-Fluorobiphenyl         | 102    | 38.3-110  | %REC      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| Surr: 4-Terphenyl-d14          | 90.8   | 52.1-116  | %REC      | 1 12/26/  | 2013 10:13:19   | PM 10980       |
| EPA METHOD 8260B: VOLATILES    |        |           |           |           | Analy           | st: cadg       |
| Benzene                        | ND     | 1.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| Toluene                        | ND     | 1.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| Ethylbenzene                   | ND     | 1.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| Naphthalene                    | ND     | 2.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| Acetone                        | ND     | 10        | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| Bromobenzene                   | ND     | 1.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |
| Bromodichloromethane           | ND     | 1.0       | μg/L      | 1 12/29/  | 2013 8:16:13 P  | M R15774       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 4 of 48 Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

#### **Analytical Report**

#### Lab Order 1312A59

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 45-7

Project:Lightning Dock Geothermal GW QualityCollection Date: 12/19/2013 11:00:00 AMLab ID:1312A59-001Matrix: AQUEOUSReceived Date: 12/21/2013 10:00:00 AM

| Analyses                    | Result | RL Qu | al Units      | DF Date Analyzed        | Batch  |
|-----------------------------|--------|-------|---------------|-------------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       |               | Analyst                 | cadg   |
| Bromoform                   | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Bromomethane                | ND     | 3.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 2-Butanone                  | ND     | 10    | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Carbon disulfide            | ND     | 10    | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Carbon Tetrachloride        | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Chlorobenzene               | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Chloroethane                | ND     | 2.0   | μ <b>g</b> /L | 1 12/29/2013 8:16:13 PM | R15774 |
| Chloroform                  | ND     | 1.0   | μ <b>g</b> /L | 1 12/29/2013 8:16:13 PM | R15774 |
| Chloromethane               | ND     | 3.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 2-Chlorotoluene             | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Dibromochlorornethane       | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Dibromomethane              | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,2-Dichloroberizene        | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,3-Dichloroberizene        | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,4-Dichloroberizene        | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Dichlorodifluorcmethane     | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,3-Dichloropropane         | ND     | 1.0   | µg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 2-Hexanone                  | ND     | 10    | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Isopropylbenzene            | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Methylene Chloride          | ND     | 3.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| n-Butylbenzene              | ND     | 3.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| n-Propylbenzene             | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| sec-Butylbenzene            | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| Styrene                     | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L          | 1 12/29/2013 8:16:13 PM | R15774 |

Refer to the QC Summary report and sample login checklist fcr flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 5 of 48
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: LDG 45-7

Project: Lightning Dock Geothermal GW Quality Collection Date: 12/19/2013 11:00:00 AM

Lab ID: 1312A59-001

CLIENT: Cyrq Energy Inc

Matrix: AQUEOUS

Received Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed          | Batch   |
|--------------------------------|--------|--------|------|------------|----|------------------------|---------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analyst                | cadg    |
| Tetrachloroethene (PCE)        | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| trans-1,2-DCE                  | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| trans-1,3-Dichloropropene      | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| 1,2,3-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| 1,2,4-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| 1,1,1-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| 1,1,2-Trichloroethane          | NĐ     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Trichloroethene (TCE)          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Trichlorofluoromethane         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| 1,2,3-Trichloropropane         | ND     | 2.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Vinyl chloride                 | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Xylenes, Total                 | ND     | 1.5    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Surr: 1,2-Dichloroethane-d4    | 96.8   | 70-130 |      | %REC       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Surr: 4-Bromofluorobenzene     | 107    | 70-130 |      | %REC       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Surr: Dibromofluoromethane     | 106    | 70-130 |      | %REC       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Surr: Toluene-d8               | 97.4   | 70-130 |      | %REC       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analyst                | : JME   |
| Petroleum Hydrocarbons, TR     | 52     | 1.1    |      | mg/L       | 1  | 12/24/2013             | 10974   |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |            |    | Analyst                | : SCC   |
| Phenolics, Total Recoverable   | ND     | 2.5    |      | μg/L       | 1  | 1/8/2014               | 11134   |
| SM4500-H+B: PH                 |        |        |      |            |    | Analyst                | SRM     |
| рН                             | 6.82   | 1.68   | Н    | pH units   | 1  | 12/23/2013 7:06:45 PM  | R15709  |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analyst                | : JML   |
| Bicarbonate (As CaCO3)         | 110    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:03:39 PM  | R15744  |
| Carbonate (As CaCO3)           | ND     | 2.0    |      | mg/L CaCO3 | 1  | 12/26/2013 1:03:39 PM  | R15744  |
| Total Alkalinity (as CaCO3)    | 110    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:03:39 PM  | R15744  |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analyst                | : KS    |
| Total Dissolved Solids         | 1270   | 40.0   | *    | mg/L       | 1  | 12/27/2013 10:29:00 Al | M 10984 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 6 of 48 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1312A59

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 63-7

Project:Lightning Dock Geothermal GW QualityCollection Date: 12/20/2013 1:00:00 PMLab ID:1312A59-002Matrix: AQUEOUSReceived Date: 12/21/2013 10:00:00 AM

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed         | Batch            |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|------------------|
| EPA METHOD 8011/504.1: EDB        |        |          |      |       |    | Analys                | t: LRW           |
| 1,2-Dibromoethane                 | ND     | 0.010    |      | μg/L  | 1  | 12/26/2013 2:45:40 PM | 1 10989          |
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Analys                | t: SCC           |
| Aroclor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM | 1 10979          |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM |                  |
| Aroclor 1232                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM |                  |
| Aroclor 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM |                  |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM |                  |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM |                  |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM |                  |
| Surr: Decachlorobiphenyl          | 74.4   | 17-123   |      | %REC  | 1  | 12/30/2013 3:28:36 AM | 1 10979          |
| Surr: Tetrachloro-m-xylene        | 66.0   | 22.6-113 |      | %REC  | 1  | 12/30/2013 3:28:36 AM | 1 10979          |
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analys                | t: SCC           |
| Naphthalene                       | ИD     | 2.0      |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 1 10981          |
| 1-Methylnaphthalene               | CIN    | 2.0      |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 1 10981          |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 1 10981          |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>I</i> 10981   |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>l</i> 10981   |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>l</i> i 10981 |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>l</i> i 10981 |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | / 10981          |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>I</i> 10981   |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>I</i> 10981   |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>I</i> 10981   |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>I</i> 10981   |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>I</i> 10981   |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>I</i> 10981   |
| Benzo(a)pyrene                    | CIN    | 0.070    |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>l</i> 10981   |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>I</i> 10981   |
| Benzo(g,h,i)perylene              | CIM    | 0.12     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>I</i> 10981   |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | <i>l</i> 10981   |
| Surr: Benzo(e)pyrene              | 35.0   | 24.5-139 |      | %REC  | 1  | 12/28/2013 4:06:32 AM | <i>I</i> 10981   |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analys                | t: <b>JRR</b>    |
| Fluoride                          | 17     | 0.50     | *    | mg/L  | 5  | 12/24/2013 4:04:41 PM | /I R15742        |
| Chloride                          | 67     | 2.5      |      | mg/L  | 5  | 12/23/2013 9:40:14 PM | / R15706         |
| Bromide                           | ND     | 0.50     |      | mg/L  | 5  | 12/23/2013 9:40:14 PM | / R15706         |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 12/24/2013 4:04:41 PM | / R15742         |
| Sulfate                           | 250    | 2.5      |      | mg/L  | 5  | 12/23/2013 9:40:14 PM | / R15706         |
| Nitrate+Nitrite as N              | ND     | 1.0      |      | mg/L  | 5  | 12/23/2013 11:44:21 F | M R15706         |

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- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Lab Order 1312A59

Date Reported: 1/14/2014

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 63-7

Project: Lightning Dock Geothermal GW Quality

Lab ID: 1312A59-002

Matrix: AQUEOUS

Received Date: 12/20/2013 1:00:00 PM

Received Date: 12/21/2013 10:00:00 AM

| Analyses                      | Result | RL Q    | ual Units | DF  | Date Analyzed         | Batch         |
|-------------------------------|--------|---------|-----------|-----|-----------------------|---------------|
| EPA METHOD 200.7: DISSOLVED M | ETALS  |         |           |     | Analys                | t: <b>JLF</b> |
| Aluminum                      | 0.040  | 0.020   | mg/L      | 1   | 12/23/2013 6:03:59 PM | 1 R15707      |
| Barium                        | 0.051  | 0.0020  | mg/L      | 1   | 12/23/2013 6:03:59 PM | 1 R15707      |
| Boron                         | 2.0    | 0.20    | mg/L      | 5   | 12/23/2013 6:05:51 PM | 1 R15707      |
| Cadmium                       | ND     | 0.0020  | mg/L      | 1   | 12/23/2013 6:03:59 PM | 1 R15707      |
| Calcium                       | 9.6    | 1.0     | mg/L      | 1   | 12/30/2013 12:28:50 P | M R15805      |
| Cobalt                        | ND     | 0.0060  | mg/L      | 1   | 12/23/2013 6:03:59 PM | 1 R15707      |
| Copper                        | 0.029  | 0.0060  | mg/L      | 1   | 12/27/2013 2:39:09 PM | 1 R15768      |
| Iron                          | 0.29   | 0.020   | mg/L      | 1   | 12/23/2013 6:03:59 PM | 1 R15707      |
| Magnesium                     | ND     | 1.0     | mg/L      | 1   | 12/30/2013 12:28:50 P | M R15805      |
| Manganese                     | 0.028  | 0.0020  | mg/L      | 1   | 12/23/2013 6:03:59 PM | 1 R15707      |
| Molybdenum                    | 0.094  | 0.0080  | mg/L      | 1   | 12/23/2013 6:03:59 PM | 1 R15707      |
| Nickel                        | 0.049  | 0.010   | mg/L      | 1   | 12/27/2013 2:39:09 PM | 1 R15768      |
| Potassium                     | 8.6    | 1.0     | mg/L      | 1   | 12/30/2013 12:28:50 P | M R15805      |
| Silver                        | ND     | 0.0050  | mg/L      | 1   | 12/23/2013 6:03:59 PM | 1 R15707      |
| Sodium                        | 260    | 5.0     | mg/L      | 5   | 12/30/2013 12:30:46 P | M R15805      |
| Zinc                          | 0.027  | 0.010   | mg/L      | 1   | 12/27/2013 2:39:09 PM | 1 R15768      |
| EPA 200.8: DISSOLVED METALS   |        |         |           |     | Analys                | t: <b>DBD</b> |
| Arsenic                       | 3.2    | 0.10    | * mg/L    | 100 | 1/7/2014 6:12:38 PM   | R15934        |
| Lead                          | 0.0011 | 0.0010  | mg/L      | 1   | 1/7/2014 2:59:51 PM   | R15933        |
| Selenium                      | 0.0021 | 0.0010  | mg/L      | 1   | 1/7/2014 2:59:51 PM   | R15933        |
| Uranium                       | ND     | 0.0010  | mg/L      | 1   | 1/8/2014 2:18:28 PM   | R15963        |
| EPA METHOD 245.1: MERCURY     |        |         |           |     | Analys                | t: JML        |
| Mercury                       | ND     | 0.00020 | mg/L      | 1   | 1/7/2014 2:13:33 PM   | 11092         |
| EPA METHOD 8270C: SEMIVOLATIL | .ES    |         |           |     | Analys                | t: <b>JDC</b> |
| Acenaphthene                  | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 P | M 10980       |
| Acenaphthylene                | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 P | M 10980       |
| Aniline                       | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 F | M 10980       |
| Anthracene                    | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 P | M 10980       |
| Azobenzene                    | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 P | M 10980       |
| Benz(a)anthracene             | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 P | M 10980       |
| Benzo(a)pyrene                | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 P | M 10980       |
| Benzo(b)fluoranthene          | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 P | M 10980       |
| Benzo(g,h,i)perylene          | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 P | M 10980       |
| Benzo(k)fluoranthene          | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 P | M 10980       |
| Benzoic acid                  | 160    | 40      | μg/L      | 1   | 12/26/2013 10:42:21 F | M 10980       |
| Benzyl alcohol                | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 F | M 10980       |
| Bis(2-chloroethoxy)methane    | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 F | M 10980       |
| Bis(2-chloroethyl)ether       | ND     | 10      | μg/L      | 1   | 12/26/2013 10:42:21 F | M 10980       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 8 of 48
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### Lab Order 1312A59

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 63-7

Project: Lightning Dock Geothermal GW Quality

Lab ID: 1312A59-002

Matrix: AQUEOUS

Collection Date: 12/20/2013 1:00:00 PM

Received Date: 12/21/2013 10:00:00 AM

| Analyses                    | Result | RL Qua | al Units | DF | Date Analyzed       | Batch      |
|-----------------------------|--------|--------|----------|----|---------------------|------------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  |        |          |    | Anal                | yst: JDC   |
| Bis(2-chloroisopropyl)ether | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980   |
| Bis(2-ethylhexyl)phthalate  | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980   |
| 4-Bromophenyl phenyl ether  | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980   |
| Butyl benzył phthalate      | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980   |
| Carbazole                   | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980   |
| 4-Chloro-3-methylphenol     | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980   |
| 4-Chloroaniline             | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980   |
| 2-Chloronaphthalene         | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980   |
| 2-Chlorophenol              | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980   |
| 4-Chlorophenyl phenyl ether | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980   |
| Chrysene                    | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980 |
| Di-n-butyl phthalate        | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980 |
| Di-n-octyl phthalate        | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980 |
| Dibenz(a,h)anthracene       | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | 1 PM 10980 |
| Dibenzofuran                | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:21 | 1 PM 10980 |
| 1,2-Dichlorobenzene         | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 1,3-Dichlorobenzene         | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 1,4-Dichlorobenzene         | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 3,3'-Dichlorobenzidine      | CIN    | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| Diethyl phthalate           | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| Dimethyl phthalate          | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 2,4-Dichlorophenol          | ND     | 20     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 2,4-Dimethylphenol          | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 4,6-Dinitro-2-methylphenol  | ND     | 20     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 2,4-Dinitrophenol           | ND     | 20     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 FM 10980 |
| 2,4-Dinitrotoluerie         | ND     | 10     | µg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 2,6-Dinitrotoluerie         | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| Fluoranthene                | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| Fluorene                    | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| Hexachlorobenzene           | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| Hexachlorobutadiene         | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| Hexachlorocyclopentadiene   | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| Hexachloroethane            | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| Indeno(1,2,3-cd)pyrene      | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| Isophorone                  | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 1-Methylnaphthalene         | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 2-Methylnaphthalene         | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 2-Methylphenol              | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |
| 3+4-Methylphenol            | ND     | 10     | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980 |

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 9 of 48
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/14/2014

CLIENT: Cyrq Energy Inc

Client Sample ID: LDG 63-7

Project: Lightning Dock Geothermal GW Quality

Collection Date: 12/20/2013 1:00:00 PM

1312A59-002 Lab ID:

Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL Qu     | al Units | DF Date Analyzed B         | atch       |
|--------------------------------|--------|-----------|----------|----------------------------|------------|
| EPA METHOD 8270C: SEMIVOLATI   | LES    |           |          | Analyst: J                 | DC         |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Naphthalene                    | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| 2-Nitroaniline                 | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| 3-Nitroaniline                 | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| 4-Nitroaniline                 | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Nitrobenzene                   | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| 2-Nitrophenol                  | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| 4-Nitrophenol                  | ND     | 10        | µg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Phenanthrene                   | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Phenol                         | 18     | 10        | µg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Pyrene                         | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Pyridine                       | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Surr: 2-Fluorophenol           | 49.9   | 22.7-98   | %REC     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Surr: Phenol-d5                | 36.5   | 23.4-74.9 | %REC     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Surr: 2,4,6-Tribromophenol     | 84.2   | 23.3-111  | %REC     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Surr: Nitrobenzene-d5          | 71.8   | 36.8-111  | %REC     | 1 12/26/2013 10:42:21 PM 1 | 10980      |
| Surr: 2-Fluorobiphenyl         | 84.9   | 38.3-110  | %REC     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| Surr: 4-Terphenyl-d14          | 89.5   | 52.1-116  | %REC     | 1 12/26/2013 10:42:21 PM 1 | 0980       |
| EPA METHOD 8260B: VOLATILES    |        |           |          | Analyst: c                 | adg        |
| Benzene                        | 4.8    | 1.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | -<br>₹1577 |
| Toluene                        | 2.0    | 1.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | R1577      |
| Ethylbenzene                   | ND     | 1.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | R1577      |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | R1577      |
| 1,2,4-Trimethylbenzene         | 1.6    | 1.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | R1577      |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | २1577      |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | ₹1577      |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | R1577      |
| Naphthalene                    | ND     | 2.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | R1577      |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | R1577      |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | R1577      |
| Acetone                        | 78     | 10        | μg/L     | 1 12/29/2013 8:44:38 PM F  | R1577      |
| Bromobenzene                   | ND     | 1.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | R1577      |
| Bromodichloromethane           | ND     | 1.0       | μg/L     | 1 12/29/2013 8:44:38 PM F  | R1577      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Ε
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

  - Not Detected at the Reporting Limit Page 10 of 48 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1312A59

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 63-7

Project:Lightning Dock Geothermal GW QualityCollection Date: 12/20/2013 1:00:00 PMLab ID:1312A59-002Matrix: AQUEOUSReceived Date: 12/21/2013 10:00:00 AM

| Analyses                    | Result | RL Qu | al Units | DF Date Analyzed B        | atch   |
|-----------------------------|--------|-------|----------|---------------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       |          | Analyst: c                | adg    |
| Bromoform                   | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Bromomethane                | ND     | 3.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 2-Butanone                  | ND     | 10    | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Carbon disulfide            | ND     | 10    | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Carbon Tetrachloride        | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Chlorobenzene               | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Chloroethane                | ND     | 2.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Chloroform                  | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Chloromethane               | ND     | 3.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 2-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Dibromochlorornethane       | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 4-Isopropyltolu∈ne          | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| Styrene                     | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1 12/29/2013 8:44:38 PM R | R15774 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 11 of 48
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: LDG 63-7 CLIENT: Cyrq Energy Inc

Project: Lightning Dock Geothermal GW Quality Collection Date: 12/20/2013 1:00:00 PM Lab ID: 1312A59-002 Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed          | Batch   |
|--------------------------------|--------|--------|------|------------|----|------------------------|---------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analyst                | cadg    |
| Tetrachloroethene (PCE)        | 370    | 10     |      | μg/L       | 10 | 12/28/2013 9:40:30 AM  | R15774  |
| trans-1,2-DCE                  | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| trans-1,3-Dichloropropene      | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| 1,2,3-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| 1,2,4-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| 1,1,1-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| 1,1,2-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| Trichloroethene (TCE)          | 1.0    | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| Trichlorofluoromethane         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| 1,2,3-Trichloropropane         | ND     | 2.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| Vinyl chloride                 | ND     | 1.0    |      | µg/L       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| Xylenes, Total                 | ND     | 1.5    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| Surr: 1,2-Dichloroethane-d4    | 98.1   | 70-130 |      | %REC       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| Surr: 4-Bromofluorobenzene     | 109    | 70-130 |      | %REC       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| Surr: Dibromofluoromethane     | 107    | 70-130 |      | %REC       | 1  | 12/29/2013 8:44:38 PM  |         |
| Surr: Toluene-d8               | 94.1   | 70-130 |      | %REC       | 1  | 12/29/2013 8:44:38 PM  | R15774  |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analyst                | : JME   |
| Petroleum Hydrocarbons, TR     | 2.8    | 1.0    |      | mg/L       | 1  | 12/24/2013             | 10974   |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |            |    | Analyst                | SCC     |
| Phenolics, Total Recoverable   | 49     | 12     |      | μg/L       | 5  | 1/8/2014               | 11134   |
| SM4500-H+B: PH                 |        |        |      |            |    | Analyst                | : SRM   |
| рН                             | 8.41   | 1.68   | Н    | pH units   | 1  | 12/23/2013 7:11:07 PM  | R15709  |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analyst                | : JML   |
| Bicarbonate (As CaCO3)         | 210    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:13:27 PM  | R15744  |
| Carbonate (As CaCO3)           | 2.9    | 2.0    |      | mg/L CaCO3 | 1  | 12/26/2013 1:13:27 PM  | R15744  |
| Total Alkalinity (as CaCO3)    | 210    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:13:27 PM  | R15744  |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analyst                | : KS    |
| Total Dissolved Solids         | 800    | 40.0   | *    | mg/L       | 1  | 12/27/2013 10:29:00 AI | M 10984 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Not Detected at the Reporting Limit

  Page 12 of 48

  Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: IW-1

Project:Lightning Dock Geothermal GW QualityCollection Date: 12/20/2013 5:00:00 PMLab ID:1312A59-003Matrix: AQUEOUSReceived Date: 12/21/2013 10:00:00 AM

| Analyses                          | Result | RL (     | Qual | Units    | DF | Date Analyzed          | Batch  |
|-----------------------------------|--------|----------|------|----------|----|------------------------|--------|
| EPA METHOD 8011/504.1: EDB        |        |          |      | <u>-</u> |    | Analyst:               | LRW    |
| 1,2-Dibromoethane                 | ND     | 0.010    |      | μg/L     | 1  | 12/26/2013 2:59:43 PM  | 10989  |
| EPA METHOD 8082: PCB'S            |        |          |      |          |    | Analyst:               | scc    |
| Aroclor 1016                      | CIN    | 1.0      |      | μg/L     | 1  | 12/30/2013 4:14:27 AM  | 10979  |
| Aroclor 1221                      | CIN    | 1.0      |      | μg/L     | 1  | 12/30/2013 4:14:27 AM  | 10979  |
| Aroclor 1232                      | CIN    | 1.0      |      | μg/L     | 1  | 12/30/2013 4:14:27 AM  | 10979  |
| Arocior 1242                      | ND     | 1.0      |      | μg/L     | 1  | 12/30/2013 4:14:27 AM  | 10979  |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L     | 1  | 12/30/2013 4:14:27 AM  | 10979  |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L     | 1  | 12/30/2013 4:14:27 AM  | 10979  |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L     | 1  | 12/30/2013 4:14:27 AM  | 10979  |
| Surr: Decachlorobiphenyl          | 85.6   | 17-123   |      | %REC     | 1  | 12/30/2013 4:14:27 AM  | 10979  |
| Surr: Tetrachloro-m-xylene        | 80.4   | 22.6-113 |      | %REC     | 1  | 12/30/2013 4:14:27 AM  | 10979  |
| EPA METHOD 8310: PAHS             |        |          |      |          |    | Analyst:               | scc    |
| Naphthalene                       | ND     | 2.0      |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Acenaphthylene                    | П      | 2.5      |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Fluorene                          | ND     | 0.80     |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Phenanthrene                      | ND     | 0.60     |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Anthracene                        | ND     | 0.60     |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Pyrene                            | ND     | 0.30     |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Chrysene                          | ND     | 0.20     |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| Surr: Benzo(e)pyrene              | 61.9   | 24.5-139 |      | %REC     | 1  | 12/28/2013 4:35:51 AM  | 10981  |
| EPA METHOD 300.0: ANIONS          |        |          |      |          |    | Analyst:               | JRR    |
| Fluoride                          | 3.9    | 0.50     |      | mg/L     | 5  | 12/24/2013 4:17:06 PM  | R15742 |
| Chloride                          | 170    | 10       |      | mg/L     | 20 | 12/23/2013 10:17:29 PM | R15706 |
| Bromide                           | 0.80   | 0.50     |      | mg/L     | 5  | 12/23/2013 10:05:04 PM | R15706 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L     | 5  | 12/24/2013 4:17:06 PM  | R15742 |
| Sulfate                           | 700    | 10       | ·k   | mg/L     | 20 | 12/23/2013 10:17:29 PM | R15706 |
| Nitrate+Nitrite as N              | 2.9    | 1.0      |      | mg/L     | 5  | 12/23/2013 11:56:46 PM | R15706 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- Sample pri greater than 2 for VOA and TOC
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/14/2014

CLIENT: Cyrq Energy Inc

Client Sample ID: IW-1

Project: Lightning Dock Geothermal GW Quality

Collection Date: 12/20/2013 5:00:00 PM

Lab ID:

1312A59-003

Matrix: AQUEOUS

Received Date: 12/21/2013 10:00:00 AM

| Cadmium         ND         0.0020         mg/L         1         12/23/2013 6:07:31 PM F         Calcium           Calcium         58         1.0         mg/L         1         12/23/2013 6:07:31 PM F         Cobalt         ND         0.0060         mg/L         1         12/23/2013 6:07:31 PM F         Cobalt         ND         0.0060         mg/L         1         12/23/2013 6:07:31 PM F         Incompleted         ND         0.0060         mg/L         1         12/23/2013 6:07:31 PM F         Incompleted         ND         0.007         mg/L         1         12/23/2013 6:07:31 PM F         Incompleted         ND         0.0020         mg/L         1         12/23/2013 6:07:31 PM F         Incompleted         ND         0.0020         mg/L         1         12/23/2013 6:07:31 PM F         ND         0.0020         mg/L         1         12/23/2013 6:07:31 PM F         ND         ND         0.0020         mg/L         1         12/23/2013 6:07:31 PM F         ND         ND         0.0050         mg/L         1         12/23/2013 6:07:31 PM F         ND         ND         0.0050         mg/L         1         12/23/2013 6:07:31 PM F         ND         ND         0.0050         mg/L         1         12/23/2013 6:07:31 PM F         ND         ND         0.0010  | Analyses                       | Result | RL Qu   | ıal Units | DF | Date Analyzed        | Batch          |
|--|--------------------------------|--------|---------|-----------|----|----------------------|----------------|
| Barium   | EPA METHOD 200.7: DISSOLVED ME | TALS   |         |           |    | Analy                | st: <b>JLF</b> |
| Boron   0.52   0.040   mg/L   1   12/23/2013 6:07:31 PM   E   Cadmium   ND   0.0020   mg/L   1   12/23/2013 6:07:31 PM   E   Cobalt   ND   0.0060   mg/L   1   12/23/2013 6:07:31 PM   E   Cobalt   ND   0.0060   mg/L   1   12/23/2013 6:07:31 PM   E   Copper   ND   0.0060   mg/L   1   12/23/2013 2:07:31 PM   E   Copper   ND   0.0060   mg/L   1   12/23/2013 6:07:31 PM   E   Copper   ND   0.0060   mg/L   1   12/23/2013 6:07:31 PM   E   Copper   ND   0.0060   mg/L   1   12/23/2013 6:07:31 PM   E   Manganesium   ND   1.0   mg/L   1   12/23/2013 6:07:31 PM   E   Manganese   0.019   0.0020   mg/L   1   12/23/2013 6:07:31 PM   E   Manganese   0.019   0.0020   mg/L   1   12/23/2013 6:07:31 PM   E   Manganese   0.019   0.0010   mg/L   1   12/23/2013 6:07:31 PM   E   Manganese   0.019   0.0010   mg/L   1   12/23/2013 6:07:31 PM   E   Manganese   0.019   0.0010   mg/L   1   12/23/2013 6:07:31 PM   E   Manganese   0.019   0.0010   mg/L   1   12/23/2013 6:07:31 PM   E   Manganese   0.019   0.0010   mg/L   1   12/23/2013 6:07:31 PM   E   Manganese   0.010   0.0010   mg/L   1   12/23/2013 6:07:31 PM   E   Manganese   0.010   0.0010   mg/L   1   12/23/2013 6:07:31 PM   E   Manganese   0.010   mg/L   1   12/23/2013 6:    | Aluminum                       | 0.069  | 0.020   | mg/L      | 1  | 12/23/2013 6:07:31 P | M R15707       |
| Cadmium         ND         0.0020         mg/L         1         12/23/2013 6:07:31 PM. F           Calcium         58         1.0         mg/L         1         12/23/2013 6:07:31 PM. F           Cobalt         ND         0.0060         mg/L         1         12/23/2013 6:07:31 PM. F           Copper         ND         0.0060         mg/L         1         12/23/2013 6:07:31 PM. F           Iron         0.033         0.020         mg/L         1         12/23/2013 6:07:31 PM. F           Manganese         0.019         0.0020         mg/L         1         12/23/2013 6:07:31 PM. F           Molybdenum         0.055         0.0080         mg/L         1         12/23/2013 6:07:31 PM. F           Molybdenum         0.055         0.0080         mg/L         1         12/23/2013 6:07:31 PM. F           Molybdenum         0.055         0.0080         mg/L         1         12/23/2013 6:07:31 PM. F           Nickel         ND         0.010         mg/L         1         12/23/2013 6:07:31 PM. F           Silver         ND         0.005         mg/L         1         12/23/2013 6:07:31 PM. F           Soldium         420         5.0         mg/L         1         12/23/2013 6:07:31 P   | Barium                         | 0.099  | 0.0020  | mg/L      | 1  | 12/23/2013 6:07:31 P | M R15707       |
| Calcium         58         1.0         mg/L         1         12/30/2013 12:32:28 PM F           Cobalt         ND         0.0060         mg/L         1         12/23/2013 6:07:31 PM F           Copper         ND         0.0060         mg/L         1         12/23/2013 6:07:31 PM F           Iron         0.033         0.020         mg/L         1         12/23/2013 6:07:31 PM F           Manganesium         ND         1.0         mg/L         1         12/23/2013 6:07:31 PM F           Manganese         0.019         0.0020         mg/L         1         12/23/2013 6:07:31 PM F           Molybdenum         0.055         0.0080         mg/L         1         12/23/2013 6:07:31 PM F           Nickel         ND         0.010         mg/L         1         12/23/2013 6:07:31 PM F           Potassium         31         1.0         mg/L         1         12/23/2013 6:07:31 PM F           Silver         ND         0.0010         mg/L         1         12/23/2013 6:07:31 PM F           Soldium         420         5.0         mg/L         1         12/23/2013 6:07:31 PM F           Zinc         ND         0.010         mg/L         1         12/23/2013 12:34:24 PM F      <   | Boron                          | 0.52   | 0.040   | mg/L      | 1  | 12/23/2013 6:07:31 P | M R15707       |
| Cobalt         ND         0.0060         mg/L         1         12/23/2013 6.07:31 PM E         PM E           Copper         ND         0.0060         mg/L         1         12/27/2013 2:42:47 PM E         Iron           Iron         0.033         0.020         mg/L         1         12/23/2013 6:07:31 PM E         Molyadenum           Magnessium         ND         1.0         mg/L         1         12/23/2013 6:07:31 PM E         Molybdenum           Molybdenum         0.055         0.0080         mg/L         1         12/23/2013 6:07:31 PM E         Molybdenum           Nickel         ND         0.010         mg/L         1         12/23/2013 6:07:31 PM E         Molybdenum           Nickel         ND         0.010         mg/L         1         12/23/2013 6:07:31 PM E         Molybdenum           Nickel         ND         0.010         mg/L         1         12/23/2013 6:07:31 PM E         Molybdenum           Nickel         ND         0.0050         mg/L         1         12/23/2013 6:07:31 PM E         Molybdenum           Silver         ND         0.0050         mg/L         1         12/23/2013 6:07:31 PM E         Molybdenum           Silver         ND         0.0010  | Cadmium                        | ND     | 0.0020  | mg/L      | 1  | 12/23/2013 6:07:31 P | M R15707       |
| Copper         ND         0.0060         mg/L         1         12/27/2013 2:42:47 PM         FIron           Iron         0.033         0.020         mg/L         1         12/23/2013 6:07:31 PM         FIRON           Magnesium         ND         1.0         mg/L         1         12/23/2013 6:07:31 PM         FIRON           Manganese         0.019         0.0020         mg/L         1         12/23/2013 6:07:31 PM         FIRON           Molybdenum         0.055         0.0080         mg/L         1         12/23/2013 6:07:31 PM         FIRON           Nickel         ND         0.010         mg/L         1         12/23/2013 6:07:31 PM         FIRON           Potassium         31         1.0         mg/L         1         12/23/2013 12:32:28 PM         FIRON           Sodium         420         5.0         mg/L         1         12/23/2013 12:32:28 PM         FIRON           Sodium         420         5.0         mg/L         1         12/23/2013 12:32:28 PM         FIRON           Zinc         ND         0.010         mg/L         1         12/23/2013 12:32:28 PM         FIRON           EPA 200.8:         DISSOLVED METALS         METAL         1         12/27/201   | Calcium                        | 58     | 1.0     | mg/L      | 1  | 12/30/2013 12:32:28  | PM R15805      |
| Iron   | Cobalt                         | ND     | 0.0060  | mg/L      | 1  | 12/23/2013 6:07:31 P | M R15707       |
| Magnesium         ND         1.0         mg/L         1         12/30/2013 12:32:28 PM Manganese         0.019         0.0020         mg/L         1         12/23/2013 6:07:31 PM Manganese         0.019         0.0020         mg/L         1         12/23/2013 6:07:31 PM Manganese         Molobydenum         0.055         0.0080         mg/L         1         12/23/2013 6:07:31 PM Manganese         Molobydenum         1         12/27/2013 2:42:47 PM Manganese         Molobydenum   | Copper                         | ND     | 0.0060  | mg/L      | 1  | 12/27/2013 2:42:47 P | M R15768       |
| Manganese         0.019         0.0020         mg/L         1         12/23/2013 6.07:31 PM F         Molybdenum           Molybdenum         0.055         0.0080         mg/L         1         12/23/2013 6.07:31 PM F         1           Nickel         ND         0.010         mg/L         1         12/23/2013 6.07:31 PM F         1           Potassium         31         1.0         mg/L         1         12/30/2013 12:32:28 PM F         1           Silver         ND         0.0050         mg/L         1         12/30/2013 12:32:28 PM F         1           Sodium         420         5.0         mg/L         1         12/23/2013 6:07:31 PM F         1           Sodium         420         5.0         mg/L         1         12/23/2013 12:34:24 PM F         1/230/2013 12:34:24 PM F           Zinc         ND         0.010         mg/L         1         17/2014 3:02:31 PM F         1/230/2013 12:34:24 PM F         1/230/2013 12:34  | Iron                           | 0.033  | 0.020   | mg/L      | 1  | 12/23/2013 6:07:31 P | M R15707       |
| Motybdenum   No.055   0.0080   mg/L   1 12/23/2013 6:07:31 PM   Filter   Nickel   ND   0.010   mg/L   1 12/27/2013 2:42:47 PM   Filter     | Magnesium                      | ND     | 1.0     | mg/L      | 1  | 12/30/2013 12:32:28  | PM R15805      |
| Nickel ND 0.010 mg/L 1 12/27/2013 2:42:47 PM F Potassium 31 1.0 mg/L 1 12/30/2013 12:32:28 PM F Silver ND 0.0050 mg/L 1 12/30/2013 12:32:28 PM F Sodium 420 5.0 mg/L 5 12/30/2013 12:33:24 PM F Zinc ND 0.010 mg/L 1 12/27/2013 2:42:47 PM F Zinc ND 0.010 mg/L 1 12/27/2013 2:42:47 PM F Zinc ND 0.010 mg/L 1 12/27/2013 2:42:47 PM F Zinc ND 0.013 0.0010 mg/L 1 12/27/2013 2:42:47 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 17/2014 3:02:31 PM F Zinc ND 0.0010 mg/L 1 12/26/2013 11:11:00 PM Zinc ND 0.0010 mg/L 1 12/26/2013 11:11:0 | Manganese                      | 0.019  | 0.0020  | mg/L      | 1  | 12/23/2013 6:07:31 P | M R15707       |
| Potassium         31         1.0         mg/L         1         12/30/2013 12:32:28 PM R           Silver         ND         0.0050         mg/L         1         12/23/2013 6:07:31 PM R         5           Sodium         420         5.0         mg/L         5         12/30/2013 12:34:24 PM R         6           Zinc         ND         0.010         mg/L         1         12/27/2013 2:42:47 PM R         6           EPA 200.8: DISSOLVED METALS         Image:  | Molybdenum                     | 0.055  | 0.0080  | mg/L      | 1  | 12/23/2013 6:07:31 F | M R15707       |
| Silver         ND         0.0050         mg/L         1         12/23/2013 6:07:31 PM F         8           Sodium         420         5.0         mg/L         5         12/30/2013 12:34:24 PM F         2           Zinc         ND         0.010         mg/L         1         12/27/2013 2:42:47 PM F         2           EPA 200.8: DISSOLVED METALS         Analyst: EPA 200.8: DISSOLVED METALS           Arsenic         0.013         0.0010         mg/L         1         1/7/2014 3:02:31 PM F         1           Lead         ND         0.0010         mg/L         1         1/7/2014 3:02:31 PM F         1           Selenium         0.010         0.0010         mg/L         1         1/7/2014 3:02:31 PM F         1           Uranium         0.0013         0.0010         mg/L         1         1/7/2014 3:02:31 PM F         1           Mercury         ND         0.0010         mg/L         1         1/7/2014 3:02:31 PM F         1           Mercury         ND         0.00020         mg/L         1         1/7/2014 6:15:17 PM F         1           EPA METHOD 8270C: SEMIVOLATILES         **** Seminor SEMIVOLATILES**         **** Seminor SEMIVOLATILES**         *** Seminor SEMIVOLATILES  | Nickel                         | ND     | 0.010   | mg/L      | 1  | 12/27/2013 2:42:47 F | M R15768       |
| Sodium   Zinc   ND   0.010   mg/L   1 12/27/2013 12:34:24 PM   EPA 200.8: DISSOLVED METALS   | Potassium                      | 31     | 1.0     | mg/L      | 1  | 12/30/2013 12:32:28  | PM R15805      |
| Zinc         ND         0.010         mg/L         1         12/27/2013 2:42:47 PM         M           EPA 200.8: DISSOLVED METALS         Analyst: E           Arsenic         0.013         0.0010         mg/L         1         1/7/2014 3:02:31 PM         6           Lead         ND         0.0010         mg/L         1         1/7/2014 3:02:31 PM         6           Selenium         0.010         0.0010         mg/L         1         1/7/2014 3:02:31 PM         6           Uranium         0.010         0.0010         mg/L         1         1/7/2014 3:02:31 PM         6           EPA METHOD 245.1: MERCURY         Tanalyst: Analyst: An   | Silver                         | ND     | 0.0050  | mg/L      | 1  | 12/23/2013 6:07:31 F | M R15707       |
| Analyst:   Care   Car   | Sodium                         | 420    | 5.0     | mg/L      | 5  | 12/30/2013 12:34:24  | PM R15805      |
| Arsenic 0.013 0.0010 mg/L 1 1/7/2014 3:02:31 PM 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  | Zinc                           | ND     | 0.010   | mg/L      | 1  | 12/27/2013 2:42:47 F | PM R15768      |
| Lead         ND         0.0010         mg/L         1         1/7/2014 3:02:31 PM         6           Selenium         0.010         0.0010         mg/L         1         1/7/2014 3:02:31 PM         6           Uranium         0.0013         0.0010         mg/L         1         1/7/2014 3:02:31 PM         6           EPA METHOD 245.1: MERCURY           Mercury         ND         0.00020         mg/L         1         1/7/2014 2:15:19 PM           EPA METHOD 8270C: SEMIVOLATILES           Acenaphthene         ND         10         µg/L         1         1/2/26/2013 11:11:00 PM           Acenaphthene         ND         10         µg/L         1         1/2/26/2013 11:11:00 PM           Acenaphthylene         ND         10         µg/L         1         1/2/26/2013 11:11:00 PM           Arithylene   | EPA 200.8: DISSOLVED METALS    |        |         |           |    | Analy                | st: DBD        |
| Selenium         0.010         0.0010         mg/L         1         1/7/2014 3:02:31 PM         1           Uranium         0.0013         0.0010         mg/L         1         1/7/2014 6:15:17 PM         1           EPA METHOD 245.1: MERCURY         Analyst: Analyst: Analyst: Analyst: Analyst: Analyst: Analyst: Acenaphthone         ND 0.00020         mg/L         1         1/7/2014 2:15:19 PM           EPA METHOD 8270C: SEMIVOLATILES           Acenaphthene         ND 10         µg/L         1         12/26/2013 11:11:00 PM           Acenaphthene         ND 10         µg/L         1         12/26/2013 11:11:00 PM           Acenaphthylene         ND 10         µg/L         1         12/26/2013 11:11:00 PM           Acenaphthylene         ND 10         µg/L         1         12/26/2013 11:11:00 PM           Aniline         ND 10         µg/L         1         12/26/2013 11:11:00 PM           Anthracene         ND 10         µg/L         1         12/26/2013 11:11:00 PM           Azobenzene         ND 10         µg/L         1         12/26/2013 11:11:00 PM           Benzo(a)pyrene         ND 10         µg/L         1         12/26/2013 11:11:00 PM           Benzo(b)fluoranthene         <  | Arsenic                        | 0.013  | 0.0010  | * mg/L    | 1  | 1/7/2014 3:02:31 PM  | R15933         |
| Uranium         0.0013         0.0010         mg/L         1         1/7/2014 6:15:17 PM         1           EPA METHOD 245.1: MERCURY         Analyst: Analyst: Analyst: Analyst: Analyst: Analyst: Analyst: Analyst: Acenaphthene         ND 0.00020         mg/L         1         1/7/2014 2:15:19 PM         Analyst: An  | Lead                           | ND     | 0.0010  | mg/L      | 1  | 1/7/2014 3:02:31 PM  | R15933         |
| EPA METHOD 245.1: MERCURY         Analyst: Analyst: Analyst: Analyst: Analyst: Analyst: Analyst: Analyst: Analyst: Acenaphthene         ND 0.00020 mg/L         1 1/7/2014 2:15:19 PM           EPA METHOD 8270C: SEMIVOLATILES         Fanalyst: Analyst:   | Selenium                       | 0.010  | 0.0010  | mg/L      | 1  | 1/7/2014 3:02:31 PM  | R15933         |
| Mercury         ND         0.00020         mg/L         1         1/7/2014 2:15:19 PM           EPA METHOD 8270C: SEMIVOLATILES           Acenaphthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Acenaphthylene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Aniline         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Anthracene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Azobenzene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benz(a)anthracene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(a)pyrene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(b)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(k)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzoic acid         ND         40         μg/L         1         12/26/2013 11:11:00 PM           Benzyl alcohol         ND         10   | Uranium                        | 0.0013 | 0.0010  | mg/L      | 1  | 1/7/2014 6:15:17 PM  | R15934         |
| EPA METHOD 8270C: SEMIVOLATILES           Acenaphthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Acenaphthylene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Aniline         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Anthracene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Azobenzene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benz(a)anthracene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(a)pyrene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(b)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(k)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(c acid         ND         40         μg/L         1         12/26/2013 11:11:00 PM           Benzyl alcohol         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Bis(2-chloroethoxy)methane         ND   | EPA METHOD 245.1: MERCURY      |        |         |           |    | Analy                | st: <b>JML</b> |
| Acenaphthene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Acenaphthylene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Aniline       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Anthracene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Azobenzene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benz(a)anthracene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(a)pyrene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(b)fluoranthene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(k)fluoranthene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzoic acid       ND       40       μg/L       1       12/26/2013 11:11:00 PM         Benzyl alcohol       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Bis(2-chloroethoxy)methane       ND       10       μg/L       1       12/26/2013 11:11:00 PM  | Mercury                        | ND     | 0.00020 | mg/L      | 1  | 1/7/2014 2:15:19 PM  | 11092          |
| Acenaphthylene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Aniline         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Anthracene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Azobenzene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benz(a)anthracene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(a)pyrene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(b)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(k)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzoic acid         ND         40         μg/L         1         12/26/2013 11:11:00 PM           Benzyl alcohol         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Bis(2-chloroethoxy)methane         ND         10         μg/L         1         12/26/2013 11:11:00 PM   | EPA METHOD 8270C: SEMIVOLATIL  | ES     |         |           |    | Analy                | st: JDC        |
| Aniline       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Anthracene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Azobenzene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benz(a)anthracene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(a)pyrene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(b)fluoranthene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(k)fluoranthene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzoic acid       ND       40       μg/L       1       12/26/2013 11:11:00 PM         Benzyl alcohol       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Bis(2-chloroethoxy)methane       ND       10       μg/L       1       12/26/2013 11:11:00 PM  | Acenaphthene                   | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
| Anthracene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Azobenzene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benz(a)anthracene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(a)pyrene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(b)fluoranthene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(g,h,i)perylene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(k)fluoranthene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzoic acid       ND       40       μg/L       1       12/26/2013 11:11:00 PM         Benzyl alcohol       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Bis(2-chloroethoxy)methane       ND       10       μg/L       1       12/26/2013 11:11:00 PM   | Acenaphthylene                 | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
| Azobenzene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benz(a)anthracene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(a)pyrene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(b)fluoranthene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(g,h,i)perylene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzo(k)fluoranthene       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Benzoic acid       ND       40       μg/L       1       12/26/2013 11:11:00 PM         Benzyl alcohol       ND       10       μg/L       1       12/26/2013 11:11:00 PM         Bis(2-chloroethoxy)methane       ND       10       μg/L       1       12/26/2013 11:11:00 PM  | Aniline                        | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
| Benz(a)anthracene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(a)pyrene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(b)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(g,h,i)perylene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(k)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzoic acid         ND         40         μg/L         1         12/26/2013 11:11:00 PM           Benzyl alcohol         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Bis(2-chloroethoxy)methane         ND         10         μg/L         1         12/26/2013 11:11:00 PM   | Anthracene                     | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
| Benzo(a)pyrene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(b)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(g,h,i)perylene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(k)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzoic acid         ND         40         μg/L         1         12/26/2013 11:11:00 PM           Benzyl alcohol         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Bis(2-chloroethoxy)methane         ND         10         μg/L         1         12/26/2013 11:11:00 PM   | Azobenzene                     | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
| Benzo(b)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(g,h,i)perylene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(k)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzoic acid         ND         40         μg/L         1         12/26/2013 11:11:00 PM           Benzyl alcohol         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Bis(2-chloroethoxy)methane         ND         10         μg/L         1         12/26/2013 11:11:00 PM  | Benz(a)anthracene              | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
| Benzo(g,h,i)perylene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzo(k)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzoic acid         ND         40         μg/L         1         12/26/2013 11:11:00 PM           Benzyl alcohol         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Bis(2-chloroethoxy)methane         ND         10         μg/L         1         12/26/2013 11:11:00 PM   | Benzo(a)pyrene                 | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
| Benzo(k)fluoranthene         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Benzoic acid         ND         40         μg/L         1         12/26/2013 11:11:00 PM           Benzyl alcohol         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Bis(2-chloroethoxy)methane         ND         10         μg/L         1         12/26/2013 11:11:00 PM  | Benzo(b)fluoranthene           | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
| Benzoic acid         ND         40         μg/L         1         12/26/2013 11:11:00 PM           Benzyl alcohol         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Bis(2-chloroethoxy)methane         ND         10         μg/L         1         12/26/2013 11:11:00 PM   | Benzo(g,h,i)perylene           | ND     | 10      | µg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
| Benzyl alcohol         ND         10         μg/L         1         12/26/2013 11:11:00 PM           Bis(2-chloroethoxy)methane         ND         10         μg/L         1         12/26/2013 11:11:00 PM  | Benzo(k)fluoranthene           | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
| Bis(2-chloroethoxy)methane ND 10 μg/L 1 12/26/2013 11:11:00 PM   | Benzoic acid                   | ND     | 40      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
|  | Benzyl alcohol                 | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
| Bis(2-chloroethyl)ether ND 10 ua/L 1 12/26/2013 11:11:00 PM  | Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |
|  | Bis(2-chloroethyl)ether        | ND     | 10      | μg/L      | 1  | 12/26/2013 11:11:00  | PM 10980       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Not Detected at the Reporting Limit
  Page 14 of 48
  Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1312A59

Hall Environmental Analysis Laboratory, Inc. Date Reported: 1/14/2014

CLIENT: Cyrq Energy Inc Client Sample ID: IW-1

Collection Date: 12/20/2013 5:00:00 PM Project: Lightning Dock Geothermal GW Quality Received Date: 12/21/2013 10:00:00 AM 1312.A59-003 Matrix: AQUEOUS

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed      | Batch       |
|-----------------------------|--------|-------|----------|----|--------------------|-------------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  |       |          |    | Ana                | lyst: JDC   |
| Bis(2-chloroisopropyl)ether | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Bis(2-ethylhexyl)phthalate  | CIN    | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 4-Bromophenyl phenyl ether  | CIN    | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Butyl benzyl phthalate      | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Carbazole                   | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 4-Chloro-3-methylphenol     | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 4-Chloroaniline             | CIM    | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 2-Chloronaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 P'M 10980 |
| 2-Chlorophenol              | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 F'M 10980 |
| 4-Chlorophenyl phenyl ether | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 F'M 10980 |
| Chrysene                    | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Di-n-butyl phthalate        | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Di-n-octyl phthalate        | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Dibenz(a,h)anthracene       | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Dibenzofuran                | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 3,3'-Dichloroberizidine     | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Diethyl phthalate           | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Dimethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 2,4-Dichlorophenol          | ND     | 20    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 2,4-Dimethylphenol          | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 4,6-Dinitro-2-methylphenol  | ND     | 20    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 2,4-Dinitrophenol           | ND     | 20    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 2,4-Dinitrotoluer e         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 2,6-Dinitrotoluere          | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Fluoranthene                | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Fluorene                    | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Hexachlorobenzene           | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Hexachlorobutadiene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Hexachlorocyclopentadiene   | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 00 PM 10980 |
| Hexachloroethane            | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Indeno(1,2,3-cd)pyrene      | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| Isophorone                  | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 00 PM 10980 |
| 1-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 0 PM 10980  |
| 2-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 00 PM 10980 |
| 2-Methylphenol              | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 00 PM 10980 |
| 3+4-Methylphenol            | ND     | 10    | μg/L     | 1  | 12/26/2013 11:11:0 | 00 PM 10980 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit O
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- Page 15 of 48 Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/14/2014

CLIENT: Cyrq Energy Inc Client Sample ID: IW-1

Project: Lightning Dock Geothermal GW Quality Collection Date: 12/20/2013 5:00:00 PM Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM Lab ID: 1312A59-003

| Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed       | Batch     |
|--------------------------------|--------|-----------|----------|----|---------------------|-----------|
| EPA METHOD 8270C: SEMIVOLATILE | s      |           |          |    | Analy               | /st: JDC  |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Naphthalene                    | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| 2-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| 3-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| 4-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Nitrobenzene                   | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| 2-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| 4-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Phenol                         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Pyrene                         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Pyridine                       | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Surr: 2-Fluorophenol           | 57.1   | 22.7-98   | %REC     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Surr: Phenol-d5                | 46.8   | 23.4-74.9 | %REC     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Surr: 2,4,6-Tribromophenol     | 89.0   | 23.3-111  | %REC     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Surr: Nitrobenzene-d5          | 75.2   | 36.8-111  | %REC     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Surr: 2-Fluorobiphenyl         | 83.1   | 38.3-110  | %REC     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| Surr: 4-Terphenyl-d14          | 80.8   | 52.1-116  | %REC     | 1  | 12/26/2013 11:11:00 | PM 10980  |
| EPA METHOD 8260B: VOLATILES    |        |           |          |    | Analy               | st: cadg  |
| Benzene                        | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| Toluene                        | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| Ethylbenzene                   | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| Methyl tert-butyl ether (MTBE) | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| 1,2,4-Trimethylbenzene         | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| 1,3,5-Trimethylbenzene         | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| 1,2-Dichloroethane (EDC)       | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| 1,2-Dibromoethane (EDB)        | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| Naphthalene                    | ND     | 20        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| 1-Methylnaphthalene            | ND     | 40        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| 2-Methylnaphthalene            | ND     | 40        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| Acetone                        | ND     | 100       | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| Bromobenzene                   | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |
| Bromodichloromethane           | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:52 | AM R15774 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit Sample pH greater than 2 for VOA and TOC only.
- P
- RL Reporting Detection Limit

#### Lab Order 1312A59 Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: IW-1

Collection Date: 12/20/2013 5:00:00 PM Project: Lightning Dock Geothermal GW Quality Received Date: 12/21/2013 10:00:00 AM Lab ID: 1312A59-003 Matrix: AQUEOUS

| Analyses                    | Result | RL Qu | al Units | DF Date Analyzed      | Batch        |
|-----------------------------|--------|-------|----------|-----------------------|--------------|
| EPA METHOD 8260B: VOLATILES |        |       |          | Ana                   | alyst: cadg  |
| Bromoform                   | ND     | 10    | μg/L     | 10 12/28/2013 11:33:5 | 52 AM R15774 |
| Bromomethane                | ND     | 30    | μg/L     | 10 12/28/2013 11:33:5 | 52 AM R15774 |
| 2-Butanone                  | ND     | 100   | μg/L     | 10 12/28/2013 11:33:5 | 52 AM R15774 |
| Carbon disulfide            | ND     | 100   | μg/L     | 10 12/28/2013 11:33:5 | 52 AM R15774 |
| Carbon Tetrachloride        | CIN    | 10    | μg/L     | 10 12/28/2013 11:33:5 | 52 AM R15774 |
| Chlorobenzene               | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| Chloroethane                | ND     | 20    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| Chloroform                  | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| Chloromethane               | ND     | 30    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 2-Chlorotoluene             | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 4-Chlorotoluene             | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| cis-1,2-DCE                 | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| cis-1,3-Dichloropropene     | CIN    | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 1,2-Dibromo-3-chloropropane | ND     | 20    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| Dibromochloromethane        | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| Dibromomethane              | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| Dichlorodifluoromethane     | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 1,1-Dichloroethane          | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 1,1-Dichloroethene          | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 1,2-Dichloropropane         | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 1,3-Dichloropropane         | CIN    | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 2,2-Dichloropropane         | CIN    | 20    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 1,1-Dichloropropene         | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| Hexachlorobutadiene         | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 2-Hexanone                  | ND     | 100   | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| Isopropylbenzene            | CIN    | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 4-Isopropyltoluene          | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 4-Methyl-2-pentanone        | ND     | 100   | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| Methylene Chloride          | ND     | 30    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| n-Butylbenzene              | ND     | 30    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| n-Propylbenzene             | ND     | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| sec-Butylbenzene            | CIN    | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| Styrene                     | CIN    | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| tert-Butylbenzerie          | CIN    | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 1,1,1,2-Tetrachloroethane   | CIN    | 10    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |
| 1,1,2,2-Tetrachloroethane   | CIN    | 20    | μg/L     | 10 12/28/2013 11:33:  | 52 AM R15774 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit
- Page 17 of 48 Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/14/2014

CLIENT: Cyrq Energy Inc

Client Sample ID: IW-1

Project: Lightning Dock Geothermal GW Quality

Collection Date: 12/20/2013 5:00:00 PM

Lab ID:

1312A59-003

Matrix: AQUEOUS

Received Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed        | Batch           |
|--------------------------------|--------|--------|------|------------|----|----------------------|-----------------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analy                | st: cadg        |
| Tetrachloroethene (PCE)        | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| trans-1,2-DCE                  | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| trans-1,3-Dichloropropene      | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| 1,2,3-Trichlorobenzene         | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| 1,2,4-Trichlorobenzene         | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| 1,1,1-Trichloroethane          | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| 1,1,2-Trichloroethane          | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| Trichloroethene (TCE)          | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| Trichlorofluoromethane         | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| 1,2,3-Trichloropropane         | ND     | 20     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| Vinyl chloride                 | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| Xylenes, Total                 | ND     | 15     |      | μg/L       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| Surr: 1,2-Dichloroethane-d4    | 99.8   | 70-130 |      | %REC       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| Surr: 4-Bromofluorobenzene     | 110    | 70-130 |      | %REC       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| Surr: Dibromofluoromethane     | 107    | 70-130 |      | %REC       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| Surr: Toluene-d8               | 94.1   | 70-130 |      | %REC       | 10 | 12/28/2013 11:33:52  | AM R15774       |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analy                | yst: <b>JME</b> |
| Petroleum Hydrocarbons, TR     | 1.4    | 1.1    |      | mg/L       | 1  | 12/24/2013           | 10974           |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |            |    | Analy                | yst: <b>SCC</b> |
| Phenolics, Total Recoverable   | 6.7    | 2.5    |      | μg/L       | 1  | 1/8/2014             | 11134           |
| SM4500-H+B: PH                 |        |        |      |            |    | Analy                | yst: <b>SRM</b> |
| рН                             | 8.59   | 1.68   | *Н   | pH units   | 1  | 12/23/2013 7:15:09   | PM R15709       |
| SM2320B: ALKALINITY            |        |        |      |            |    | Anal                 | yst: <b>JML</b> |
| Bicarbonate (As CaCO3)         | 100    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:26:03 [ | PM R1574        |
| Carbonate (As CaCO3)           | 9.9    | 2.0    |      | mg/L CaCO3 | 1  | 12/26/2013 1:26:03   | PM R1574        |
| Total Alkalinity (as CaCO3)    | 110    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:26:03   | PM R1574        |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Anal                 | yst: <b>KS</b>  |
| Total Dissolved Solids         | 1480   | 200    | *    | mg/L       | 1  | 12/27/2013 10:29:00  | AM 10984        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 18 of 48 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1312A59

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: Trip Blank CLIENT: Cyrq Energy Inc

**Collection Date:** Project: Lightning Dock Geothermal GW Quality

1312A59-004 Matrix: TRIP BLANK Received Date: 12/21/2013 10:00:00 AM Lab ID:

| Analyses                       | Result | RL Qu | al Units  | DF     | Date Analyzed       | Batch           |
|--------------------------------|--------|-------|-----------|--------|---------------------|-----------------|
| EPA METHOD 8011/504.1: EDB     |        |       |           |        | Anal                | yst: <b>LRW</b> |
| 1,2-Dibromoethane              | CIN    | 0.010 | μg/L      | 1      | 12/26/2013 3:13:39  | PM 10989        |
| EPA METHOD 8260B: VOLATILES    |        |       |           |        | Anal                | yst: cadg       |
| Benzene                        | CIN    | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 | _               |
| Toluene                        | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| Ethylbenzene                   | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| 1,2,4-Trimethylbenzene         | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| 1,3,5-Trimethylbenzene         | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
|                                | ND     | 2.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| Naphthalene                    | ND     | 4.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| 1-Methylnaphthalene            | ND     | 4.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| 2-Methylnaphthallene           | ND     | 10    | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| Acetone                        | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| Bromobenzene                   | ND     | 1.0   |           | 1      | 12/28/2013 12:02:19 |                 |
| Bromodichloromethane           |        |       | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| Bromoform                      | ND     | 1.0   | μg/L      |        |                     |                 |
| Bromomethane                   | ND     | 3.0   | μg/L      | 1<br>1 | 12/28/2013 12:02:19 |                 |
| 2-Butanone                     | ND     | 10    | μg/L      |        | 12/28/2013 12:02:19 |                 |
| Carbon disulfide               | ND     | 10    | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| Carbon Tetrachloride           | ND     | 1.0   | µg/L      | 1      | 12/28/2013 12:02:19 |                 |
| Chlorobenzene                  | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| Chloroethane                   | ND     | 2.0   | μg/L<br>" | 1      | 12/28/2013 12:02:19 |                 |
| Chloroform                     | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| Chloromethane                  | ND     | 3.0   | μg/L<br>" | 1      | 12/28/2013 12:02:19 |                 |
| 2-Chlorotoluene                | ND     | 1.0   | μg/L<br>  | 1      | 12/28/2013 12:02:19 |                 |
| 4-Chlorotoluene                | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| cis-1,2-DCE                    | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| cis-1,3-Dichloropropene        | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| 1,2-Dibromo-3-chloropropane    | ND     | 2.0   | μg/L      | 1      | 12/28/2013 12:02:1  |                 |
| Dibromochloromethane           | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| Dibromomethane                 | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 | 9 PM R15774     |
| 1,2-Dichlorobenzene            | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:19 |                 |
| 1,3-Dichlorobenzene            | ND     | 1.0   | µg/L      | 1      | 12/28/2013 12:02:19 | 9 PM R15774     |
| 1,4-Dichlorobenzene            | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:1  |                 |
| Dichlorodifluorornethane       | NĐ     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:1  | 9 PM R15774     |
| 1,1-Dichloroethane             | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:1  | 9 PM R15774     |
| 1,1-Dichloroethene             | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:1  | 9 PM R15774     |
| 1,2-Dichloropropane            | ND     | 1.0   | μg/L      | 1      | 12/28/2013 12:02:1  | 9 PM R15774     |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range E
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Not Detected at the Reporting Limit Page 19 of 48 Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: Trip Blank CLIENT: Cyrq Energy Inc

Lightning Dock Geothermal GW Quality **Collection Date:** Project:

1312A59-004 Matrix: TRIP BLANK Received Date: 12/21/2013 10:00:00 AM Lab ID:

| Analyses                    | Result | RL Qu  | al Units | DF | Date Analyzed       | Batch       |
|-----------------------------|--------|--------|----------|----|---------------------|-------------|
| EPA METHOD 8260B: VOLATILES |        |        |          |    | Anal                | yst: cadg   |
| 1,3-Dichloropropane         | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 2,2-Dichloropropane         | ND     | 2.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R15774 |
| 1,1-Dichloropropene         | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R15774 |
| Hexachlorobutadiene         | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R15774 |
| 2-Hexanone                  | ND     | 10     | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R15774 |
| Isopropylbenzene            | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 4-Isopropyltoluene          | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 4-Methyl-2-pentanone        | ND     | 10     | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R15774 |
| Methylene Chloride          | ND     | 3.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R1577  |
| n-Butylbenzene              | ND     | 3.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R1577  |
| n-Propylbenzene             | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R1577  |
| sec-Butylbenzene            | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R15774 |
| Styrene                     | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R1577  |
| tert-Butylbenzene           | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R1577  |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R1577  |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R1577  |
| Tetrachloroethene (PCE)     | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R1577  |
| trans-1,2-DCE               | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:19 | 9 PM R1577  |
| trans-1,3-Dichloropropene   | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| 1,2,3-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| 1,2,4-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| 1,1,1-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| 1,1,2-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| Trichloroethene (TCE)       | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| Trichlorofluoromethane      | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| 1,2,3-Trichloropropane      | ND     | 2.0    | μg/L     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| Vinyl chloride              | ND     | 1.0    | μg/L     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| Xylenes, Total              | ND     | 1.5    | μg/L     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| Surr: 1,2-Dichloroethane-d4 | 102    | 70-130 | %REC     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| Surr: 4-Bromofluorobenzene  | 111    | 70-130 | %REC     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| Surr: Dibromofluoromethane  | 109    | 70-130 | %REC     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |
| Surr: Toluene-d8            | 93.3   | 70-130 | %REC     | 1  | 12/28/2013 12:02:1  | 9 PM R1577  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Not Detected at the Reporting Limit Page 20 of 48 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: Address: HALL ENVIRONMENTAL ANALYSIS LAB

4901 HAWKINS NE SUITE D

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

Batch #:

131224034

**Project Name:** 

1312A59

### **Analytical Results Report**

Sample Number

131224034-001

Sampling Date

12/19/2013

Date/Time Received 12/24/2013 12:26 PM

Client Sample ID Matrix

1312A59-001M / LDG 45-7 Water

Sampling Time

11:00 AM

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 1/2/2014      | CRW     | EPA 335.4 |           |

Sample Number

131224034-002

Water

Sampling Date 12/19/2013

Client Sample ID

1312A59-0010 / LDG 45-7

Sampling Time

11:00 AM

Date/Time Received 12/24/2013 12:26 PM

Matrix Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method   | Qualifier |
|-----------|--------|-------|------|---------------|---------|----------|-----------|
| Total P   | ND     | ma/L  | 0.01 | 1/7/2014      | CRW     | SM4500PF |           |

Sample Number

131224034-003

Sampling Date

12/20/2013

Date/Time Received 12/24/2013 12:26 PM

Client Sample ID

1312A59-002M / LDG 63-7

Sampling Time

1:00 PM

Matrix

**Water** 

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 1/2/2014      | CRW     | EPA 335.4 |           |

Sample Number

131224034-004

Sampling Date 12/20/2013 Sampling Time 1:00 PM

Date/Time Received 12/24/2013 12:26 PM

Page 1 of 2

Client Sample ID Matrix

1312A59-002O / LDG 63-7 Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method   | Qualifier |
|-----------|--------|-------|------|---------------|---------|----------|-----------|
| Total P   | 0.0808 | mg/L  | 0.01 | 1/7/2014      | CRW     | SM4500PF |           |

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cort0095; FL(NELAP): E871099

Friday, January 10, 2014

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D - Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131224034

Address:

4901 HAWKINS NE SUITE D

**Project Name:** 

Analysis Date

1/2/2014

1312A59

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

#### **Analytical Results Report**

Sample Number

131224034-005

Sampling Date 12/20/2013 Date/Time Received 12/24/2013 12:26 PM

Client Sample ID

1312A59-003M / IW-1

Sampling Time

5:00 PM

Matrix

Water

Comments

| Parameter | Result | Units | PQL  |  |
|-----------|--------|-------|------|--|
| Cyanide   | ND     | mg/L  | 0.01 |  |

Analyst CRW

Method Qualifier EPA 335.4

Sample Number

131224034-006

Sampling Date

12/20/2013

**Client Sample ID** 

1312A59-003O / IW-1

Sampling Time 5:00 PM Date/Time Received 12/24/2013 12:26 PM

Matrix

Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method   | Qualifier |
|-----------|--------|-------|------|---------------|---------|----------|-----------|
| Total P   | 1.92   | mg/L  | 0.01 | 1/7/2014      | CRW     | SM4500PF |           |
|           |        |       |      |               |         |          |           |

Authorized Signature

John Coddington, Lab Manager

MCL

EPA's Maximum Contaminant Level

ND

Not Detected

PQL

Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory. The results reported relate only to the samples indicated.

Soil/solid results are reported on a dry-weight basis unless otherwise noted.

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13120851-001

Client Sample ID: 1312A59-001K LDG 45-7

Revised Date: 01/14/14

Report Date: 01/09/14

Collection Date: 12/19/13 11:00

DateReceived: 12/24/13

Matrix: Aqueous

|                         |        |       |            |      | MCL/ |          |                        |  |
|-------------------------|--------|-------|------------|------|------|----------|------------------------|--|
| Analyses                | Result | Units | Qualiflers | RL   | QCL  | Method   | Analysis Date / By     |  |
| METALS - DISSOLVED      |        |       |            |      |      |          |                        |  |
| Lithlum                 | 0.9    | mg/L  |            | 0.1  |      | E200.7   | 12/30/13 13:50 / eli-b |  |
| Rubidium                | 0.25   | mg/L  |            | 0.01 |      | E200.8   | 01/09/14 11:42 / eli-b |  |
| Ruthenium               | ND     | mg/L  |            | 0.01 |      | E200.8   | 01/09/14 11:42 / eli-b |  |
| Tungsten                | ND     | mg/L  |            | 0.2  |      | E200.8   | 01/09/14 11:42 / eli-b |  |
| RADIONUCLIDES - TOTAL   |        |       |            |      |      |          |                        |  |
| Radon 222               | 2560   | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |  |
| Radon 222 precision (±) | 138    | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |  |
| Radon 222 MDC           | 184    | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |  |

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project: Lab ID:

Not Indicated

C13120851-002

Client Sample ID: 1312A59-002K LDG 63-7

Revised Date: 01/14/14

Report Date: 01/09/14

Collection Date: 12/20/13 13:00

DateReceived: 12/24/13

Matrix: Aqueous

| Analyses                |        |       |            |      | MCL/ |          |                        |
|-------------------------|--------|-------|------------|------|------|----------|------------------------|
|                         | Result | Units | Qualifiers | RL   | QCL  | Method   | Analysis Date / By     |
| METALS - DISSOLVED      |        |       |            |      |      |          |                        |
| Lithium                 | 0.6    | mg/L  |            | 0.1  |      | E200.7   | 12/30/13 14:01 / eli-b |
| Rubidium                | 0.07   | mg/L  |            | 0.01 |      | E200.8   | 01/09/14 11:46 / eli-b |
| Ruthenium               | ND     | mg/L  |            | 0.01 |      | E200.8   | 01/09/14 11:46 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2  |      | E200.8   | 01/09/14 11:46 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |      |      |          |                        |
| Radon 222               | 78.6   | pCi/L | U          |      |      | D5072-92 | 12/26/13 13:29 / dpb   |
| Radon 222 precision (±) | 87.6   | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |
| Radon 222 MDC           | 150    | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13120851-003

Client Sample ID: 1312A59-003K IW-1

Revised Date: 01/14/14

Report Date: 01/09/14

Collection Date: 12/20/13 17:00 DateReceived: 12/24/13

Matrix: Aqueous

|                         |        |       |            |      | MCL/ |          |                        |
|-------------------------|--------|-------|------------|------|------|----------|------------------------|
| Analyses                | Result | Units | Qualifiers | RL   | QCL  | Method   | Analysis Date / By     |
| METALS - DISSOLVED      |        |       |            |      |      |          |                        |
| Lithium .               | 0.6    | mg/L  |            | 1).1 |      | E200.7   | 12/30/13 14:05 / eli-b |
| Rubidium                | 0.21   | mg/L  |            | 0.01 |      | E200.8   | 01/09/14 11:50 / eli-b |
| Ruthenium               | ND     | mg/L  |            | 0.01 |      | E200.8   | 01/09/14 11:50 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2  |      | E200.8   | 01/09/14 11:50 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |      |      |          |                        |
| Radon 222               | 1090   | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |
| Radon 222 precision (±) | 98.3   | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |
| Radon 222 MDC           | 145    | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |

Client: Hall Environmental

Project: Not Indicated

## **QA/QC Summary Report**

Prepared by Casper, WY Branch

Revised Date: 01/14/14

Report Date: 01/09/14

Work Order: C13120851

| Analyte                      | Count | Result       | Units          |   | RL | %REC | Low Limit | High Limit  | RPD     | RPDLimit | Qual      |
|------------------------------|-------|--------------|----------------|---|----|------|-----------|-------------|---------|----------|-----------|
| Method: D5072-92             |       |              |                |   |    |      |           |             |         | Batch:   | R182062   |
| Sample ID: C13120851-003BDUF | 3 San | nple Duplica | te             |   |    |      | Run: PACK | ARD 3100TR_ | 131226A | 12/26    | /13 13:29 |
| Radon 222                    |       | 982          | pCi/L          |   |    |      |           |             | 10      | 20       |           |
| Radon 222 precision (±)      |       | 97.0         | pCi/L          |   |    |      |           |             |         |          |           |
| Radon 222 MDC                |       | 145          | pCi/L          |   |    |      |           |             |         |          |           |
| Sample ID: MB-R182062        | 3 Met | hod Blank    |                | ; |    |      | Run: PACK | ARD 3100TR_ | 131226A | 12/26    | /13 13:29 |
| Radon 222                    |       | 9            | p <b>Çi</b> /L |   |    |      |           |             |         |          | U         |
| Radon 222 precision (±)      |       | 30           | pCi/L          |   |    |      |           |             |         |          |           |
| Radon 222 MDC                |       | 50           | pCi/L          |   |    |      |           |             |         |          |           |
| Sample ID: LCS-R182062       | Lab   | oratory Con  | trol Sample    | • |    |      | Run: PACK | ARD 3100TR  | 131226A | 12/26    | /13 13:29 |
| Radon 222                    |       | 2210         | pCi/L          |   |    | 97   | 80        | 120         |         |          |           |

### **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Revised Date: 01/14/14
Report Date: 01/09/14

Work Order: C13120851

| Analyte    |                    | Count        | Result        | Units              | RL          | %REC | Low Limit  | High Limit | RPD     | RPDLImit     | Qual                |
|------------|--------------------|--------------|---------------|--------------------|-------------|------|------------|------------|---------|--------------|---------------------|
| Method:    | E200.7             |              |               |                    |             |      |            |            | Analyti | cal Run: SUE | 3-B217135           |
| Sample ID: | ICV                | Co           | ntinuing Cali | bration Verificati | on Standard |      |            |            |         | 12/30        | /13 10:48           |
| Lithium    |                    |              | 1.20          | mg/L               | 0.10        | 96   | 95         | 105        |         |              |                     |
| Method:    | E200.7             |              |               |                    |             |      |            |            |         | Batch: B     | _R217135            |
| Sample ID: | MB-6500DIS131230A  | Me           | thod Blank    |                    |             |      | Run: SUB-E | 3217135    |         | 12/30        | ) <b>/13 1</b> 1:11 |
| Lithium    |                    |              | ND            | mg/L               | 0.0003      |      |            | ,          |         |              |                     |
| Sample ID: | LFB-6500DIS131230A | <b>A</b> Lat | oratory Fort  | ified Blank        |             |      | Run: SUB-E | 3217135    |         | 12/30        | )/13 11:15          |
| Lithium    |                    |              | 1.02          | mg/L               | 0.10        | 102  | 85         | 115        |         |              |                     |
| Sample ID: | B13121948-001AMS2  | 2 Sa         | mple Matrix ( | Spike              |             |      | Run: SUB-E | 3217135    |         | 12/30        | )/13 13:35          |
| Lithium    |                    |              | 6.00          | mg/L               | 0.10        | 101  | 70         | 130        |         |              |                     |
| Sample ID: | B13121948-001AMSE  | <b>)2</b> Sa | mple Matrix   | Spike Duplicate    |             |      | Run: SUB-E | 3217135    |         | 12/30        | )/13 13:38          |
| Lithium    |                    |              | 6.30          | mg/L               | 0.10        | 107  | 70         | 130        | 4.8     | 20           |                     |



### **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental
Project: Not Indicated

Revised Date: 01/14/14

Report Date: 01/09/14

Work Order: C13120851

| Analyte      | _                 | Count      | Result             | Units            | RL    | %REC | Low Limit  | High Limit | RPD     | RPDLimit     | Qual      |
|--------------|-------------------|------------|--------------------|------------------|-------|------|------------|------------|---------|--------------|-----------|
| Method:      | E200.8            |            |                    |                  |       |      |            |            | Analyti | cal Run: SUB | -B217575  |
| Sample ID: ( | acs-              | 3 In       | nitial Calibration | Nerification Sta | ndard |      |            | •          |         | 01/09        | /14 09:38 |
| Rubidium     |                   |            | 0.0527             | mg/L             | 0.010 | 105  | 90         | 110        |         |              |           |
| Ruthenium    |                   |            | 0.0520             | mg/L             | 0.010 | 104  | 90         | 110        |         |              |           |
| Tungsten     |                   |            | 0.0526             | mg/L             | 0.10  | 105  | .90        | 110        |         |              |           |
| Method:      | E200.8            |            |                    |                  | -     |      |            |            |         | Batch: B     | R217575   |
| Sample ID: i | LFB               | 3 L        | aboratory Fort     | fied Blank       |       |      | Run: SUB-E | 3217575    |         | 01/09        | /14 09:54 |
| Rubidium     |                   |            | 0.0492             | mg/L             | 0.010 | 98   | 85         | 115        |         |              |           |
| Ruthenium    |                   |            | 0.0530             | mg/L             | 0.010 | 106  | 85         | 115        |         |              |           |
| Tungsten     |                   |            | 0.0508             | mg/L             | 0.10  | 102  | 85         | 115        |         |              |           |
| Sample ID: I | LRB               | 3 N        | Method Blank       |                  |       |      | Run: SUB-E | 3217575    |         | 01/09        | /14 10:22 |
| Rubidium     |                   |            | ND                 | mg/L             | 0.001 |      |            |            |         |              |           |
| Ruthenium    |                   |            | ND                 | mg/L             | 0.001 |      |            |            |         |              |           |
| Tungsten     |                   |            | ND                 | mg/L             | 0.001 |      |            |            |         |              |           |
| Sample ID: 1 | B13121948-001AMS  | 2 S        | Sample Matrix S    | Spike            |       |      | Run: SUB-E | 3217575    |         | 01/09        | /14 11:54 |
| Ruthenium    |                   |            | 0.0536             | mg/L             | 0.010 | 107  | 70         | 130        |         |              |           |
| Tungsten     |                   |            | 0.141              | mg/L             | 0.10  | 137  | 70         | 130        |         |              | S         |
| Sample ID:   | B13121948-001AMSE | <b>2</b> S | Sample Matrix      | Spike Duplicate  |       |      | Run: SUB-E | 3217575    |         | 01/09        | /14 11:58 |
| Ruthenium    |                   |            | 0.0534             | mg/L             | 0.010 | 107  | 70         | 130        | 0.3     | 20           |           |
| Tungsten     |                   |            | 0.138              | mg/L             | 0.10  | 131  | 70         | 130        | 2.1     | 20           | S         |



#### **ANALYTICAL RESULTS**

Project:

1312A59

Pace Project No.: 30110362

Radium-228

EPA 904.0

| <b>Sample: 1312A59-001 LDG 45-7</b> PWS: | Lab ID: 301103620<br>Site ID: | O1 Collected: 12/19/13 11:<br>Sample Type:      | 00 Received:   | 12/24/13 15:10 N                 | Matrix: Water |      |
|--|-------------------------------|---|----------------|----------------------------------|---------------|------|
| Parameters                               | Method                        | Act ± Unc (MDC)                                 | Units          | Analyzed                         | CAS No.       | Qual |
| Radium-226<br>Radium-228                 |                               | .49 ± 1.35 (0.367)<br>.522 ± 0.331 (0.614)      | pCi/L<br>pCi/L | 01/08/14 11:27<br>01/09/14 13:06 |               |      |
| Sample: 1312A59-002 LDG 63-7<br>PWS:     | Lab ID: 301103620<br>Site ID: | O2 Collected: 12/20/13 13:<br>Sample Type:      | 00 Received:   | 12/24/13 15:10 M                 | Matrix: Water |      |
| Parameters                               | Method                        | Act ± Unc (MDC)                                 | Units          | Analyzed                         | CAS No.       | Qual |
| Radium-226<br>Radium-228                 |                               | 0.220 ± 0.306 (0.775)<br>0.0100 ± 0.365 (0.847) | pCi/L<br>pCi/L | 01/08/14 11:29<br>01/09/14 13:29 |               |      |
| Sample: 1312A59-003 IW-1<br>PWS:         | Lab ID: 301103620<br>Site ID: | 03 Collected: 12/20/13 17:<br>Sample Type:      | 00 Received:   | 12/24/13 15:10 M                 | Matrix: Water |      |
| Parameters                               | Method                        | Act ± Unc (MDC)                                 | Units          | Analyzed                         | CAS No.       | Qual |
| Radium-226                               | EPA 903.1 1                   | .04 ± 0.535 (0.561)                             | pCi/L          | 01/08/14 11:27                   | 13982-63-3    |      |

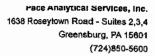
0.462 ± 0.343 (0.666)

pCi/L

01/09/14 13:29 15262-20-1

#### REPORT OF LABORATORY ANALYSIS

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#### **QUALITY CONTROL DATA**

Project:

QC Batch:

1312A59

Pace Project No.:

30110362

RADC/18195

Analysis Method:

EPA 903.1

QC Batch Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples:

30110362001, 30110362002, 30110362003

METHOD BLANK: 674584

Matrix: Water

Associated Lab Samples:

30110362001, 30110362002, 30110362003

Parameter

Act ± Unc (MDC)

Units

Analyzed

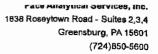
Qualifiers

Radium-226

 $-0.102 \pm 0.246$  (0.614)

pCi/L

01/08/14 10:30





#### **QUALITY CONTROL DATA**

Project:

1312A59

Pace Project No.: 30110362

QC Batch:

RADC/18198

Analysis Method:

EPA 904.0

QC Batch Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples:

30110362001, 30110362002, 30110362003

METHOD BLANK: 674587

Matrix: Water

Act ± Unc (MDC)

Associated Lab Samples:

30110362001; 30110362002; 30110362003

Units

Analyzed

Qualifiers

Parameter Radium-228

 $0.211 \pm 0.277 \quad (0.591)$ 

pCi/L

01/09/14 13:04

#### **REPORT OF LABORATORY ANALYSIS**

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## all Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

| Sample ID MB   | Samp       | Type: ME        | BLK       | TestCode: EPA Method 200.7: Dissolved Metals |          |          |             |      |          |      |
|----------------|------------|-----------------|-----------|--|----------|----------|-------------|------|----------|------|
| Client ID: PBW | Bato       | h ID: <b>R1</b> | 5707      | F  | RunNo: 1 | 5707     |             |      |          |      |
| Prep Date:     | Analysis I | Date: 12        | 2/23/2013 | S  | SeqNo: 4 | 53037    | Units: mg/L |      |          |      |
| Analyte        | Result     | PQL             | SPK value | SPK Ref Val                                  | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Aluminum       | ND         | 0.020           |           |  |          |          |             |      |          |      |
| Barium         | ND         | 0.0020          |           |  |          |          |             |      |          |      |
| Boron          | ND         | 0.040           |           |  |          |          |             |      |          |      |
| Cadmium        | ND         | 0.0020          |           |  |          |          |             |      |          |      |
| Cobalt         | ND         | 0.0060          |           |  |          |          |             |      |          |      |
| Iron           | ND         | 0.020           |           |  |          |          |             |      |          |      |
| Manganese      | ND         | 0.0020          |           |  |          |          |             |      |          |      |
| Molybdenum     | ND         | 0.0080          |           |  |          |          |             |      |          |      |
| Silver         | ND         | 0.0050          |           |  |          |          |             |      |          |      |

| Sample ID LCS   | Samp1      | Гуре: <b>LC</b> | S         | Tes         | tCode: E | PA Method | 200.7: Disso | ved Meta | ls       |      |
|-----------------|------------|-----------------|-----------|-------------|----------|-----------|--------------|----------|----------|------|
| Client ID: LCSW | Batcl      | h ID: <b>R1</b> | 5707      | F           | RunNo: 1 | 5707      |              |          |          |      |
| Prep Date:      | Analysis [ | Date: 12        | 2/23/2013 | S           | SeqNo: 4 | 53038     | Units: mg/L  |          |          |      |
| Analyte         | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit    | %RPD     | RPDLimit | Qual |
| Aluminum        | 0.54       | 0.020           | 0.5000    | 0           | 107      | 85        | 115          |          |          |      |
| ium             | 0.49       | 0.0020          | 0.5000    | 0           | 97.1     | 85        | 115          |          |          |      |
| .on             | 0.50       | 0.040           | 0.5000    | 0           | 99.2     | 85        | 115          |          |          |      |
| Cadmium         | 0.49       | 0.0020          | 0.5000    | 0           | 98.6     | 85        | 115          |          |          |      |
| Cobalt          | 0.48       | 0.0060          | 0.5000    | 0           | 96.3     | 85        | 115          |          |          |      |
| Iron            | 0.49       | 0.020           | 0.5000    | 0           | 98.4     | 85        | 115          |          |          |      |
| Manganese       | 0.49       | 0.0020          | 0.5000    | 0           | 98.9     | 85        | 115          |          |          |      |
| Molybdenum      | 0.49       | 0.0080          | 0.5000    | 0           | 98.4     | 85        | 115          |          |          |      |
| Silver          | 0.099      | 0.0050          | 0.1000    | 0           | 98.7     | 85        | 115          |          |          |      |

| Consula ID AAD      | 0          | T               | 21.14     | T           | 10 - d   | DA 84-41 - 1 | 000 7 D      |           |          |      |
|---------------------|------------|-----------------|-----------|-------------|----------|--------------|--------------|-----------|----------|------|
| Sample ID <b>MB</b> | Samp       | Type: ME        | BLK       | res         | tCode: E | PA Method    | 200.7: Disso | ived Meta | IS       |      |
| Client ID: PBW      | Bato       | h ID: <b>R1</b> | 5768      | F           | RunNo: 1 | 5768         |              |           |          |      |
| Prep Date:          | Analysis ( | Date: 12        | 2/27/2013 | 5           | SeqNo: 4 | 55078        | Units: mg/L  |           |          |      |
| Analyte             | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit     | HighLimit    | %RPD      | RPDLimit | Qual |
| Copper              | ND         | 0.0060          |           |             |          |              |              |           |          |      |
| Nickel              | ND         | 0.010           |           |             |          |              |              |           |          |      |
| Zinc                | ND         | 0.010           |           |             |          |              |              |           |          |      |

| Sample ID LCS   | SampT      | ype: <b>LC</b>            | s         | Tes         | TestCode: EPA Method 200.7: Dissolved Metals |          |             |      |          |      |  |  |
|-----------------|------------|---------------------------|-----------|-------------|--|----------|-------------|------|----------|------|--|--|
| Client ID: LCSW | Batch      | ID: <b>R1</b>             | 5768      | F           | RunNo: 1                                     | 5768     |             |      |          |      |  |  |
| Prep Date:      | Analysis D | Analysis Date: 12/27/2013 |           |             |  | 55079    | Units: mg/L |      |          |      |  |  |
| Analyte         | Result     | PQL                       | SPK value | SPK Ref Val | %REC   | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |  |  |
| Copper          | 0.51       | 0.0060                    | 0.5000    | 0           | 102  | 85       | 115         |      |          |      |  |  |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID LCS   | SampT       | ype: LC       | s         | Test        | s       |          |             |      |          |      |
|-----------------|-------------|---------------|-----------|-------------|---------|----------|-------------|------|----------|------|
| Client ID: LCSW | Batch       | ID: <b>R1</b> | 5768      | R           | unNo: 1 | 5768     |             |      |          |      |
| Prep Date:      | Analysis Da | ate: 12       | 2/27/2013 | S           | eqNo: 4 | 55079    | Units: mg/L |      |          |      |
| Analyte         | Result      | PQL           | SPK value | SPK Ref Val | %REC    | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Nickel          | 0.50        | 0.010         | 0.5000    | 0           | 99.4    | 85       | 115         |      |          |      |
| Zinc            | 0.52        | 0.010         | 0.5000    | 0           | 103     | 85       | 115         |      |          |      |

| Sample ID MB   | SampT      | ype: ME       | BLK       | Tes         | tCode: E | F'A Method | 200.7: Dissol | ved Metal | s        |      |
|----------------|------------|---------------|-----------|-------------|----------|------------|---------------|-----------|----------|------|
| Client ID: PBW | Batch      | 1D: <b>R1</b> | 5805      | F           | RunNo: 1 | 5805       |               |           |          |      |
| Prep Date:     | Analysis D | ate: 12       | 2/30/2013 | 8           | SeqNo: 4 | 56073      | Units: mg/L   |           |          |      |
| Analyte        | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit   | HighLimit     | %RPD      | RPDLimit | Qual |
| Calcium        | ND         | 1.0           | _         |             |          |            |               |           |          |      |
| Iron           | ND         | 0.020         |           |             |          |            |               |           |          |      |
| Magnesium      | ND         | 1.0           |           |             |          |            |               |           |          |      |
| Potassium      | ND         | 1.0           |           |             |          |            |               |           |          |      |
| Sodium         | ND         | 1.0           |           |             |          |            |               |           |          |      |

| Sample ID LCS   | SampT      | ype: LC       | s         | Tes         | is       |          |             |      |          |      |
|-----------------|------------|---------------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: LCSW | Batch      | 1D: <b>R1</b> | 5805      | F           | RunNo: 1 | 5805     |             |      |          |      |
| Prep Date:      | Analysis D | ate: 12       | 2/30/2013 | S           | SeqNo: 4 | 56074    | Units: mg/L |      |          |      |
| Analyte         | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Calcium         | 50         | 1.0           | 50.00     | 0           | 101      | 85       | 115         |      |          |      |
| Iron            | 0.54       | 0.020         | 0.5000    | 0           | 107      | 85       | 115         |      |          |      |
| Magnesium       | 51         | 1.0           | 50.00     | 0           | 102      | 85       | 115         |      |          |      |
| Potassium       | 50         | 1.0           | 50.00     | 0           | 101      | 85       | 115         |      |          |      |
| Sodium          | 50         | 1.0           | 50.00     | 0           | 100      | 85       | 115         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSD imit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Page 22 of 48

# all Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client:

Cyrq Energy Inc

| Project:         | Lightning      | Dock Geo        | otherma          | l GW Qual            | ity Monito           |             |                |                  |      |          |      |
|------------------|----------------|-----------------|------------------|----------------------|----------------------|-------------|----------------|------------------|------|----------|------|
| Sample ID        | 1312A59-003JMS | SampT           | ype: MS          | }                    | Test                 | Code: EF    | PA 200.8: E    | issolved Met     | als  |          |      |
| Client ID:       | IW-1           | Batch           | ID: <b>R1</b>    | 5933                 | R                    | unNo: 1     | 5933           |                  |      |          |      |
| Prep Date:       |                | Analysis D      | ate: 1/          | 7/2014               | S                    | eqNo: 4     | 59412          | Units: mg/L      |      |          |      |
| Analyte          |                | Result          | PQL              | SPK value            | SPK Ref Val          | %REC        | LowLimit       | HighLimit        | %RPD | RPDLimit | Qual |
| Arsenic          |                | 0.036           | 0.0010           | 0.02500              | 0.01338              | 90.2        | 70             | 130              |      |          | -    |
| Lead             |                | 0.029<br>0.031  | 0.0010           | 0.02500<br>0.02500   | .00007590<br>0.01024 | 116<br>84.0 | 70<br>70       | 130<br>130       |      |          |      |
| Selenium         |                | 0.031           | 0.0010           | 0.02300              | 0.01024              | 04.0        |                | 130              |      |          |      |
| Sample ID        | LCS            | SampT           | ype: LC          | S                    | Test                 | Code: El    | PA 200.8: E    | Dissolved Met    | als  |          |      |
| Client ID:       | LCSW           | Batch           | 1D: <b>R1</b>    | 5933                 | R                    | unNo: 1     | 5933           |                  |      |          |      |
| Prep Date:       |                | Analysis D      | ate: 1/          | 7/2014               | S                    | eqNo: 4     | 59413          | Units: mg/L      |      |          |      |
| Analyte          |                | Result          | PQL              |                      | SPK Ref Val          |             | LowLimit       | HighLimit        | %RPD | RPDLimit | Qual |
| Lead             |                | 0.027           | 0.0010           | 0.02500              | 0                    | 106         | 85             | 115              |      |          |      |
| Sample ID        | LCS            | SampT           | ype: LC          | s                    | Test                 | Code: El    | PA 200.8: E    | Dissolved Met    | als  |          |      |
| Client ID:       | LCSW           | Batch           | 1D: <b>R1</b>    | 5933                 | R                    | unNo: 1     | 5933           |                  |      |          |      |
| Prep Date:       |                | Analysis D      | ate: 1/          | 7/2014               | S                    | eqNo: 4     | 59414          | Units: mg/L      |      |          |      |
| Analyte          |                | Result          | PQL              | SPK value            | SPK Ref Val          | %REC        | LowLimit       | HighLimit        | %RPD | RPDLimit | Qual |
| enic             |                | 0.023           | 0.0010           | 0.02500              | 0                    | 93.7        | 85             | 115              |      |          |      |
| ənium            |                | 0.023           | 0.0010           | 0.02500              | 0                    | 92.5        | 85             | 115              |      |          |      |
| Sample ID        | МВ             | SampT           | ype: Mi          | BLK                  | Tes                  | tCode: El   | PA 200.8: [    | Dissolved Met    | als  |          |      |
| Client ID:       | PBW            | Batch           | 1 ID: <b>R1</b>  | 5933                 | F                    | tunNo: 1    | 5933           |                  |      |          |      |
| Prep Date:       |                | Analysis D      | )ate: 1/         | 7/2014               | S                    | eqNo: 4     | 59415          | Units: mg/L      |      |          |      |
| Analyte          |                | Result          | PQL              | SPK value            | SPK Ref Val          | %REC        | LowLimit       | HighLimit        | %RPD | RPDLimit | Qual |
| Arsenic          |                | ND              | 0.0010           |                      |                      |             |                |                  |      |          |      |
| Lead<br>Selenium |                | ND<br>ND        | 0.0010           |                      |                      |             |                |                  |      |          |      |
|                  |                |                 |                  |                      |                      | 10-1        |                | N                |      |          |      |
|                  | 1312A59-003JMS | •               | ype: M:          |                      |                      |             |                | Dissolved Met    | ais  |          |      |
| Client ID:       | IW-1           |                 | n ID: <b>R</b> 1 |                      |                      | RunNo: 1    |                | Haita:           |      |          |      |
| Prep Date:       |                | Analysis D      |                  |                      |                      | SeqNo: 4    |                | Units: mg/L      |      |          |      |
| Analyte Uranium  |                | Result<br>0.034 | PQL<br>0.0010    | SPK value<br>0.02500 | 0.001347             | %REC<br>129 | LowLimit<br>70 | HighLimit<br>130 | %RPD | RPDLimit | Qual |
|                  |                |                 |                  |                      |                      |             |                |                  |      |          |      |
| Sample ID        | LCS            | ·               | ype: LC          |                      |                      |             |                | Dissolved Met    | tals |          |      |
| Client ID:       |                |                 | h ID: <b>R</b> 1 |                      |                      | RunNo: 1    |                |                  |      |          |      |
| Prep Date:       |                | Analysis D      | Date: 1          | 7/2014               | S                    | SeqNo: 4    | 59484          | Units: mg/L      |      |          |      |
| Analyte          |                | Result          | PQL              | SPK value            | SPK Ref Val          | %REC        | LowLimit       | HighLimit        | %RPD | RPDLimit | Qual |

#### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

Value above quantitation range

Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrq Energy Inc

| Project:   |      | Lightning Dock Ge | otherma          | l GW Qual | ity Monito  |          |              |               |      | ···      |      |
|------------|------|-------------------|------------------|-----------|-------------|----------|--------------|---------------|------|----------|------|
| Sample ID  | LCS  | Samp              | Type: <b>LC</b>  | s         | Tes         | Code: E  | F'A 200.8: [ | Dissolved Met | tals |          |      |
| Client ID: | LCSW | Bato              | h ID: <b>R1</b>  | 5934      | F           | tunNo: 1 | 5934         |               |      |          |      |
| Prep Date: |      | Analysis          | Date: 1/         | 7/2014    | S           | eqNo: 4  | 59484        | Units: mg/L   |      |          |      |
| Analyte    |      | Result            | PQL              | SPK value | SPK Ref Val | %REC     | LowLimit     | HighLimit     | %RPD | RPDLimit | Qual |
| Arsenic    |      | 0.025             | 0.0010           | 0.02500   | 0           | 101      | 85           | 115           |      |          |      |
| Uranium    |      | 0.028             | 0.0010           | 0.02500   | 0           | 111      | 85           | 115           |      |          |      |
| Sample ID  | LCS  | Samp              | Type: LC         | s         | Tes         | tCode: E | F'A 200.8: [ | Dissolved Met | tals |          |      |
| Client ID: | LCSW | Bato              | ch ID: <b>R1</b> | 5934      | F           | tunNo: 1 | 5934         |               |      |          |      |
| Prep Date: |      | Analysis          | Date: 1/         | 7/2014    | 8           | SeqNo: 4 | 59485        | Units: mg/L   |      |          |      |
| Analyte    |      | Result            | PQL              | SPK value | SPK Ref Val | %REC     | LowLimit     | HighLimit     | %RPD | RPDLimit | Qual |
| Arsenic    |      | 0.025             | 0.0010           | 0.02500   | 0           | 101      | 85           | 115           |      |          |      |
| Uranium    |      | 0.027             | 0.0010           | 0.02500   | 0           | 109      | 85           | 115           |      |          |      |
| Sample ID  | МВ   | Samp              | Туре: МЕ         | BLK       | Tes         | tCode: E | FA 200.8: [  | Dissolved Me  | tals |          |      |
| Client ID: | PBW  | Bato              | ch ID: <b>R1</b> | 5934      | F           | RunNo: 1 | 5934         |               |      |          |      |
| Prep Date: |      | Analysis          | Date: 1/         | 7/2014    | 8           | SeqNo: 4 | 59486        | Units: mg/L   |      |          |      |
| Analyte    |      | Result            | PQL              | SPK value | SPK Ref Val | %REC     | LowLimit     | HighLimit     | %RPD | RPDLimit | Qual |
| Arsenic    |      | ND                | 0.0010           |           |             |          |              |               |      |          |      |
| Uranium    |      | ND                | 0.0010           |           |             |          |              |               |      |          |      |
| Sample ID  | МВ   | Samp              | Туре: МЕ         | BLK       | Tes         | tCode: E | PA 200.8: [  | Dissolved Me  | tals |          |      |
| Client ID: | PBW  | Bato              | ch ID: <b>R1</b> | 5934      | F           | RunNo: 1 | 5934         |               |      |          |      |
| Prep Date: |      | Analysis          | Date: 1/         | 7/2014    | 8           | SeqNo: 4 | 59487        | Units: mg/L   |      |          |      |
| Analyte    |      | Result            | PQL              | SPK value | SPK Ref Val | %REC     | LowLimit     | HighLimit     | %RPD | RPDLimit | Qual |
| Arsenic    |      | ND                | 0.0010           |           |             |          |              |               |      |          |      |
| Uranium    |      | ND                | 0.0010           |           |             |          |              |               |      |          |      |
| Sample ID  | LCS  | Samp              | Type: LC         | s         | Tes         | tCode: E | PA 200.8: [  | Dissolved Me  | tals |          |      |
| Client ID: | LCSW | Bate              | ch ID: R1        | 5963      | F           | RunNo: 1 | 5963         |               |      |          |      |
| Prep Date: |      | Analysis          | Date: 1/         | 8/2014    | 8           | SeqNo: 4 | 60078        | Units: mg/L   |      |          |      |
| Analyte    |      | Result            | PQL              | SPK value | SPK Ref Val | %REC     | LowLimit     | HighLimit     | %RPD | RPDLimit | Qual |
| Uranium    |      | 0.025             | 0.0010           | 0.02500   | 0           | 101      | 85           | 115           |      |          |      |
| Sample ID  | мв   | Samp              | Туре: М          | BLK       | Tes         | tCode: E | PA 200.8: [  | Dissolved Me  | tals |          |      |
| Client ID: | PBW  | Bate              | ch ID: R1        | 5963      | F           | RunNo: 1 | 5963         |               |      |          |      |
| Prep Date: |      | Analysis          | Date: 1/         | 8/2014    | 5           | SeqNo: 4 | 60079        | Units: mg/L   |      |          |      |
| Analyte    |      | Result            | PQL              | SPK value | SPK Ref Val | %REC     | LowLimit     | HighLimit     | %RPD | RPDLimit | Qual |
| Uranium    |      | ND                | 0.0010           |           |             |          |              |               |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#:

1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

Sample ID MB-11092

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID: PBW

Batch ID: 11092

**PQL** 

RunNo: 15947

Prep Date: 1/6/2014

Analysis Date: 1/7/2014

SeqNo: 459682

Units: mg/L HighLimit

%RPD **RPDLimit** 

Qual

Analyte Mercury

ND 0.00020

Sample ID LCS-11092

SampType: LCS

TestCode: EPA Method 245.1: Mercury

Client ID:

LCSW

Batch ID: 11092

RunNo: 15947

Prep Date: 1/6/2014

Analysis Date: 1/7/2014

SeqNo: 459683

Units: mg/L

HighLimit %RPD **RPDLimit** Qual

**PQL** 0.0051 0.00020 0.005000

101

80

120

Analyte

SPK value SPK Ref Val

SPK value SPK Ref Val %REC LowLimit

Mercury

%REC LowLimit

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

| Project: Lignur      | ing Dock Geothermal | Gw Quai   | ity Monito    |           |                   |               |        |           |      |
|----------------------|---------------------|-----------|---------------|-----------|-------------------|---------------|--------|-----------|------|
| Sample ID A6         | SampType: CC\       | /_6       | Test          | tCode: El | PA Method         | 300.0: Anions | ;      |           |      |
| Client ID: BatchQC   | Batch ID: R15       | 706       | R             | RunNo: 1  | 5706              |               |        |           |      |
| Prep Date:           | Analysis Date: 12/  | 23/2013   | S             | SeqNo: 4  | 52922             | Units: mg/L   |        |           |      |
| Analyte              | Result PQL          | SPK value | SPK Ref Val   | %REC      | LowLimit          | HighLimit     | %RPD   | RPDLimit  | Qual |
| Chloride             | 12 0.50             | 12.00     | 0             | 103       | 90                | 110           |        |           |      |
| Bromide              | 12 0.10             | 12.00     | 0             | 102       | 90                | 110           |        |           |      |
| Sulfate              | 31 0.50             | 30.00     | 0             | 105       | 90                | 110           |        |           |      |
| Nitrate+Nitrite as N | 13 0.20             | 12.00     | 0             | 107       | 90                | 110           |        |           |      |
| Sample ID A4         | SampType: CC\       | /_4       | Test          | tCode: El | PA Method         | 300.0: Anions | ·      |           |      |
| Client ID: BatchQC   | Batch ID: R15       | 706       | R             | RunNo: 1  | 5706              |               |        |           |      |
| Prep Date:           | Analysis Date: 12/  | 23/2013   | S             | SeqNo: 4  | 52933             | Units: mg/L   |        |           |      |
| Analyte              | Result PQL          | SPK value | SPK Ref Val   | %REC      | LowLimit          | HighLimit     | %RPD   | RPDLimit  | Qual |
| Chloride             | 4.7 0.50            | 5.000     | 0             | 93.3      | 90                | 110           |        |           |      |
| Bromide              | 4.9 0.10            | 5.000     | 0             | 97.4      | 90                | 110           |        |           |      |
| Sulfate              | 12 0.50             | 12.50     | 0             | 94.3      | 90                | 110           |        |           |      |
| Nitrate+Nitrite as N | 4.8 0.20            | 5.000     | 0             | 96.7      | 90                | 110           |        |           |      |
| Sample ID MB         | SampType: MB        | LK        | Test          | tCode: El | F'A Method        | 300.0: Anions | 5      |           |      |
| Client ID: PBW       | Batch ID: R15       | 706       | R             | RunNo: 1  | 5706              |               |        |           |      |
| Prep Date:           | Analysis Date: 12/  | /23/2013  | S             | SeqNo: 4  | 52935             | Units: mg/L   |        |           |      |
| Analyte              | Result PQL          | SPK value | SPK Ref Val   | %REC      | LowLimit          | HighLimit     | %RPD   | RPDLimit  | Qual |
| Chloride             | ND 0.50             |           |               |           |                   |               |        |           |      |
| Bromide              | ND 0.10             |           |               |           |                   |               |        |           |      |
| Sulfate              | ND 0.50             |           |               |           |                   |               |        |           |      |
| Nitrate+Nitrite as N | ND 0.20             |           |               |           |                   |               |        |           |      |
| Sample ID LCS        | SampType: LCS       | 3         | Tes           | tCode: El | PA Method         | 300.0: Anion  | 3      |           |      |
| Client ID: LCSW      | Batch ID: R15       | 706       | F             | RunNo: 1  | 5706              |               |        |           |      |
| Prep Date:           | Analysis Date: 12/  | /23/2013  | S             | SeqNo: 4  | 52936             | Units: mg/L   |        |           |      |
| Analyte              | Result PQL          | SPK value | SPK Ref Val   | %REC      | Low <b>L</b> imit | HighLimit     | %RPD   | RPDLimit  | Qual |
| Chloride             | 4.8 0.50            | 5.000     | 0             | 95.8      | 90                | 110           |        |           |      |
| Bromide              | 2.5 0.10            | 2.500     | 0             | 100       | 90                | 110           |        |           |      |
| Sulfate              | 9.7 0.50            | 10.00     | 0             | 97.2      | 90                | 110           |        |           |      |
| Nitrate+Nitrite as N | 3.5 0.20            | 3.500     | 0             | 99.7      | 90                | 110           |        | -         |      |
| Sample ID A5         | SampType: CC        | V_5       | Tes           | tCode: E  | PA Method         | 300.0: Anion  | 3      |           |      |
| Client ID: BatchQC   | Batch ID: R15       | 5706      | F             | RunNo: 1  | 5706              |               |        |           |      |
| Prep Date:           | Analysis Date: 12/  | /23/2013  | 5             | SeqNo: 4  | 52945             | Units: mg/L   |        |           |      |
|                      | D. # DO:            | ODK -     | 00K D- () ( ) | V DE 0    | 1 1 1 - 21        | 1.15 -4-1.5 5 | N/ DDC | DDD1 ! !! |      |

#### Qualifiers:

Analyte

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

- Value above quantitation range Е
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits

PQL

Result

В Analyte detected in the associated Method Blank

HighLimit

%RPD

- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

SPK value SPK Ref Val %REC LowLimit

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**RPDLimit** 

# all Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Lightning Dook Goothermal GW Quality Monito

| Project:          | Lightnin | g Dock Geo | otherma          | l GW Qual | ity Monito  |           |           |               |      |          |      |
|-------------------|----------|------------|------------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Sample ID         | A5       | SampT      | уре: СС          | V_5       | Test        | Code: El  | PA Method | 300.0: Anions | 3    |          |      |
| Client ID:        | BatchQC  | Batch      | ID: <b>R1</b>    | 5706      | R           | lunNo: 1  | 5706      |               |      |          |      |
| Prep Date:        |          | Analysis D | ate: 12          | 2/23/2013 | S           | SeqNo: 4  | 52945     | Units: mg/L   |      |          |      |
| Analyte           |          | Result     | PQL              | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride          |          | 7.8        | 0.50             | 8.000     | 0           | 96.9      | 90        | 110           |      |          | -    |
| Bromide           |          | 7.9        | 0.10             | 8.000     | 0           | 99.0      | 90        | 110           |      |          |      |
| Sulfate           |          | 20         | 0.50             | 20.00     | 0           | 98.8      | 90        | 110           |      |          |      |
| Nitrate+Nitrite a | is N     | 8.1        | 0.20             | 8.000     | 0           | 101       | 90        | 110           |      |          |      |
| Sample ID         | A4       | SampT      | ype: CC          | :V_4      | Tes         | tCode: El | PA Method | 300.0: Anions | 5    |          |      |
| Client ID:        | BatchQC  | Batch      | 1D: <b>R1</b>    | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:        |          | Analysis D | ate: 12          | 2/23/2013 | S           | SeqNo: 4  | 52957     | Units: mg/L   |      |          |      |
| Analyte           |          | Result     | PQL              | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride          |          | 4.7        | 0.50             | 5.000     | 0           | 93.6      | 90        | 110           |      |          |      |
| Bromide           |          | 4.9        | 0.10             | 5.000     | 0           | 97.4      | 90        | 110           |      |          |      |
| Sulfate           |          | 12         | 0.50             | 12.50     | 0           | 95.4      | 90        | 110           |      |          |      |
| Nitrate+Nitrite a | as N     | 4.9        | 0.20             | 5.000     | 0           | 97.5      | 90        | 110           |      |          |      |
| Sample ID         | A5       | SampT      | ype: CC          | CV_5      | Tes         | tCode: E  | PA Method | 300.0: Anions | s    |          |      |
| ent ID:           | BatchQC  | Batch      | 1D: <b>R</b> 1   | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| rep Date:         |          | Analysis D | ate: 12          | 2/23/2013 | S           | SeqNo: 4  | 52969     | Units: mg/L   |      |          |      |
| Analyte           |          | Result     | PQL              | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride          |          | 7.6        | 0.50             | 8.000     | 0           | 95.2      | 90        | 110           |      |          |      |
| Bromide           |          | 7.8        | 0.10             | 8.000     | 0           | 97.1      | 90        | 110           |      |          |      |
| Sulfate           |          | 19         | 0.50             | 20.00     | 0           | 97.3      | 90        | 110           |      |          |      |
| Nitrate+Nitrite   | as N     | 7.9        | 0.20             | 8.000     | 0           | 99.0      | 90        | 110           |      |          |      |
| Sample ID         | A4       | SampT      | ype: CC          | CV_4      | Tes         | tCode: E  | PA Method | 300.0: Anion  | s    |          |      |
| Client ID:        | BatchQC  | Batch      | n ID: <b>R1</b>  | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:        |          | Analysis D | ate: 1           | 2/23/2013 | 9           | SeqNo: 4  | 52981     | Units: mg/L   |      |          |      |
| Analyte           |          | Result     | PQL              | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride          |          | 4.7        | 0.50             | 5.000     | 0           | 93.6      | 90        | 110           |      |          |      |
| Bromide           |          | 4.9        | 0.10             | 5.000     | 0           | 97.4      | 90        | 110           |      |          |      |
| Sulfate           |          | 12         | 0.50             | 12.50     | 0           | 95.1      | 90        | 110           |      |          |      |
| Nitrate+Nitrite   | as N<br> | 4.8        | 0.20             | 5.000     | 0           | 96.9      | 90        | 110           |      |          |      |
| Sample ID         | A5       | SampT      | ype: CO          | CV_5      | Tes         | tCode: E  | PA Method | 300.0: Anion  | s    |          |      |
| Client ID:        | BatchQC  | Batch      | n ID: <b>R</b> 1 | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:        |          | Analysis D | )ate: 1          | 2/24/2013 | 5           | SeqNo: 4  | 52993     | Units: mg/L   |      |          |      |
| Analyte           |          | Result     | PQL              | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit RL

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

| Project: Lightnin    | 5 DOCK GO  |                | I GW Qual | ity Monito  |           |           |               |      | ·        |      |
|----------------------|------------|----------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Sample ID A5         | SampT      | уре: СС        | :V_5      | Tes         | tCode: El | PA Method | 300.0: Anions | 5    |          |      |
| Client ID: BatchQC   | Batch      | ID: <b>R1</b>  | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           | Analysis D | ate: 12        | 2/24/2013 | S           | SeqNo: 4  | 52993     | Units: mg/L   |      |          |      |
| Analyte              | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             | 7.7        | 0.50           | 8.000     | 0           | 96.3      | 90        | 110           |      |          |      |
| Bromide              | 7.8        | 0.10           | 8.000     | 0           | 97.9      | 90        | 110           |      |          |      |
| Sulfate              | 20         | 0.50           | 20.00     | 0           | 97.6      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N | 8.0        | 0.20           | 8.000     | 0           | 99.9      | 90        | 110           |      |          |      |
| Sample ID A4         | SampT      | уре: СС        | CV_4      | Tes         | tCode: El | A Method  | 300.0: Anion: | 5    |          |      |
| Client ID: BatchQC   | Batch      | ID: <b>R1</b>  | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           | Analysis D | ate: 12        | 2/24/2013 | S           | SeqNo: 4  | 53005     | Units: mg/L   |      |          |      |
| Analyte              | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             | 4.6        | 0.50           | 5.000     | 0           | 92.4      | 90        | 110           |      |          |      |
| Bromide              | 4.8        | 0.10           | 5.000     | 0           | 96.5      | 90        | 110           |      |          |      |
| Sulfate              | 12         | 0.50           | 12.50     | 0           | 94.8      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N | 4.8        | 0.20           | 5.000     | 0           | 96.0      | 90        | 110           |      |          |      |
| Sample ID MB         | SampT      | ype: ME        | BLK       | Tes         | tCode: El | PA Method | 300.0: Anion  | 5    |          |      |
| Client ID: PBW       | Batch      | ID: <b>R1</b>  | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           | Analysis D | ate: 12        | 2/24/2013 | 8           | SeqNo: 4  | 53007     | Units: mg/L   |      |          |      |
| Analyte              | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             | ND         | 0.50           |           |             |           |           |               |      |          |      |
| Bromide              | ND         | 0.10           |           |             |           |           |               |      |          |      |
| Sulfate              | ND         | 0.50           |           |             |           |           |               |      |          |      |
| Nitrate+Nitrite as N | ND         | 0.20           |           |             |           |           |               |      |          |      |
| Sample ID LCS        | SampT      | ype: <b>LC</b> | s         | Tes         | tCode: E  | PA Method | 300.0: Anion: | 5    |          |      |
| Client ID: LCSW      | Batch      | iD: <b>R1</b>  | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           | Analysis D | ate: 12        | 2/24/2013 | 8           | SeqNo: 4  | 53008     | Units: mg/L   |      |          |      |
| Analyte              | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             | 4.8        | 0.50           | 5.000     | 0           | 95.0      | 90        | 110           |      |          |      |
| Bromide              | 2.5        | 0.10           | 2.500     | 0           | 99.0      | 90        | 110           |      |          |      |
| Sulfate              | 9.7        | 0.50           | 10.00     | 0           | 97.0      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N | 3.5        | 0.20           | 3.500     | 0           | 98.9      | 90        | 110           |      |          |      |
| Sample ID A5         | SampT      | ype: CC        | V_5       | Tes         | tCode: El | PA Method | 300.0: Anion: | 5    |          |      |
| Client ID: BatchQC   | Batch      | ID: <b>R1</b>  | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           | Analysis D | ate: 12        | 2/24/2013 | 5           | SeqNo: 4  | 53017     | Units: mg/L   |      |          |      |
| Analyte              | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSD imit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL. Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#: **1312A59** *15-Jan-14* 

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Ouality Monito

| Project: Lightnin                | g Dock Ge  | otherma         | ıl GW Qual | lity Monito |           |           |               |      |          |      |
|----------------------------------|------------|-----------------|------------|-------------|-----------|-----------|---------------|------|----------|------|
| Sample ID A5                     | SampT      | Гуре: СС        | CV_5       | Tes         | tCode: El | PA Method | 300.0: Anion: | \$   |          |      |
| Client ID: BatchQC               | Batcl      | h ID: <b>R1</b> | 5706       | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:                       | Analysis D | Date: 12        | 2/24/2013  | S           | SeqNo: 4  | 53017     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value  | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride                         | 7.8        | 0.50            | 8.000      | 0           | 97.3      | 90        | 110           |      |          |      |
| Bromide                          | 8.0        | 0.10            | 8.000      | 0           | 99.4      | 90        | 110           |      |          |      |
| Sulfate                          | 20         | 0.50            | 20.00      | 0           | 98.6      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N             | 8.1        | 0.20            | 8.000      | 0           | 101       | 90        | 110           |      |          |      |
| Sample ID A4                     | SampT      | Гуре: СС        | CV_4       | Tes         | tCode: El | PA Method | 300.0: Anion  | 5    |          |      |
| Client ID: BatchQC               | Batcl      | h ID: <b>R1</b> | 5706       | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:                       | Analysis D | Date: 12        | 2/24/2013  | S           | SeqNo: 4  | 53027     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value  | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride                         | 4.8        | 0.50            | 5.000      | 0           | 95.0      | 90        | 110           |      |          |      |
| Bromide                          | 4.9        | 0.10            | 5.000      | 0           | 98.4      | 90        | 110           |      |          |      |
| Sulfate                          | 12         | 0.50            | 12.50      | 0           | 96.3      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N             | 4.9        | 0.20            | 5.000      | 0           | 98.2      | 90        | 110           |      |          |      |
| Sample ID MB                     | SampT      | Гуре: М         | BLK        | Tes         | tCode: El | PA Method | 300.0: Anion  | s    |          |      |
| ient ID: PBW                     | Batcl      | h ID: <b>R1</b> | 5742       | F           | RunNo: 1  | 5742      |               |      |          |      |
| rep Date:                        | Analysis D | Date: 12        | 2/24/2013  | \$          | SeqNo: 4  | 54474     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value  | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | ND         | 0.10            |            |             |           |           |               |      |          |      |
| Phosphorus, Orthophosphate (As P | ND         | 0.50            |            |             |           |           |               | ·    |          |      |
| Sample ID LCS-b                  | Samp1      | Гуре: <b>LC</b> | s          | Tes         | tCode: El | PA Method | 300.0: Anion  | S    |          |      |
| Client ID: LCSW                  | Batcl      | h ID: <b>R1</b> | 5742       | F           | RunNo: 1  | 5742      |               |      |          |      |
| Prep Date:                       | Analysis E | Date: 12        | 2/24/2013  | 5           | SeqNo: 4  | 54478     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value  | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.52       | 0.10            | 0.5000     | 0           | 104       | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50            | 5.000      | 0           | 95.0      | 90        | 110           |      |          |      |
| Sample ID A5                     | Samp       | Гуре: СС        | <br>CV_5   | Tes         | tCode: E  | PA Method | 300.0: Anion  | s    |          |      |
| Client ID: BatchQC               | Batcl      | h ID: R1        | 5742       | F           | RunNo: 1  | 5742      |               |      |          |      |
| Prep Date:                       | Analysis D | Date: 1         | 2/24/2013  | 5           | SeqNo: 4  | 54484     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value  | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.7        | 0.10            | 1.600      | 0           | 108       | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 8.0        | 0.50            | 8.000      | 0           | 99.4      | 90        | 110           |      |          |      |
|                                  |            |                 |            |             |           |           |               |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Cyrq Energy Inc Client:

Project: Lightning Dock Geothermal GW Quality Monito

| Sample ID A4                     | SampT      | ype: CC       | V_4       | Test        | Code: El | A Method | 300.0: Anions | 5    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|----------|----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5742      | R           | unNo: 1  | 5742     |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/24/2013 | S           | eqNo: 4  | 54496    | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SFK Ref Val | %REC     | LowLimit | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.1        | 0.10          | 1.000     | 0           | 109      | 90       | 110           |      |          |      |
| Phosphorus, Orthophosphate (As F | 4.8        | 0.50          | 5.000     | 0           | 95.7     | 90       | 110           |      |          |      |

| Sample ID A5                     | SampT      | ype: CC       | V_5       | Test        | tCode: El | PA Method | 300.0: Anions | 5    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b> | 5742      | R           | tunNo: 1  | 5742      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/24/2013 | S           | eqNo: 4   | 54508     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SFK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.8        | 0.10          | 1.600     | 0           | 109       | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As F | 8.0        | 0.50          | 8.000     | 0           | 99.9      | 90        | 110           |      |          |      |

| Sample ID A4                     | SampT      | ype: CC       | V_4       | Test        | Code: El | PA Method | 300.0: Anion | 5    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|----------|-----------|--------------|------|----------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b> | 5742      | R           | tunNo: 1 | 5742      |              |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | /24/2013  | S           | eqNo: 4  | 54513     | Units: mg/L  |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.1        | 0.10          | 1.000     | 0           | 107      | 90        | 110          |      |          |      |
| Phosphorus, Orthophosphate (As F | 4.8        | 0.50          | 5.000     | 0           | 96.9     | 90        | 110          |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits R
- S Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- P Sample pH greater :han 2 for VOA and TOC only.
- RLReporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#:

1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Analyte

Lightning Dock Geothermal GW Quality Monito

Sample ID MB-10974

SampType: MBLK

TestCode: EPA Method 418.1: TPH

Client ID:

PBW

Batch ID: 10974

**PQL** 

RunNo: 15713

Prep Date: 12/24/2013

Analysis Date: 12/24/2013

1.0

SeqNo: 453480

Units: mg/L HighLimit

%RPD **RPDLimit** 

Qual

Petroleum Hydrocarbons, TR

LCSW

ND

Result

Result

Result

4.6

SampType: LCS

TestCode: EPA Method 418.1: TPH

Qual

Sample ID LCS-10974

RunNo: 15713

Prep Date: 12/24/2013

Batch ID: 10974

SeqNo: 453481

Units: mg/L

120

Analyte

Client ID:

Analysis Date: 12/24/2013 **PQL** 

1.0

SPK value SPK Ref Val %REC

0

0

SPK value SPK Ref Val %REC LowLimit

HighLimit LowLimit

**RPDLimit** 

%RPD

Qual

Petroleum Hydrocarbons, TR Sample ID LCSD-10974

Client ID: LCSS02

SampType: LCSD

Batch ID: 10974

**PQL** 

TestCode: EPA Method 418.1: TPH

RunNo: 15713

SeqNo: 453482

92.4

80

Units: mg/L

Prep Date: Analyte

12/24/2013 Analysis Date: 12/24/2013

SPK value SPK Ref Val

%REC LowLimit

80

HighLimit 120 %RPD **RPDLimit** 

20

Petroleum Hydrocarbons, TR

4.7 1.0 5.000

5.000

94.8

2.56

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

- Η Holding times for preparation or analysis exceeded
- P
- RLReporting Detection Limit
- В Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
  - Sample pH greater than 2 for VOA and TOC only.

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### Hall Environmental Analysis Laboratory, Inc.

WO#:

1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

Sample ID MB-10989

Sample ID LCS-10989

Client ID: LCSW

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

Client ID:

**PBW** 

Batch ID: 10989

PQL

RunNo: 15731

Units: µg/L

**RPDLimit** 

%RPD

%RPD

Prep Date:

Analyte

12/26/2013

12/26/2013

Analysis Date: 12/26/2013

SeqNo: 454148

HighLimit

**RPDLimit** 

Qual

1,2-Dibromoethane

ND 0.010

Result

SPK value SFK Ref Val %REC LowLimit

Prep Date:

SampType: LCS Batch ID: 10989

Analysis Date: 12/26/2013

SeqNo: 454165

TestCode: EPA Method 8011/504.1: EDB

RunNo: 15731

LowLimit

Units: µg/L

Qual

Result

SPK value SPK Ref Val %REC **PQL** 

Analyte 0.12 0.010 0.1000 0 1,2-Dibromoethane

HighLimit 117 70 130

#### Qualifiers:

Value exceeds Maximum. Contaminant Level.

Value above quantitation range Ε

Analyte detected below quantitation limits

0 RSD is greater than RSDlimit

RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded Η

Not Detected at the Reporting Limit P Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#:

1312A59 15-Jan-14

Client:

Cyrq Energy Inc

| Project:      | Lightnin       | ng Dock Geo     | therma           | l GW Qual      | ity Monito  |          |           |             |      |          |      |
|---------------|----------------|-----------------|------------------|----------------|-------------|----------|-----------|-------------|------|----------|------|
| Sample ID     | MB-10979       | SampTy          | pe: ME           | BLK            | Test        | Code: E  | PA Method | 8082: PCB's |      |          |      |
| Client ID:    | PBW            | Batch           | ID: <b>10</b> 9  | 979            | R           | lunNo: 1 | 5776      |             |      |          |      |
| Prep Date:    | 12/24/2013     | Analysis Da     | ate: 12          | 2/29/2013      | S           | SeqNo: 4 | 55290     | Units: µg/L |      |          |      |
| Analyte       |                | Result          | PQL              | SPK value      | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016  |                | ND              | 1.0              |                |             |          |           |             |      |          |      |
| Aroclor 1221  |                | ND              | 1.0              |                |             |          |           |             |      |          |      |
| Aroclor 1232  |                | ND              | 1.0              |                |             |          |           |             |      |          |      |
| Aroclor 1242  |                | ND              | 1.0              |                |             |          |           |             |      |          |      |
| Aroclor 1248  |                | ND              | 1.0              |                |             |          |           |             |      |          |      |
| Aroclor 1254  |                | ND              | 1.0              |                |             |          |           |             |      |          |      |
| Aroclor 1260  |                | ND              | 1.0              | 0.500          |             | 00.4     | 47        | 400         |      |          |      |
|               | nlorobiphenyl  | 2.1             |                  | 2.500          |             | 82.4     | 17        | 123         |      |          |      |
| Surr: Tetraci | hloro-m-xylene | 2.0             |                  | 2.500          |             | 81.6     | 22.6      | 113         |      |          |      |
| Sample ID     | 1312A59-003CM  | <b>S</b> SampTy | /pe: <b>MS</b>   | 3              | Tes         | tCode: E | PA Method | 8082: PCB's |      |          |      |
| Client ID:    | IW-1           | Batch           | ID: 10           | 979            | F           | RunNo: 1 | 5776      |             |      |          |      |
| Prep Date:    | 12/24/2013     | Analysis Da     | ate: 12          | 2/30/2013      | S           | SeqNo: 4 | 56259     | Units: µg/L |      |          |      |
| Analyte       |                | Result          | PQL              | SPK value      | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016  |                | 2.8             | 1.0              | 5.000          | 0           | 55.4     | 70        | 130         |      |          | S    |
| clor 1260     |                | 3.3             | 1.0              | 5.000          | 0           | 65.9     | 61.1      | 129         |      |          |      |
|               | hlorobiphenyl  | 1.9             |                  | 2.500          |             | 74.4     | 17        | 123         |      |          |      |
| Surr: Tetrac  | hloro-m-xylene | 1.6             |                  | 2.500          |             | 65.6     | 22.6      | 113         |      |          |      |
| Sample ID     | 1312A59-003CM  | SD SampTy       | /pe: <b>M</b> \$ | SD             | Tes         | tCode: E | PA Method | 8082: PCB's |      |          |      |
| Client ID:    | IW-1           | Batch           | ID: <b>10</b>    | 979            | F           | RunNo: 1 | 5776      |             |      |          |      |
| Prep Date:    | 12/24/2013     | Analysis Da     | ate: 12          | 2/30/2013      | \$          | SeqNo: 4 | 56260     | Units: µg/L |      |          |      |
| Analyte       |                | Result          | PQL              | SPK value      | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016  |                | 3.0             | 1.0              | 5.000          | 0           | 59.9     | 70        | 130         | 7.70 | 20       | S    |
| Aroclor 1260  |                | 3.6             | 1.0              | 5.000          | 0           | 71.1     | 61.1      | 129         | 7.53 | 12.9     |      |
|               | hlorobiphenyl  | 2.0             |                  | 2.500          |             | 80.8     | 17        | 123         | 0    | 0        |      |
| Surr: Tetrac  | hloro-m-xylene | 1.8             |                  | 2.500          |             | 70.4     | 22.6      | 113         | 0    | 0        |      |
| Sample ID     | LCS-10979      | SampT           | ype: LC          | s              | Tes         | tCode: E | PA Method | 8082: PCB's |      |          |      |
| Client ID:    | LCSW           | Batch           | ID: 10           | 979            | F           | RunNo: 1 | 5776      |             |      |          |      |
| Prep Date:    | 12/24/2013     | Analysis Da     | ate: 12          | 2/31/2013      | 5           | SeqNo: 4 | 156267    | Units: µg/L |      |          |      |
| Analyte       |                | Result          | PQL              | SPK value      | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016  |                | 3.2             | 1.0              | 5.000          | 0           | 63.8     | 18.6      | 134         |      |          |      |
| Arodor 1260   |                | 3.7             | 1.0              | 5.000          | 0           | 74.1     | 35.7      | 137         |      |          |      |
| Surr: Decad   | hlorobiphenyl  | 2.8             |                  | 2.500<br>2.500 |             | 113      | 17        | 123         |      |          |      |
|               |                |                 |                  |                |             |          | 22.6      | 113         |      |          | S    |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID 5mL rb               | SampT      | ype: <b>ME</b> | LK        | Tes         | tCode: | EPA Method | 8260B: VOL  | ATILES |          |      |
|--------------------------------|------------|----------------|-----------|-------------|--------|------------|-------------|--------|----------|------|
| Client ID: PBW                 | Batch      | ID: <b>R1</b>  | 5774      | F           | RunNo: | 15774      |             |        |          |      |
| Prep Date:                     | Analysis D | ate: 12        | /27/2013  | s           | SeqNo: | 455189     | Units: µg/L |        |          |      |
| Analyte                        | Result     | PQL            | SPK value | SPK Ref Val | %RE0   | 2 LowLimit | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Toluene                        | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Ethylbenzene                   | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Naphthalene                    | ND         | 2.0            |           |             |        |            |             |        |          |      |
| 1-Methylnaphthalene            | ND         | 4.0            |           |             |        |            |             |        |          |      |
| 2-Methylnaphthalene            | ND         | 4.0            |           |             |        |            |             |        |          |      |
| Acetone                        | ND         | 10             |           |             |        |            |             |        |          |      |
| Bromobenzene                   | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Bromodichloromethane           | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Bromoform                      | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Bromomethane                   | ND         | 3.0            |           |             |        |            |             |        |          |      |
| 2-Butanone                     | ND         | 10             |           |             |        |            |             |        |          |      |
| Carbon disulfide               | ND         | 10             |           |             |        |            |             |        |          |      |
| Carbon Tetrachloride           | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Chlorobenzene                  | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Chloroethane                   | ND         | 2.0            |           |             |        |            |             |        |          |      |
| Chloroform                     | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Chloromethane                  | ND         | 3.0            |           |             |        |            |             |        |          |      |
| 2-Chlorotoluene                | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 4-Chlorotoluene                | ND         | 1.0            |           |             |        |            |             |        |          |      |
| cis-1,2-DCE                    | ND         | 1.0            |           |             |        |            |             |        |          |      |
| cis-1,3-Dichloropropene        | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 1,2-Dibromo-3-chloropropane    | ND         | 2.0            |           |             |        |            |             |        |          |      |
| Dibromochloromethane           | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Dibromomethane                 | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 1,2-Dichlorobenzene            | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 1,3-Dichlorobenzene            | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 1,4-Dichlorobenzene            | ND         | 1.0            |           |             |        |            |             |        |          |      |
| Dichlorodifluoromethane        | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 1,1-Dichloroethane             | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 1,1-Dichloroethene             | ND         | 1.0            |           |             |        |            |             |        |          |      |
|                                | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 1,2-Dichloropropane            |            |                |           |             |        |            |             |        |          |      |
| 1,3-Dichloropropane            | ND         | 1.0            |           |             |        |            |             |        |          |      |
| 2,2-Dichloropropane            | ND         | 2.0            |           |             |        |            |             |        |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID 5mL rb            | SampT      | уре: <b>МЕ</b> | BLK       | Test        | Code: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|----------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch      | ID: R1         | 5774      | R           | unNo: 1  | 5774      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 12        | 2/27/2013 | S           | eqNo: 4  | 55189     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,1-Dichloropropene         | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Hexachlorobutadiene         | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 2-Hexanone                  | ND         | 10             |           |             |          |           |             |        |          |      |
| Isopropylbenzene            | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 4-Isopropyltoluene          | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 4-Methyl-2-pentanone        | ND         | 10             |           |             |          |           |             |        |          |      |
| Methylene Chloride          | ND         | 3.0            |           |             |          |           |             |        |          |      |
| n-Butylbenzene              | ND         | 3.0            |           |             |          |           |             |        |          |      |
| n-Propylbenzene             | ND         | 1.0            |           |             |          |           |             |        |          |      |
| sec-Butylbenzene            | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Styrene                     | ND         | 1.0            |           |             |          |           |             |        |          |      |
| tert-Butylbenzene           | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND         | 2.0            |           |             |          |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND         | 1.0            |           |             |          |           |             |        |          |      |
| trans-1,2-DCE               | ND         | 1.0            |           |             |          |           |             |        |          |      |
| s-1,3-Dichloropropene       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| _,3-Trichlorobenzene        | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,2-Trichloroethane       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Trichloroethene (TCE)       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Trichlorofluoromethane      | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,2,3-Trichloropropane      | ND         | 2.0            |           |             |          |           |             |        |          |      |
| Vinyl chloride              | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Xylenes, Total              | ND         | 1.5            |           |             |          |           |             |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 11         |                | 10.00     |             | 107      | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 11         |                | 10.00     |             | 114      | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 12         |                | 10.00     |             | 116      | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 11         |                | 10.00     |             | 105      | 70        | 130         |        |          |      |

| Sample ID 100ng lcs | SampT      | ype: <b>LC</b> | s         | Tes         | TestCode: EPA Method 8260B: VOLATILES |          |             |      |          |      |  |
|---------------------|------------|----------------|-----------|-------------|---------------------------------------|----------|-------------|------|----------|------|--|
| Client ID: LCSW     | Batch      | 1D: <b>R1</b>  | 5774      | F           | RunNo: 1                              | 5774     |             |      |          |      |  |
| Prep Date:          | Analysis D | ate: 12        | 2/27/2013 | S           | SeqNo: 4                              | 55191    | Units: µg/L |      |          |      |  |
| Analyte             | Result     | PQL            | SPK value | SPK Ref Val | %REC                                  | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |  |
| Benzene             | 20         | 1.0            | 20.00     | 0           | 102                                   | 70       | 130         |      |          | •    |  |
| Toluene             | 20         | 1.0            | 20.00     | 0           | 99.3                                  | 82.2     | 124         |      |          |      |  |
| Chlorobenzene       | 19         | 1.0            | 20.00     | 0           | 94.2                                  | 70       | 130         |      |          |      |  |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID 100ng lcs            | SampT      | ype: LC          | S         | Tes         | ATILES   |            |             |        |          |      |
|--------------------------------|------------|------------------|-----------|-------------|----------|------------|-------------|--------|----------|------|
| Client ID: LCSW                | Batch      | 1D: <b>R1</b>    | 5774      | F           | RunNo: 1 | 5774       |             |        |          |      |
| Prep Date:                     | Analysis D | ate: 12          | 2/27/2013 | S           | SeqNo: 4 | 55191      | Units: µg/L |        |          |      |
| Analyte                        | Result     | PQL              | SPK value | SPK Ref Val | %REC     | LowLimit   | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,1-Dichloroethene             | 23         | 1.0              | 20.00     | 0           | 116      | 83.5       | 155         |        |          |      |
| Trichloroethene (TCE)          | 18         | 1.0              | 20.00     | 0           | 91.7     | 70         | 130         |        |          |      |
| Surr: 1,2-Dichloroethane-d4    | 9.8        |                  | 10.00     |             | 98.3     | 70         | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene     | 11         |                  | 10.00     |             | 114      | 70         | 130         |        |          |      |
| Surr: Dibromofluoromethane     | 10         |                  | 10.00     |             | 101      | 70         | 130         |        |          |      |
| Surr: Toluene-d8               | 10         |                  | 10.00     |             | 100      | 70         | 130         |        |          |      |
| Sample ID <b>b5</b>            | SampT      | уре: М           | BLK       | Tes         | tCode: E | F'A Method | 8260B: VOL  | ATILES |          |      |
| Client tD: PBW                 | Batch      | n ID: <b>R</b> 1 | 5774      | F           | RunNo: 1 | 5774       |             |        |          |      |
| Prep Date:                     | Analysis D | Date: 12         | 2/27/2013 | \$          | SeqNo: 4 | 55218      | Units: µg/L |        |          |      |
| Analyte                        | Result     | PQL              | SPK value | SPK Ref Val | %REC     | LowLimit   | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND         | 1.0              |           |             |          |            |             |        |          |      |
| Toluene                        | ND         | 1.0              |           |             |          |            |             |        |          |      |
| Ethylbenzene                   | ND         | 1.0              |           |             |          |            |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND         | 1.0              |           |             |          |            |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND         | 1.0              |           |             |          |            |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND         | 1.0              |           |             |          |            |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND         | 1.0              |           |             |          |            |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND         | 1.0              |           |             |          |            |             |        |          |      |
| Naphthalene                    | ND         | 2.0              |           |             |          |            |             |        |          |      |
| 1-Methylnaphthalene            | ND         | 4.0              |           |             |          |            |             |        |          |      |
| 2-Methylnaphthalene            | ND         | 4.0              |           |             |          |            |             |        |          |      |
| Acetone                        | ND         | 10               |           |             |          |            |             |        |          |      |
| Bromobenzene                   | ND         | 1.0              |           |             |          |            |             |        |          |      |
| Bromodichloromethane           | ND         | 1.0              |           |             |          |            |             |        |          |      |
| Bromoform                      | ND         | 1.0              |           |             |          |            |             |        |          |      |
| Bromomethane                   | ND         | 3.0              |           |             |          |            |             |        |          |      |
| 2-Butanone                     | ND         | 10               |           |             |          |            |             |        |          |      |
|                                |            |                  |           |             |          |            |             |        |          |      |

#### Qualifiers:

Carbon disulfide

Chlorobenzene Chloroethane

Chloromethane

2-Chlorotoluene

4-Chlorotoluene

cis-1,3-Dichloropropene

cis-1,2-DCE

Chloroform

Carbon Tetrachloride

Value exceeds Maximum Contaminant Level.

ND

10

1.0

1.0

2.0

1.0

3.0

1.0

1.0

1.0

1.0

- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID <b>b5</b>         | SampT      | ype: MB         | BLK       | Tes         | tCode: EF | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch      | 1D: <b>R1</b> : | 5774      | F           | RunNo: 1  | 5774      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 12         | 2/27/2013 | 5           | SeqNo: 4  | 55218     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,2-Dibromo-3-chloropropane | ND         | 2.0             |           |             |           |           |             |        |          |      |
| Dibromochloromethane        | ND         | 1.0             |           |             |           |           |             |        |          |      |
| Dibromomethane              | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,2-Dichlorobenzene         | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,3-Dichlorobenzene         | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,4-Dichlorobenzene         | ND         | 1.0             |           |             |           |           |             |        |          |      |
| Dichlorodifluoromethane     | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethane          | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethene          | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,2-Dichloropropane         | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,3-Dichloropropane         | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 2,2-Dichloropropane         | ND         | 2.0             |           |             |           |           |             |        |          |      |
| 1,1-Dichloropropene         | ND         | 1.0             |           |             |           |           |             |        |          |      |
| Hexachlorobutadiene         | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 2-Hexanone                  | ND         | 10              |           |             |           |           |             |        |          |      |
| isopropylbenzene            | ND         | 1.0             |           |             |           |           |             |        |          |      |
| opropyltoluene              | ND         | 1.0             |           |             |           |           |             |        |          |      |
| .√lethyl-2-pentanone        | ND         | 10              |           |             |           |           |             |        |          |      |
| Methylene Chloride          | ND         | 3.0             |           |             |           |           |             |        |          |      |
| n-Butylbenzene              | ND         | 3.0             |           |             |           |           |             |        |          |      |
| n-Propylbenzene             | ND         | 1.0             |           |             |           |           |             |        |          |      |
| sec-Butylbenzene            | ND         | 1.0             |           |             |           |           |             |        |          |      |
| Styrene                     | ND         | 1.0             |           |             |           |           |             |        |          |      |
| tert-Butylbenzene           | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND         | 2.0             |           |             |           |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND         | 1.0             |           |             |           |           |             |        |          |      |
| trans-1,2-DCE               | ND         | 1.0             |           |             |           |           |             |        |          |      |
| trans-1,3-Dichloropropene   | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,2,3-Trichlorobenzene      | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,1,2-Trichloroethane       | ND         | 1.0             |           |             |           |           |             |        |          |      |
| Trichloroethene (TCE)       | ND         | 1.0             |           |             |           |           |             |        |          |      |
| Trichlorofluoromethane      | ND         | 1.0             |           |             |           |           |             |        |          |      |
| 1,2,3-Trichloropropane      | ND         | 2.0             |           |             |           |           |             |        |          |      |
| Vinyl chloride              | ND         | 1.0             |           |             |           |           |             |        |          |      |
| Xylenes, Total              | ND         | 1.5             |           |             |           |           |             |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 10         |                 | 10.00     |             | 101       | 70        | 130         |        |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID <b>b5</b>        | SampT      | уре: М        | BLK       | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|----------------------------|------------|---------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: PBW             | Batch      | ID: <b>R1</b> | 5774      | R           | RunNo: 1  | 5774      |             |        |          |      |
| Prep Date:                 | Analysis D | ate: 12       | 2/27/2013 | S           | SeqNo: 4  | 55218     | Units: µg/L |        |          |      |
| Analyte                    | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Surr: 4-Bromofluorobenzene | 11         |               | 10.00     |             | 111       | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane | 11         |               | 10.00     |             | 108       | 70        | 130         |        |          |      |
| Surr: Toluene-d8           | 10         |               | 10.00     |             | 103       | 70        | 130         |        |          |      |

| Sample ID 100ng Ics 2       | SampT      | ype: LC         | S         | Tes         | tCode: El                  | PA Method | 8260B: VOL | ATILES |             |      |  |  |
|-----------------------------|------------|-----------------|-----------|-------------|----------------------------|-----------|------------|--------|-------------|------|--|--|
| Client ID: LCSW             | Batcl      | h ID: <b>R1</b> | 5774      | F           | RunNo: 1                   | 5774      |            |        |             |      |  |  |
| Prep Date:                  | Analysis D | Date: 12        | 2/27/2013 | 5           | SeqNo: <b>455220</b> Units |           |            |        | Units: µg/L |      |  |  |
| Analyte                     | Result     | PQL             | SPK value | SPK Ref Val | %REC                       | LowLimit  | HighLimit  | %RPD   | RPDLimit    | Qual |  |  |
| Benzene                     | 21         | 1.0             | 20.00     | 0           | 106                        | 70        | 130        |        |             |      |  |  |
| Toluene                     | 19         | 1.0             | 20.00     | 0           | 95.1                       | 82.2      | 124        |        |             |      |  |  |
| Chlorobenzene               | 19         | 1.0             | 20.00     | 0           | 93.5                       | 70        | 130        |        |             |      |  |  |
| 1,1-Dichloroethene          | 24         | 1.0             | 20.00     | 0           | 122                        | 83.5      | 155        |        |             |      |  |  |
| Trichloroethene (TCE)       | 19         | 1.0             | 20.00     | 0           | 93.7                       | 70        | 130        |        |             |      |  |  |
| Surr: 1,2-Dichloroethane-d4 | 10         |                 | 10.00     |             | 101                        | 70        | 130        |        |             |      |  |  |
| Surr: 4-Bromofluorobenzene  | 11         |                 | 10.00     |             | 114                        | 70        | 130        |        |             |      |  |  |
| Surr: Dibromofluoromethane  | 11         |                 | 10.00     |             | 106                        | 70        | 130        |        |             |      |  |  |
| Surr: Toluene-d8            | 9.8        |                 | 10.00     |             | 97.8                       | 70        | 130        |        |             |      |  |  |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#:

1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID mb-10980          | SampT      | ype: <b>MBLK</b> | TestCode        | EPA Method | 1 8270C: Semi | volatiles | · · · · · · · · · · · · · · · · · · · |      |
|-----------------------------|------------|------------------|-----------------|------------|---------------|-----------|---------------------------------------|------|
| Client ID: PBW              | Batch      | 1D: <b>10980</b> | RunNo           | 15747      |               |           |                                       |      |
| Prep Date: 12/24/2013       | Analysis D | ate: 12/26/2013  | SeqNo           | 454620     | Units: µg/L   |           |                                       |      |
| Analyte                     | Result     |                  | SPK Ref Val %RE | C LowLimit | HighLimit     | %RPD      | RPDLimit                              | Qual |
| Acenaphthene                | ND         | 10               |                 |            |               |           |                                       |      |
| Acenaphthylene              | ND         | 10               |                 |            |               |           |                                       |      |
| Aniline                     | ND         | 10               |                 |            |               |           |                                       |      |
| Anthracene                  | ND         | 10               |                 |            |               |           |                                       |      |
| Azobenzene                  | ND         | 10               |                 |            |               |           |                                       |      |
| Benz(a)anthracene           | ND         | 10               |                 |            |               |           |                                       |      |
| Benzo(a)pyrene              | ND         | 10               |                 |            |               |           |                                       |      |
| Benzo(b)fluoranthene        | ND         | 10               |                 |            |               |           |                                       |      |
| Benzo(g,h,i)perylene        | ND         | 10               |                 |            |               |           |                                       |      |
| Benzo(k)fluoranthene        | ND         | 10               |                 |            |               |           |                                       |      |
| Benzoic acid                | ND         | 40               |                 |            |               |           |                                       |      |
| Benzyl alcohol              | ND         | 10               |                 |            |               |           |                                       |      |
| Bis(2-chloroethoxy)methane  | ND         | 10               |                 |            |               |           |                                       |      |
| Bis(2-chloroethyl)ether     | ND         | 10               |                 |            |               |           |                                       |      |
| Bis(2-chloroisopropyl)ether | ND         | 10               |                 |            |               |           |                                       |      |
| Bis(2-ethylhexyl)phthalate  | ND         | 10               |                 |            |               |           |                                       |      |
| omophenyl phenyl ether      | ND         | 10               |                 |            |               |           |                                       |      |
| tyl benzyl phthalate        | ND         | 10               |                 |            |               |           |                                       |      |
| Carbazole                   | ND         | 10               |                 |            |               |           |                                       |      |
| 4-Chloro-3-methylphenol     | ND         | 10               |                 |            |               |           |                                       |      |
| 4-Chloroaniline             | ND         | 10               |                 |            |               |           |                                       |      |
| 2-Chloronaphthalene         | ND         | 10               |                 |            |               |           |                                       |      |
| 2-Chlorophenoi              | ND         | 10               |                 |            |               |           |                                       |      |
| 4-Chlorophenyl phenyl ether | ND         | 10               |                 |            |               |           |                                       |      |
| Chrysene                    | ND         | 10               |                 |            |               |           |                                       |      |
| Di-n-butyl phthalate        | ND         | 10               |                 |            |               |           |                                       |      |
| Di-n-octyl phthalate        | ND         | 10               |                 |            |               |           |                                       |      |
| Dibenz(a,h)anthracene       | ND         | 10               |                 |            |               |           |                                       |      |
| Dibenzofuran                | ND         | 10               |                 |            |               |           |                                       |      |
| 1,2-Dichlorobenzene         | ND         | 10               |                 |            |               |           |                                       |      |
| 1,3-Dichlorobenzene         | ND         | 10               |                 |            |               |           |                                       |      |
| 1,4-Dichlorobenzene         | ND         | 10               |                 |            |               |           |                                       |      |
| 3,3'-Dichlorobenzidine      | ND         | 10               |                 |            |               |           |                                       |      |
| Diethyl phthalate           | ND         | 10               |                 |            |               |           |                                       |      |
| Dimethyl phthalate          | ND         | 10               |                 |            |               |           |                                       |      |
| 2,4-Dichlorophenol          | ND         | 20               |                 |            |               |           |                                       |      |
| 2,4-Dimethylphenol          | ND         | 10               |                 |            |               |           |                                       |      |
| 4,6-Dinitro-2-methylphenol  | ND         | 20               |                 |            |               |           |                                       |      |
| 2,4-Dinitrophenol           | ND         | 20               |                 |            |               |           |                                       |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID mb-10980         | SampTy      | pe: MBLK         | Test        | Code: EPA Method     | 8270C: Semi | olatiles/ |          |      |
|----------------------------|-------------|------------------|-------------|----------------------|-------------|-----------|----------|------|
| Client ID: PBW             | Batch       | ID: <b>10980</b> | R           | tunNo: 15747         |             |           |          |      |
| Prep Date: 12/24/2013      | Analysis Da | ate: 12/26/2013  | S           | SeqNo: <b>454620</b> | Units: µg/L |           |          |      |
| Analyte                    | Result      | PQL SPK value    | SPK Ref Val | %REC LowLimit        | HighLimit   | %RPD      | RPDLimit | Qual |
| 2,4-Dinitrotoluene         | ND          | 10               |             |                      |             |           |          |      |
| 2,6-Dinitrotoluene         | ND          | 10               |             |                      |             |           |          |      |
| Fluoranthene               | ND          | 10               |             |                      |             |           |          |      |
| luorene                    | ND          | 10               |             |                      |             |           |          |      |
| Hexachlorobenzene          | ND          | 10               |             |                      |             |           |          |      |
| Hexachlorobutadiene        | ND          | 10               |             |                      |             |           |          |      |
| Hexachlorocyclopentadiene  | ND          | 10               |             |                      |             |           |          |      |
| Hexachloroethane           | ND          | 10               |             |                      |             |           |          |      |
| ndeno(1,2,3-cd)pyrene      | ND          | 10               |             |                      |             |           |          |      |
| sophorone                  | ND          | 10               |             |                      |             |           |          |      |
| 1-Methylnaphthalene        | ND          | 10               |             |                      |             |           |          |      |
| 2-Methylnaphthalene        | ND          | 10               |             |                      |             |           |          |      |
| 2-Methylphenol             | ND          | 10               |             |                      |             |           |          |      |
| 3+4-Methylphenol           | ND          | 10               |             |                      |             |           |          |      |
| N-Nitrosodi-n-propylamine  | ND          | 10               |             |                      |             |           |          |      |
| N-Nitrosodimethylamine     | ND          | 10               |             |                      |             |           |          |      |
| N-Nitrosodiphenylamine     | ND          | 10               |             |                      |             |           |          |      |
| Naphthalene                | ND          | 10               |             |                      |             |           |          |      |
| 2-Nitroaniline             | ND          | 10               |             |                      |             |           |          |      |
| 3-Nitroaniline             | ND          | 10               |             |                      |             |           |          |      |
| 4-Nitroaniline             | ND          | 10               |             |                      |             |           |          |      |
| Nitrobenzene               | ND          | 10               |             |                      |             |           |          |      |
| 2-Nitrophenol              | ND          | 10               |             |                      |             |           |          |      |
| 4-Nitrophenol              | ND          | 10               |             |                      |             |           |          |      |
| Pentachlorophenol          | ND          | 20               |             |                      |             |           |          |      |
| Phenanthrene               | ND          | 10               |             |                      |             |           |          |      |
| Phenoi                     | ND          | 10               |             |                      |             |           |          |      |
| Pyrene                     | ND          | 10               |             |                      |             |           |          |      |
| Pyridine                   | ND          | 10               |             |                      |             |           |          |      |
| 1,2,4-Trichlorobenzene     | ND          | 10               |             |                      |             |           |          |      |
| 2,4,5-Trichlorophenol      | ND          | 10               |             |                      |             |           |          |      |
| 2,4,6-Trichlorophenol      | ND          | 10               |             |                      |             |           |          |      |
| Surr: 2-Fluorophenol       | 110         | 200.0            |             | 55.1 22.7            | 98          |           |          |      |
| Surr: Phenol-d5            | 79          | 200.0            |             | 39.3 23.4            | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 130         | 200.0            |             | 66.7 23.3            | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 69          | 100.0            |             | 68.8 36.8            | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 71          | 100.0            |             | 70.6 38.3            | 110         |           |          |      |
| Surr: 4-Terphenyl-d14      | 77          | 100.0            |             | 77.5 52.1            | 116         |           |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#:

1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID Ics-10980        | SampT      | ype: <b>LC</b>  | s         | Tes         | Code: El | PA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|-----------------|-----------|-------------|----------|-----------|-------------|-----------|----------|------|
| Client ID: LCSW            | Batch      | 1D: <b>10</b> : | 980       | R           | tunNo: 1 | 5747      |             |           |          |      |
| Prep Date: 12/24/2013      | Analysis D | ate: 12         | 2/26/2013 | S           | eqNo: 4  | 54621     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 66         | 10              | 100.0     | 0           | 65.8     | 48        | 101         |           |          |      |
| 4-Chloro-3-methylphenol    | 130        | 10              | 200.0     | 0           | 66.5     | 47.9      | 109         |           |          |      |
| 2-Chlorophenol             | 120        | 10              | 200.0     | 0           | 59.5     | 40        | 105         |           |          |      |
| 1,4-Dichlorobenzene        | 57         | 10              | 100.0     | 0           | 57.2     | 40.8      | 94.3        |           |          |      |
| 2,4-Dinitrotoluene         | 64         | 10              | 100.0     | 0           | 64.1     | 28.3      | 131         |           |          |      |
| N-Nitrosodi-n-propylamine  | 66         | 10              | 100.0     | 0           | 65.6     | 46.2      | 119         |           |          |      |
| 4-Nitrophenol              | 44         | 10              | 200.0     | 0           | 21.9     | 10.5      | 67.9        |           |          |      |
| Pentachlorophenol          | 53         | 20              | 200.0     | 0           | 26.7     | 22.4      | 81.1        |           |          |      |
| Phenol                     | 73         | 10              | 200.0     | 0           | 36.7     | 21.4      | 72.9        |           |          |      |
| Pyrene                     | 61         | 10              | 100.0     | 0           | 60.9     | 46.9      | 109         |           |          |      |
| 1,2,4-Trichlorobenzene     | 55         | 10              | 100.0     | 0           | 54.6     | 43.1      | 98.4        |           |          |      |
| Surr: 2-Fluorophenol       | 94         |                 | 200.0     |             | 47.1     | 22.7      | 98          |           |          |      |
| Surr: Phenol-d5            | 72         |                 | 200.0     |             | 36.0     | 23.4      | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 130        |                 | 200.0     |             | 63.8     | 23.3      | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 60         |                 | 100.0     |             | 59.7     | 36.8      | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 68         |                 | 100.0     |             | 67.9     | 38.3      | 110         |           |          |      |
| ırr: 4-Terphenyl-d14       | 72         |                 | 100.0     |             | 71.6     | 52.1      | 116         |           |          |      |

| Sample ID Icsd-10980       | SampT      | ype: <b>LC</b>    | SD        | TestCode: EPA Method 8270C: Semivolatiles |          |          |             |      |          |      |
|----------------------------|------------|-------------------|-----------|---|----------|----------|-------------|------|----------|------|
| Client ID: LC\$S02         | Batch      | n ID: <b>10</b> ! | 980       | F   | RunNo: 1 | 5747     |             |      |          |      |
| Prep Date: 12/24/2013      | Analysis D | oate: 12          | 2/26/2013 | 5   | SeqNo: 4 | 54622    | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL               | SPK value | SPK Ref Val                               | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Acenaphthene               | 76         | 10                | 100.0     | 0   | 75.6     | 48       | 101         | 13.8 | 25       |      |
| 4-Chloro-3-methylphenol    | 150        | 10                | 200.0     | 0   | 74.3     | 47.9     | 109         | 11.1 | 32.7     |      |
| 2-Chlorophenol             | 120        | 10                | 200.0     | 0   | 62.4     | 40       | 105         | 4.89 | 20       |      |
| 1,4-Dichlorobenzene        | 60         | 10                | 100.0     | 0   | 60.1     | 40.8     | 94.3        | 4.94 | 20       |      |
| 2,4-Dinitrotoluene         | 68         | 10                | 100.0     | 0   | 68.5     | 28.3     | 131         | 6.64 | 29.9     |      |
| N-Nitrosodi-n-propylamine  | 69         | 10                | 100.0     | 0   | 69.0     | 46.2     | 119         | 5.17 | 23.1     |      |
| 4-Nitrophenol              | 48         | 10                | 200.0     | 0   | 24.0     | 10.5     | 67.9        | 8.93 | 40.5     |      |
| Pentachlorophenol          | 70         | 20                | 200.0     | 0   | 35.0     | 22.4     | 81.1        | 27.2 | 37.3     |      |
| Phenol                     | 77         | 10                | 200.0     | 0   | 38.4     | 21.4     | 72.9        | 4.45 | 20       |      |
| Pyrene                     | 74         | 10                | 100.0     | 0   | 73.8     | 46.9     | 109         | 19.2 | 26.5     |      |
| 1,2,4-Trichlorobenzene     | 59         | 10                | 100.0     | 0   | 59.4     | 43.1     | 98.4        | 8.32 | 27.2     |      |
| Surr: 2-Fluorophenol       | 92         |                   | 200.0     |   | 45.9     | 22.7     | 98          | 0    | 0        |      |
| Surr: Phenol-d5            | 74         |                   | 200.0     |   | 36.8     | 23.4     | 74.9        | 0    | 0        |      |
| Surr: 2,4,6-Tribromophenol | 140        |                   | 200.0     |   | 70.5     | 23.3     | 111         | 0    | 0        |      |
| Surr: Nitrobenzene-d5      | 63         |                   | 100.0     |   | 62.9     | 36.8     | 111         | 0    | 0        |      |
| Surr: 2-Fluorobiphenyl     | 73         |                   | 100.0     |   | 72.6     | 38.3     | 110         | 0    | 0        |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

Sample ID Icsd-10980

SampType: LCSD

TestCode: EPA Method 8270C: Semivolatiles

Client ID: LCSS02 Batch ID: 10980

RunNo: 15747

Prep Date: 12/24/2013 Analysis Date: 12/26/2013

SeqNo: 454622

Units: µg/L

Analyte

Result PQL

%REC SPK value SPK Ref Val

HighLimit

%RPD **RPDLimit** Qual

Surr: 4-Terphenyl-d14

100.0

80.5

LowLimit

116

81

0

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range Ε

Analyte detected below quantitation limits

RSD is greater than RSDlimit O

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit RL

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## all Environmental Analysis Laboratory, Inc.

WO#:

1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID MB-10981    | SampT      | ype: MB           | LK        | Tes         | tCode: El | PA Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|-------------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: PBW        | Batch      | n ID: <b>10</b> 9 | 981       | F           | RunNo: 1  | 5775      |             |      |          |      |
| Prep Date: 12/24/2013 | Analysis D | )ate: 12          | /27/2013  | 5           | SeqNo: 4  | 55252     | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL               | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | ND         | 2.0               |           |             |           |           |             |      |          |      |
| 1-Methylnaphthalene   | ND         | 2.0               |           |             |           |           |             |      |          |      |
| 2-Methylnaphthalene   | ND         | 2.0               |           |             |           |           |             |      |          |      |
| Acenaphthylene        | ND         | 2.5               |           |             |           |           |             |      |          |      |
| Acenaphthene          | ND         | 5.0               |           |             |           |           |             |      |          |      |
| Fluorene              | ND         | 0.80              |           |             |           |           |             |      |          |      |
| Phenanthrene          | ND         | 0.60              |           |             |           |           |             |      |          |      |
| Anthracene            | ND         | 0.60              |           |             |           |           |             |      |          |      |
| Fluoranthene          | ND         | 0.30              |           |             |           |           |             |      |          |      |
| Pyrene                | ND         | 0.30              |           |             |           |           |             |      |          |      |
| Benz(a)anthracene     | ND         | 0.070             |           |             |           |           |             |      |          |      |
| Chrysene              | ND         | 0.20              |           |             |           |           |             |      |          |      |
| Benzo(b)fluoranthene  | ND         | 0.10              |           |             |           |           |             |      |          |      |
| Benzo(k)fluoranthene  | ND         | 0.070             |           |             |           |           |             |      |          |      |
| Benzo(a)pyrene        | ND         | 0.070             |           |             |           |           |             |      |          |      |
| Dibenz(a,h)anthracene | ND         | 0.12              |           |             |           |           |             |      |          |      |
| zo(g,h,i)perylene     | ND         | 0.12              |           |             |           |           |             |      |          |      |
| ueno(1,2,3-cd)pyrene  | ND         | 0.25              |           |             |           |           |             |      |          |      |
| Surr: Benzo(e)pyrene  | 22         |                   | 20.00     |             | 108       | 24.5      | 139         |      |          |      |

| Sample ID LCS-10981   | SampT      | ype: LC         | s         | Test        | Code: EF | PA Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|-----------------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSW       | Batcl      | 1D: <b>10</b> ! | 981       | R           | lunNo: 1 | 5775      |             |      |          |      |
| Prep Date: 12/24/2013 | Analysis D | ate: 12         | 2/27/2013 | S           | SeqNo: 4 | 55253     | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 43         | 2.0             | 80.00     | 0           | 53.2     | 43.8      | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 36         | 2.0             | 80.20     | 0           | 45.1     | 41.3      | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 34         | 2.0             | 80.00     | 0           | 41.9     | 36.6      | 89.6        |      |          |      |
| Acenaphthylene        | 47         | 2.5             | 80.20     | 0           | 58.3     | 43.6      | 103         |      |          |      |
| Acenaphthene          | 37         | 5.0             | 80.00     | 0           | 46.6     | 42.4      | 87.6        |      |          |      |
| Fluorene              | 3.9        | 0.80            | 8.020     | 0           | 48.1     | 40.5      | 93.6        |      |          |      |
| Phenanthrene          | 2.4        | 0.60            | 4.020     | 0           | 60.4     | 43.9      | 111         |      |          |      |
| Anthracene            | 2.3        | 0.60            | 4.020     | 0           | 57.2     | 44.3      | 103         |      |          |      |
| Fluoranthene          | 4.5        | 0.30            | 8.020     | 0           | 56.2     | 43.5      | 109         |      |          |      |
| Pyrene                | 4.8        | 0.30            | 8.020     | 0           | 59.2     | 32.6      | 103         |      |          |      |
| Benz(a)anthracene     | 0.47       | 0.070           | 0.8020    | 0           | 58.6     | 43        | 114         |      |          |      |
| Chrysene              | 2.2        | 0.20            | 4.020     | 0           | 55.2     | 40.2      | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.59       | 0.10            | 1.002     | 0           | 58.9     | 44.4      | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.32       | 0.070           | 0.5000    | 0           | 64.0     | 41.5      | 120         |      |          |      |

#### Qualifiers:

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- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

| Sample ID LCS-10981    | SampT      | ype: <b>LC</b>    | s         | Tes         | tCode: El | F'A Method | 8310: PAHs  |      |          |      |
|------------------------|------------|-------------------|-----------|-------------|-----------|------------|-------------|------|----------|------|
| Client ID: LCSW        | Batcl      | n ID: <b>10</b> : | 981       | F           | RunNo: 1  | 5775       |             |      |          |      |
| Prep Date: 12/24/2013  | Analysis D | Date: 12          | 2/27/2013 | S           | SeqNo: 4  | 55253      | Units: µg/L |      |          |      |
| Analyte                | Result     | PQL               | SPK value | SPK Ref Val | %REC      | LowLimit . | HighLimit   | %RPD | RPDLimit | Qual |
| Benzo(a)pyrene         | 0.30       | 0.070             | 0.5020    | 0           | 59.8      | 34.5       | 118         |      |          |      |
| Dibenz(a,h)anthracene  | 0.60       | 0.12              | 1.002     | 0           | 59.9      | 38.3       | 107         |      |          |      |
| Benzo(g,h,i)perylene   | 0.55       | 0.12              | 1.000     | 0           | 55.0      | 38.4       | 110         |      |          |      |
| Indeno(1,2,3-cd)pyrene | 1.3        | 0.25              | 2.004     | 0           | 65.9      | 42.4       | 113         |      |          |      |
| Surr: Benzo(e)pyrene   | 16         |                   | 20.00     |             | 77.8      | 24.5       | 139         |      |          |      |

| Sample ID 1312A59-003DMS | SampType: MS TestCode: EF'A Method 8310: PAHs |          |           |              |          |           |             |      |          |      |
|--------------------------|---|----------|-----------|--------------|----------|-----------|-------------|------|----------|------|
| Client ID: IW-1          | Batch ID: 10981                               |          |           | RunNo: 15775 |          |           |             |      |          |      |
| Prep Date: 12/24/2013    | Analysis [                                    | Date: 12 | 2/28/2013 | S            | SeqNo: 4 | 55279     | Units: µg/L |      |          |      |
| Analyte                  | Result  | PQL      | SPK value | SPK Ref Val  | %REC     | L.owLimit | HighLimit   | %RPO | RPDLimit | Qual |
| Naphthalene              | 25  | 2.0      | 80.00     | 0            | 30.8     | 70        | 130         |      |          | S    |
| 1-Methylnaphthalene      | 22  | 2.0      | 80.20     | 0            | 26.9     | 70        | 130         |      |          | S    |
| 2-Methylnaphthalene      | 21  | 2.0      | 80.00     | 0            | 25.9     | 70        | 130         |      |          | S    |
| Acenaphthylene           | 26  | 2.5      | 80.20     | 0            | 32.3     | 70        | 130         |      |          | S    |
| Acenaphthene             | 23  | 5.0      | 80.00     | 0            | 28.2     | 70        | 130         |      |          | S    |
| Fluorene                 | 2.3   | 0.80     | 8.020     | 0            | 28.9     | 70        | 130         |      |          | S    |
| Phenanthrene             | 1.3   | 0.60     | 4.020     | 0            | 32.1     | 70        | 130         |      |          | S    |
| Anthracene               | 1.2   | 0.60     | 4.020     | 0            | 30.8     | 70        | 130         |      |          | S    |
| Fluoranthene             | 2.6   | 0.30     | 8.020     | 0            | 31.9     | 70        | 130         |      |          | S    |
| Pyrene                   | 2.5   | 0.30     | 8.020     | 0            | 31.4     | 70        | 130         |      |          | S    |
| Benz(a)anthracene        | 0.25  | 0.070    | 0.8020    | 0            | 31.2     | 70        | 130         |      |          | S    |
| Chrysene                 | 1.2   | 0.20     | 4.020     | 0            | 28.9     | 70        | 130         |      |          | S    |
| Benzo(b)fluoranthene     | 0.30  | 0.10     | 1.002     | 0            | 29.9     | 70        | 130         |      |          | S    |
| Benzo(k)fluoranthene     | 0.16  | 0.070    | 0.5000    | 0            | 32.0     | 70        | 130         |      |          | S    |
| Benzo(a)pyrene           | 0.16  | 0.070    | 0.5020    | 0            | 31.9     | 70        | 130         |      |          | S    |
| Dibenz(a,h)anthracene    | 0.31  | 0.12     | 1.002     | 0            | 30.9     | 70        | 130         |      |          | S    |
| Benzo(g,h,i)perylene     | 0.30  | 0.12     | 1.000     | 0.04000      | 26.0     | 70        | 130         |      |          | S    |
| Indeno(1,2,3-cd)pyrene   | 0.67  | 0.25     | 2.004     | 0            | 33.4     | 70        | 130         |      |          | S    |
| Surr: Benzo(e)pyrene     | 8.1   |          | 20.00     |              | 40.7     | 24.5      | 139         |      |          |      |

| Sample ID 1312A59-003DMS | Tes        | PA Method |           |             |          |               |             |       |          |      |
|--------------------------|------------|-----------|-----------|-------------|----------|---------------|-------------|-------|----------|------|
| Client ID: IW-1          | Batch      | D: 10     | 981       | F           | RunNo: 1 | 5 <b>7</b> 75 |             |       |          |      |
| Prep Date: 12/24/2013    | Analysis D | ate: 12   | 2/28/2013 | S           | SeqNo: 4 | 55280         | Units: µg/L |       |          |      |
| Analyte                  | Result     | PQL       | SPK value | SPK Ref Val | %REC     | LowLimit      | HighLimit   | %RPD  | RPDLimit | Qual |
| Naphthalene              | 28         | 2.0       | 80.00     | 0           | 35.2     | 70            | 130         | 13.2  | 20       | S    |
| 1-Methylnaphthalene      | 23         | 2.0       | 80.20     | 0           | 28.4     | 70            | 130         | 5.46  | 20       | S    |
| 2-Methylnaphthalene      | 21         | 2.0       | 80.00     | 0           | 26.1     | 70            | 130         | 0.865 | 20       | S    |
| Acenaphthylene           | 30         | 2.5       | 80.20     | 0           | 37.9     | 70            | 130         | 15.9  | 20       | S    |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSD limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#:

1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID 1312A59-003DMSD SampType: MSD TestCode: EPA Method 8310: PAHs |                              |         |           |             |              |          |             |      |          |      |
|---|------------------------------|---------|-----------|-------------|--------------|----------|-------------|------|----------|------|
|   |                              |         |           |             |              |          | OSTO. PARIS |      |          |      |
| Client ID: IW-1   | ent ID: IW-1 Batch ID: 10981 |         |           |             | RunNo: 15775 |          |             |      |          |      |
| Prep Date: 12/24/2013   | Analysis D                   | ate: 12 | 2/28/2013 | \$          | SeqNo: 4     | 55280    | Units: µg/L |      |          |      |
| Analyte   | Result                       | PQL     | SPK value | SPK Ref Val | %REC         | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Acenaphthene  | 24                           | 5.0     | 80.00     | 0           | 29.8         | 70       | 130         | 5.52 | 20       | S    |
| Fluorene  | 2.5                          | 0.80    | 8.020     | 0           | 30.5         | 70       | 130         | 5.45 | 20       | S    |
| Phenanthrene  | 1.5                          | 0.60    | 4.020     | 0           | 37.3         | 70       | 130         | 15.1 | 20       | S    |
| Anthracene  | 1.4                          | 0.60    | 4.020     | 0           | 35.3         | 70       | 130         | 13.5 | 20       | S    |
| Fluoranthene  | 2.9                          | 0.30    | 8.020     | 0           | 36.0         | 70       | 130         | 12.1 | 20       | S    |
| Pyrene  | 2.9                          | 0.30    | 8.020     | 0           | 35.7         | 70       | 130         | 12.6 | 20       | S    |
| Benz(a)anthracene   | 0.29                         | 0.070   | 0.8020    | 0           | 36.2         | 70       | 130         | 14.8 | 20       | S    |
| Chrysene  | 1.4                          | 0.20    | 4.020     | 0           | 33.8         | 70       | 130         | 15.9 | 20       | S    |
| Benzo(b)fluoranthene  | 0.37                         | 0.10    | 1.002     | 0           | 36.9         | 70       | 130         | 20.9 | 20       | RS   |
| Benzo(k)fluoranthene  | 0.21                         | 0.070   | 0.5000    | 0           | 42.0         | 70       | 130         | 27.0 | 20       | RS   |
| Benzo(a)pyrene  | 0.17                         | 0.070   | 0.5020    | 0           | 33.9         | 70       | 130         | 6.06 | 20       | S    |
| Dibenz(a,h)anthracene   | 0.36                         | 0.12    | 1.002     | 0           | 35.9         | 70       | 130         | 14.9 | 20       | S    |
| Benzo(g,h,i)perylene  | 0.34                         | 0.12    | 1.000     | 0.04000     | 30.0         | 70       | 130         | 12.5 | 20       | S    |
| Indeno(1,2,3-cd)pyrene  | 0.77                         | 0.25    | 2.004     | 0           | 38.4         | 70       | 130         | 13.9 | 20       | S    |
| Surr: Benzo(e)pyrene  | 9.6                          |         | 20.00     |             | 47.8         | 24.5     | 139         | 0    |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- , Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

Sample ID MB-11134

SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

Client ID:

PBW

Batch ID: 11134

RunNo: 15937

Prep Date: 1/8/2014

Analysis Date: 1/8/2014

SeqNo: 459499

SPK value SPK Ref Val %REC LowLimit

Units: µg/L HighLimit

%RPD **RPDLimit** 

Qual

Analyte Phenolics, Total Recoverable Result **PQL** ND 2.5

SampType: LCS

TestCode: Total Phenolics by SW-846 9067

Sample ID LCS-11134

RunNo: 15937

Client ID: LCSW

Batch ID: 11134 Analysis Date: 1/8/2014

SeqNo: 459500

Units: µg/L

Analyte

PQL

SPK value SPK Ref Val 20.00

%REC 110 LowLimit 73.7 HighLimit %RPD

Qual

Phenolics, Total Recoverable

Client ID: LCSS02

Prep Date: 1/8/2014

Result 22

2.5

TestCode: Total Phenolics by SW-846 9067

135

**RPDLimit** 

Sample ID LCSD-11134

SampType: LCSD Batch ID: 11134

RunNo: 15937 SeqNo: 459505

Units: µg/L

Analyte

Prep Date: 1/8/2014

Analysis Date: 1/8/2014

**PQL** 

2.5

SPK value SPK Ref Val %REC

LowLimit 1

HighLimit 135 %RPD

**RPDLimit** Qual

Phenolics, Total Recoverable

18

20.00

0

91.6

73.7

17.9

21.4

Qualifiers:

Е

Value exceeds Maximum Contaminant Level.

J Analyte detected below quantitation limits RSD is greater than RSDlimit 0

RPD outside accepted recovery limits R

Value above quantitation range

S Spike Recovery outside accepted recovery limits

Analyte detected in the associated Method Blank В

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit RL

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### all Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

Sample !D mb-1

SampType: mblk

TestCode: SM2320B: Alkalinity

Client ID:

PBW

Batch ID: R15744

**PQL** 

20

RunNo: 15744

Prep Date:

Analysis Date: 12/26/2013

SeqNo: 454539

Units: mg/L CaCO3

Analyte

Prep Date:

ND

**RPDLimit** Qual

Total Alkalinity (as CaCO3)

Sample ID Ics-1

SampType: Ics

Analysis Date: 12/26/2013

**PQL** 

TestCode: SM2320B: Alkalinity

Client ID: LCSW Batch ID: R15744

RunNo: 15744 SeqNo: 454540

Units: mg/L CaCO3

%RPD

%RPD

**RPDLimit** Qual

Analyte

98.6

LowLimit

SPK value SPK Ref Val 79 20 80.00

HighLimit

HighLimit

Total Alkalinity (as CaCO3)

110

SPK value SPK Ref Val %REC LowLimit

%REC

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits

Spike Recovery outside accepted recovery limits

- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R

- В
- Η Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

Analyte detected in the associated Method Blank

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#### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

Sample ID MB-10984

SampType: MBLK

TestCode: SNI2540C MOD: Total Dissolved Solids

Client ID:

PBW

12/25/2013

Batch ID: 10984 Analysis Date: 12/27/2013 RunNo: 15756

SeqNo: 454897

Units: mg/L

**RPDLimit** 

Qual

Analyte

Prep Date:

Result

PQL ND 20.0 SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

Total Dissolved Solids

SampType: LCS

**PQL** 

RunNo: 15756

TestCode: SNI2540C MOD: Total Dissolved Solids

Client ID: LCSW

Sample ID LCS-10984

Prep Date: 12/25/2013

Batch ID: 10984 Analysis Date: 12/27/2013

SeqNo: 454898

Units: mg/L HighLimit

Analyte

Result 1020

20.0

1000

0

102

80

120

Total Dissolved Solids

SPK value SPK Ref Val %REC

LowLimit

%RPD

**RPDLimit** 

Qual

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

E Value above quantitation range

Analyte detected below quantitation limits

RSD is greater than RSDlimit O

RPD outside accepted recovery limits R

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded

RLReporting Detection Limit

В

Η

Qualifiers:

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87105 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

# Sample Log-In Check List

| Client Name: AMEC   | Work Order Numbe   | er: 1312A59 |               | RcptNo:                        | 1                   |
|---|--|-------------|---------------|--------------------------------|---------------------|
| Received by/date:   | 12/21/13   |             |               |                                |                     |
| Logged By: Lindsay Mangin   | 12/21/2013 10:00:00  | АМ          | Southy Allego |                                |                     |
| Completed By: Lindsay Mangin  | 12/23/2013 9:\$3:25 A  | M           | Straty Harry  |                                |                     |
| Reviewed By:  | 12/23/13   |             |               |                                |                     |
| Chain of Custody  | 10 10 01:2   |             |               |                                |                     |
| 1. Custody seals intact on sample bottles?                                      |  | Yes 🗌       | No 🗌          | Not Present <b>✓</b>           |                     |
| 2. Is Chain of Custody complete?  | Yes 🗹  | No 🗆        | Not Present   |                                |                     |
| 3. How was the sample delivered?  |  | Client      |               |                                |                     |
| <u>Log In</u>   |  |             |               |                                |                     |
| Was an attempt made to cool the samples   | ?  | Yes 🗹       | No 🗌          | na 🗆                           |                     |
| 5. Were all samples received at a temperature                                   | e of >0° C to 6.0°C  | Yes 🗹       | No 🗆          | NA 🗆                           |                     |
| 6. Sample(s) in proper container(s)?  |  | Yes 🗹       | No 🗆          |                                |                     |
| 7. Sufficient sample volume for indicated test                                  | (s)?   | Yes 🗹       | No 🗌          |                                |                     |
| 8. Are samples (except VOA and ONG) prope                                       | Yes 🗹  | No 🗆        |               |                                |                     |
| 9. Was preservative added to bottles?   | Yes  | No 🗹        | NA 🗀          |                                |                     |
| 10.VOA vials have zero headspace?   |  | Yes 🗹       | No 🗌          | No VOA Vials                   |                     |
| 11. Were any sample containers received brok                                    | Yes  | No 🗹        |               |                                |                     |
|   |  | _           |               | # of preserved bottles checked | 70                  |
| 12.Does paperwork match bottle labels? (Note discrepancies on chain of custody) |  | Yes 🗹       | No ∐          | for pH:                        | r >12 Unless noted) |
| 13. Are matrices correctly identified on Chain of                               | Yes 🗸  | No 🗆        | Adjusted 2    | No                             |                     |
| 14. Is it clear what analyses were requested?                                   | Yes 🗹  | No 🗆        |               | 1                              |                     |
| 15. Were all holding times able to be met?                                      | Yes 🗹  | No 🗀 📗      | Checked by:   | MJ-                            |                     |
| (If no, notify customer for authorization.)                                     |  |             |               |                                |                     |
| Special Handling (if applicable)  |  |             |               |                                |                     |
| 16. Was client notified of all discrepancies with                               | this order?  | Yes 🗌       | No 🗆          | NA 🗹                           |                     |
| Person Notified:  | Date   |             | j             |                                | ]                   |
| By Whom:  | Via:   | eMail       | Phone [ Fax   | In Person                      |                     |
| Regarding:  | Control Contro |             |               |                                |                     |
| Client Instructions:  |  |             |               |                                |                     |
| 17. Additional remarks:   | , , , , , , , , , , , , , , , , , , ,  |             |               |                                | _                   |
| 18. Cooler Information  |  |             |               |                                |                     |
| Cooler No. Temp ºC Condition  | Seal Intact   Seal No  | Seal Date   | Signed By     |                                |                     |
| 1 4.6 Good N  | ot Present   |             |               |                                |                     |

| C                           | hain             | -of-Cι     | ıstor        | dy Record                  | Turn-Around             | l Time:              |                   |              |                |           | H           | ALL                                       | E             | NV  | /TE               | RO          | NI                | МE              | NT       | [A]         | _              |
|-----------------------------|------------------|------------|--------------|----------------------------|-------------------------|----------------------|-------------------|--------------|----------------|-----------|-------------|---|---------------|---|-------------------|-------------|-------------------|-----------------|----------|-------------|----------------|
| Client:                     | AME              | <u></u>    |              |                            | Standard                | d □ Rush             | n                 | ] -          |                |           |             | NAI                                       |               |   |                   |             |                   |                 |          |             |                |
|                             |                  |            |              |                            | Project Nam             | e: Lightin           | a Dock .          |              |                |           |             | ww.ha                                     | llenv         | /iron   | men               | tal.co      | om                |                 |          |             |                |
| Mailing                     | Address          | 8519       | Te-          | fferson STN                | E Ceother               | mal Gu               | g Dock Monte      | 75           | 49             | 01 H      |             | s NE                                      |               |   |                   |             |                   | 109             |          |             |                |
| -61-1-2                     | 10 2C            | $u \sim$   |              |                            | Project #:              | 7                    | 7 ()(             |              | Τe             | el. 50    | 5-345       | -3975                                     | F             | Fax   | 505               | -345-       | -410 <sup>°</sup> | 7               |          |             |                |
| Phone                       | #: (5            | 05) 97     | <u> </u>     | <u>801</u>                 | l 2. (                  | 7-00102              | 2.06              |              |                |           |             |   | nal           | ysis  | Rec               | uest        |                   | 1.5             |          |             |                |
| email o                     | r Fax#:          | david      | Jan          | ney@anecho                 | Project Mana            | ager:                |                   | =            | (ylu           | / MRO)    |             |   |               | O <sub>4</sub>  | S                 |             |                   |                 | i        |             |                |
| QA/QC i<br><b>∀</b> ⊊∕∕Stan | Package:<br>dard |            | □lev         | vel 4 (Full Validation     | David                   | Janne                | y                 | 's (8021)    | TPH (Gas only) | M/0       |             | SIMS)                                     |               | 20 <sub>4</sub> ,S  | 8082 PCB          |             |                   |                 |          |             |                |
| Accredi                     |                  |            |              | or the contraction         | <u></u>                 | Fric Ko              | senia             | TMB's        | PH (           | / DRO     | <u> </u>    | - 1 -                                     |               | Š,  | 1082              |             |                   |                 |          |             | 9              |
| □ NEL                       | AP               | □ Othe     | r            |                            |                         | Fric Ko              |                   | +            | +              | (GRO      | 418.1)      | 82  | w             | ြိ  | 8/8               |             | ₹                 |                 |          |             | or N)          |
|                             | (Type)           | T          | т            |                            | Sample Terr             | nperature: 👍         | A San Lori        | MTBE         | Ⅱ              | 9) E      | 9 po        | 900                                       | etal          | Z,  | cide              | ₹           | -i-               |                 |          |             | <u></u>        |
| Date                        | Time             | Matrix     | Sar          | mple Request iD            | Container<br>Type and # | Preservative<br>Type | HEAL No. 1312,459 | <sup>+</sup> | BTEX + MTBE    | TPH 8015B | TPH (Method | EDB (Method 504.1)<br>PAH's (8310 or 8270 | RCRA 8 Metals | Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> ) | 8081 Pesticides / | 8260B (VOA) | 8270 (Semi-VOA)   |                 |          |             | Air Bubbles (Y |
| 2/14/13                     | 11:00            | water      | + L/         | 2645-7                     | 21                      | see                  | -001              |              | /              | <u>-</u>  |             |   | 1             | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \   |                   | 11          | 7                 | 1               | ,        | +           |                |
| 2/2/13                      | 13:00            | 1          | LE           | G 63-7                     | 27                      | attache              | -002              | -            | 5              | H         | - 2         | -   | *             | E   | 7                 | 1//         | #                 | KI              |          | $\preceq$   | $\neg$         |
| 2/20/13                     | 13:00<br>17:00   | V          | I            | 0G 63-7<br>W-L*<br>p Blank | 2 ZZ                    | List                 | -003              |              |                |           |             |   |               |   |                   |             |                   |                 |          | $\Box$      |                |
|                             |                  |            | +1           | p Blank                    |                         |                      | -004              |              |                |           |             |   |               |   |                   |             |                   |                 |          |             |                |
|                             |                  |            |              |                            |                         |                      | \                 |              |                |           |             |   |               |   |                   |             |                   |                 |          |             |                |
|                             |                  |            |              |                            |                         |                      |                   |              |                |           |             |   |               |   |                   |             |                   |                 |          |             |                |
|                             |                  |            | <u> </u>     |                            |                         |                      |                   |              |                |           |             |   |               | _   |                   |             |                   |                 |          | _           | $\perp$        |
|                             |                  |            | <del> </del> | <del></del>                |                         | <u> </u>             |                   | <b>-</b>     |                |           | _           | _   | <u> </u>      |   |                   | -           |                   |                 | $\vdash$ | $\dashv$    | -              |
|                             |                  |            |              |                            |                         |                      |                   | -            |                |           | -           |   |               | ļ   |                   |             |                   |                 | $\dashv$ | $\dashv$    | -              |
|                             |                  |            | <del> </del> |                            |                         |                      |                   | -            |                |           | +           | -   | -             | -   |                   | $\vdash$    |                   | $\vdash \vdash$ | -        | _           |                |
|                             |                  |            | <b>-</b>     |                            |                         |                      |                   | +            |                |           | $\dashv$    |   | -             |   |                   | $\vdash$    |                   | $\vdash$        | $\dashv$ | $\dashv$    |                |
| Date:                       | Time:            | Relinquish | ed by:       | beny                       | Received by:            | 1                    | Date Time         | Rer          | narks          | 5:5       | <br>ee<br>+ | atti                                      | acl           | 1<br>1<br>1.550   | d                 | i<br>a<br>* | <u></u>           |                 |          | e           |                |
|                             |                  |            | <b>.</b> .,. | <b>/</b>                   |                         |                      | Date Hill         | *            | € CQ           | 61<br>C   | 51<br>50    | ins                                       | 10            | net<br>~  | Tale              | > T         | iel               | A T             | clta     | ev <b>a</b> | *              |



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 16, 2014

David Janney Cyrq Energy Inc PO Box 86 Animas, NM 88020 TEL: (505) 796-7276

**FAX** 

RE: Lightning Dock Geothermal Water Quality Monitoring OrderNo.: 1312B40

### Dear David Janney:

Hall Environmental Analysis Laboratory received 2 sample(s) on 12/24/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Date Reported: 1/16/2014

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: LDG 47-7

Project: Lightning Dock Geothermal Water Qualit

Collection Date: 12/21/2013 1:00:00 PM

1312B40-001 Lab ID:

CLIENT: Cyrq Energy Inc

Received Date: 12/24/2013 10:30:00 AM

| Analyses                          | Result | RL       | Qual | Units | DF | Date Analyzed                       | Batch    |
|-----------------------------------|--------|----------|------|-------|----|-------------------------------------|----------|
| EPA METHOD 8011/504.1: EDB        |        |          |      |       |    | Analyst                             | : LRW    |
| 1,2-Dibromoethane                 | :ND    | 0.010    |      | μg/L  | 1  | 12/26/2013 3:41:42 PM               | 10989    |
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Analyst                             | : SCC    |
| Aroclor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM               | 10979    |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM               |          |
| Aroclor 1232                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM               | 10979    |
| Aroclor 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM               | 10979    |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM               | 10979    |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM               | 10979    |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM               | 10979    |
| Surr: Decachlorobiphenyl          | 80.8   | 17-123   |      | %REC  | 1  | 12/30/2013 6:32:14 AM               | 10979    |
| Surr: Tetrachloro-m-xylene        | 72.8   | 22.6-113 |      | %REC  | 1  | 12/30/2013 6:32:14 AM               | 10979    |
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analys                              | : scc    |
| Naphthalene                       | 2.2    | 2.0      |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 10981    |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 10981    |
| 2-Methylnaphthalene               | 3.1    | 2.0      |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 1 10981  |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 10981    |
| Acenaphthene                      | ND     | 5.0      |      | µg/L  | 1  | 12/28/2013 6:03:46 AM               | 10981    |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 10981    |
| Phenanthrene                      | 0.71   | 0.60     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 10981    |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 10981    |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | l 10981  |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 1 10981  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 1 10981  |
| Chrysene                          | ND     | 0.20     |      | µg/L  | 1  | 12/28/2013 6:03:46 AM               | 1 10981  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 1 10981  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 1 10981  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 1 10981  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | µg/L  | 1  | 12/28/2013 6:03:46 AM               | 1 10981  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | µg/L  | 1  | 12/28/2013 6:03:46 AM               | 1 10981  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM               | 1 10981  |
| Surr: Benzo(e)pyrene              | 57.0   | 24.5-139 |      | %REC  | 1  | 12/28/2013 6:03:46 AM               | 1 10981  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analys                              | : JRR    |
| Fluoride                          | 12     | 2.0      | *    | mg/L  | 20 | 12/24/2013 3:02:38 PM               | 1 R1574  |
| Chloride                          | 130    | 10       |      | mg/L  | 20 | 12/24/2013 3:02:38 F <sup>t</sup> N | 1 R1574  |
| Bromide                           | 0.32   | 0.10     |      | mg/L  | 1  | 12/24/2013 2:25:24 FM               | R1574    |
| Phosphorus, Orthophosphate (As P) | ND     | 0.50     | H    | mg/L  | 1  | 12/24/2013 2:25:24 PM               | 1 R15742 |
| Sulfate                           | 250    | 10       |      | mg/L  | 20 | 12/24/2013 3:02:38 PM               | R1574    |
| Nitrate+Nitrite as N              | ND     | 1.0      |      | mg/L  | 5  | 12/28/2013 2:49:13 AM               | 1 R1579  |

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Ε
- Analyte detected below quantitation limits
- () RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

Date Reported: 1/16/2014

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: LDG 47-7

Project: Lightning Dock Geothermal Water Qualit

**Collection Date:** 12/21/2013 1:00:00 PM

**Lab ID:** 1312B40-001

CLIENT: Cyrq Energy Inc

Matrix: AQUEOUS Received Date: 12/24/2013 10:30:00 AM

| Analyses                       | Result | RL Qu   | ial Units | DF | Date Analyzed        | Batch          |
|--------------------------------|--------|---------|-----------|----|----------------------|----------------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |           |    | Analy                | st: <b>JLF</b> |
| Aluminum                       | 0.050  | 0.020   | mg/L      | 1  | 1/7/2014 11:54:32 AM | R15921         |
| Barium                         | 0.13   | 0.0020  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Boron                          | 2.6    | 0.20    | mg/L      | 5  | 12/27/2013 2:48:35 P | M R15768       |
| Cadmium                        | ND     | 0.0020  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Calcium                        | 12     | 1.0     | mg/L      | 1  | 12/30/2013 12:41:37  | PM R15805      |
| Cobalt                         | ND     | 0.0060  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Copper                         | ND     | 0.0060  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Iron                           | 0.32   | 0.020   | * mg/L    | 1  | 12/30/2013 12:41:37  | PM R15805      |
| Magnesium                      | ND     | 1.0     | mg/L      | 1  | 12/30/2013 12:41:37  | PM R15805      |
| Manganese                      | 0.14   | 0.0020  | * mg/L    | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Molybdenum                     | 0.038  | 0.0080  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Nickel                         | 0.081  | 0.010   | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Potassium                      | 22     | 1.0     | mg/L      | 1  | 12/30/2013 12:41:37  | PM R15805      |
| Silver                         | ND     | 0.0050  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Sodium                         | 390    | 5.0     | mg/L      | 5  | 12/30/2013 12:47:00  | PM R15805      |
| Zinc                           | 0.022  | 0.010   | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| EPA 200.8: DISSOLVED METALS    |        |         |           |    | Analy                | st: DBD        |
| Arsenic                        | 0.42   | 0.020   | * mg/L    | 20 | 1/8/2014 2:52:32 PM  | R15963         |
| Lead                           | ND     | 0.0010  | mg/L      | 1  | 1/8/2014 2:36:36 PM  | R15963         |
| Selenium                       | ND     | 0.0010  | mg/L      | 1  | 1/8/2014 2:36:36 PM  | R15963         |
| Uranium                        | ND     | 0.0010  | mg/L      | 1  | 1/8/2014 2:36:36 PM  | R15963         |
| EPA METHOD 245.1: MERCURY      |        |         |           |    | Analy                | st: <b>JML</b> |
| Mercury                        | ND     | 0.00020 | mg/L      | 1  | 1/7/2014 2:17:05 PM  | 11092          |
| EPA METHOD 8270C: SEMIVOLATILE | S      |         |           |    | Analy                | st: JDC        |
| Acenaphthene                   | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Acenaphthylene                 | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Aniline                        | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Anthracene                     | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Azobenzene                     | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benz(a)anthracene              | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benzo(a)pyrene                 | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benzo(b)fluoranthene           | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benzo(g,h,i)perylene           | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benzo(k)fluoranthene           | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benzoic acid                   | ND     | 40      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benzyl alcohol                 | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2 of 34
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1312B40

Date Reported: 1/16/2014

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: LDG 47-7 CLIENT: Cyrq Energy Inc

Collection Date: 12/21/2013 1:00:00 PM Project: Lightning Dock Geothermal Water Qualit Lab ID: 1312B40-001 Matrix: AQUEOUS Received Date: 12/24/2013 10:30:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed       | Batch           |
|-----------------------------|--------|-------|----------|----|---------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  |       |          |    | Anal                | yst: <b>JDC</b> |
| Bis(2-chloroiscpropyl)ether | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Bis(2-ethylhexyl)phthalate  | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 4-Bromophenyl phenyl ether  | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Butyl benzyl phthalate      | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Carbazole                   | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 4-Chloro-3-methylphenol     | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 4-Chloroaniline             | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2-Chloronaphthalene         | ND     | 10    | µg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2-Chlorophenci              | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 4-Chlorophenyl phenyl ether | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Chrysene                    | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Di-n-butyl phthalate        | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Di-n-octyl phthalate        | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Dibenz(a,h)anthracene       | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Dibenzofuran                | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 3,3'-Dichlorobenzidine      | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Diethyl phthalate           | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Dimethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2,4-Dichlorophenol          | ND     | 20    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2,4-Dimethylphenol          | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 4,6-Dinitro-2-methylphenol  | ND     | 20    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2,4-Dinitrophenol           | ND     | 20    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2,4-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2,6-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Fluoranthene                | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Fluorene                    | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Hexachlorobenzene           | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Hexachlorobutadiene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Hexachlorocyclopentadiene   | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Hexachloroethane            | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Indeno(1,2,3-cd)pyrene      | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | 4 PM 10980      |
| Isophorone                  | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | 4 PM 10980      |
| 1-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | 4 PM 10980      |
| 2-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2-Methylphenol              | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 3+4-Methylphenol            | ND     | 10    | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 3 of 34 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/16/2014

**CLIENT:** Cyrq Energy Inc Client Sample ID: LDG 47-7

Collection Date: 12/21/2013 1:00:00 PM Project: Lightning Dock Geothermal Water Qualit 1312B40-001 Matrix: AQUEOUS Received Date: 12/24/2013 10:30:00 AM Lab ID:

| Analyses                       | Result   | RL (      | Qual Units  | DF | Date Analyzed       | Batch     |
|--------------------------------|----------|-----------|-------------|----|---------------------|-----------|
| EPA METHOD 8270C: SEMIVOLATI   | ILES     |           | - · · · · · |    | Analy               | st: JDC   |
| N-Nitrosodi-n-propylamine      | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| N-Nitrosodimethylamine         | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| N-Nitrosodiphenylamine         | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Naphthalene                    | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| 2-Nitroaniline                 | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| 3-Nitroaniline                 | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| 4-Nitroaniline                 | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Nitrobenzene                   | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| 2-Nitrophenol                  | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| 4-Nitrophenol                  | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Pentachlorophenol              | ND       | 20        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Phenanthrene                   | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Phenol                         | 14       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Pyrene                         | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Pyridine                       | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| 1,2,4-Trichlorobenzene         | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| 2,4,5-Trichlorophenol          | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| 2,4,6-Trichlorophenol          | ND       | 10        | μg/L        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Surr: 2-Fluorophenol           | 60.0     | 22.7-98   | %REC        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Surr: Phenol-d5                | 42.5     | 23.4-74.9 | %REC        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Surr: 2,4,6-Tribromophenol     | 86.1     | 23.3-111  | %REC        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Surr: Nitrobenzene-d5          | 81.0     | 36.8-111  | %REC        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Surr: 2-Fluorobiphenyl         | 82.0     | 38.3-110  | %REC        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| Surr: 4-Terphenyl-d14          | 86.7     | 52.1-116  | %REC        | 1  | 12/26/2013 11:39:34 | PM 10980  |
| EPA METHOD 8260B: VOLATILES    | <b>i</b> |           |             |    | Anal                | yst: cadg |
| Benzene                        | 23       | 1.0       | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| Toluene                        | 45       | 1.0       | μg/L        | 1  | 12/29/2013 7:47:46  |           |
| Ethylbenzene                   | 1.3      | 1.0       | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| Methyl tert-butyl ether (MTBE) | ND       | 1.0       | µg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| 1,2,4-Trimethylbenzene         | 2.7      | 1.0       | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| 1,3,5-Trimethylbenzene         | ND       | 1.0       | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| 1,2-Dichloroethane (EDC)       | ND       | 1.0       | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| 1,2-Dibromoethane (EDB)        | ND       | 1.0       | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| Naphthalene                    | 12       | 2.0       | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| 1-Methylnaphthalene            | ND       | 4.0       | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| 2-Methylnaphthalene            | 5.8      | 4.0       | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| Acetone                        | 58       | 10        | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| Bromobenzene                   | ND       | 1.0       | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |
| Bromodichloromethane           | ND       | 1.0       | μg/L        | 1  | 12/29/2013 7:47:46  | PM R1577  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### **Analytical Report**

### Lab Order 1312B40

Date Reported: 1/16/2014

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc

Client Sample ID: LDG 47-7

Lightning Dock Geothermal Water Qualit Project:

**Collection Date:** 12/21/2013 1:00:00 PM

Lab ID: 1312B40-001 Received Date: 12/24/2013 10:30:00 AM

| Analyses                    | Result | RL Qu | al Units | DF Date Ar | alyzed         | Batch  |
|-----------------------------|--------|-------|----------|------------|----------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       |          |            | Analyst:       | cadg   |
| Bromoform                   | ND     | 1.0   | μg/L     | 1 12/29/20 | 13 7:47:46 PM  | R15774 |
| Bromomethane                | ND     | 3.0   | μg/L     | 1 12/29/20 | 13 7:47:46 PM  | R15774 |
| 2-Butanone                  | 27     | 10    | μg/L     | 1 12/29/20 | 13 7:47:46 PM  | R15774 |
| Carbon disulfide            | ND     | 10    | μg/L     | 1 12/29/20 | 13 7:47:46 PM  | R15774 |
| Carbon Tetrachloride        | ND     | 1.0   | μg/L     | 1 12/29/20 | 13 7:47:46 PM  | R15774 |
| Chlorobenzene               | ND     | 1.0   | μg/L     | 1 12/29/20 | )13 7:47:46 PM | R15774 |
| Chloroethane                | ND     | 2.0   | μg/L     | 1 12/29/20 | )13 7:47:46 PM | R15774 |
| Chloroform                  | ND     | 1.0   | μg/L     | 1 12/29/20 | )13 7:47:46 PM | R15774 |
| Chloromethane               | ND     | 3.0   | μg/L     | 1 12/29/20 | )13 7:47:46 PM | R15774 |
| 2-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 12/29/20 | )13 7:47:46 PM | R15774 |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R15774 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R15774 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1 12/29/20 | )13 7:47:46 PM | R15774 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R15774 |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 1,1-Dichloropropene         | ND     | 1.0   | µg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| 4-Methyi-2-pentanone        | ND     | 10    | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1 12/29/20 | 013 7:47:46 PM | R1577  |
| Styrene                     | ND     | 1.0   | μg/L     | 1 12/29/2  | 013 7:47:46 PM | R1577  |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1 12/29/2  | 013 7:47:46 PM | R1577  |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1 12/29/2  | 013 7:47:46 PM | R1577  |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1 12/29/2  | 013 7:47:46 PM | R1577  |

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminan: Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

  - Not Detected at the Reporting Limit Page 5 of 34 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/16/2014

Client Sample ID: LDG 47-7 CLIENT: Cyrq Energy Inc

Collection Date: 12/21/2013 1:00:00 PM Project: Lightning Dock Geothermal Water Qualit Received Date: 12/24/2013 10:30:00 AM Lab ID: 1312B40-001 Matrix: AQUEOUS

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed         | Batch    |
|--------------------------------|--------|--------|------|------------|----|-----------------------|----------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analyst               | cadg     |
| Tetrachloroethene (PCE)        | 12     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| trans-1,2-DCE                  | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| trans-1,3-Dichloropropene      | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| 1,2,3-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| 1,2,4-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| 1,1,1-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| 1,1,2-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| Trichloroethene (TCE)          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| Trichlorofluoromethane         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| 1,2,3-Trichloropropane         | ND     | 2.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| Vinyl chloride                 | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| Xylenes, Total                 | 19     | 1.5    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| Surr: 1,2-Dichloroethane-d4    | 95.2   | 70-130 |      | %REC       | 1  | 12/29/2013 7:47:46 PM |          |
| Surr: 4-Bromofluorobenzene     | 111    | 70-130 |      | %REC       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| Surr: Dibromofluoromethane     | 103    | 70-130 |      | %REC       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| Surr: Toluene-d8               | 100    | 70-130 |      | %REC       | 1  | 12/29/2013 7:47:46 PM | R15774   |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analysi               | : BCN    |
| Petroleum Hydrocarbons, TR     | ND     | 1.0    |      | mg/L       | 1  | 12/27/2013            | 10991    |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |            |    | Analyst               | : SCC    |
| Phenolics, Total Recoverable   | 36     | 12     |      | μg/L       | 5  | 1/8/2014              | 11134    |
| SM4500-H+B: PH                 |        |        |      |            |    | Analyst               | : JML    |
| рН                             | 7.33   | 1.68   | Н    | pH units   | 1  | 12/26/2013 3:28:37 PM | R15744   |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analys                | t: JML   |
| Bicarbonate (As CaCO3)         | 440    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 3:28:37 PM | 1 R15744 |
| Carbonate (As CaCO3)           | ND     | 2.0    |      | mg/L CaCO3 | 1  | 12/26/2013 3:28:37 PM | 1 R15744 |
| Total Alkalinity (as CaCO3)    | 440    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 3:28:37 PM | R15744   |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analys                | t: KS    |
| Total Dissolved Solids         | 1190   | 40.0   | *    | mg/L       | 1  | 12/27/2013 10:29:00 A | M 10984  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 6 of 34 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

## **Analytical Report**

### Lab Order 1312B40

Date Reported: 1/16/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: Trip Blank

Project: Lightning Dock Geothermal Water Qualit Collection Date:

Lab ID: 1312B40-002 Matrix: TRIP BLANK Received Date: 12/24/2013 10:30:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|-------|----------|----|-----------------------|--------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Analyst               | LRW    |
| 1,2-Dibromoethane              | .ND    | 0.010 | μg/L     | 1  | 12/26/2013 3:55:28 PM | 10989  |
| EPA METHOD 8260B: VOLATILES    |        |       |          |    | Analyst               | cadg   |
| Benzene                        | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Toluene                        | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Ethylbenzene                   | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,2,4-Trimethylbenzene         | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,3,5-Trimethylbenzene         | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Naphthalene                    | ND     | 2.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1-Methylnaphthalene            | ND     | 4.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 2-Methylnaphthalene            | ND     | 4.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Acetone                        | ND     | 10    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Bromobenzene                   | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Bromodichlorornethane          | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Bromoform                      | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Bromomethane                   | ND     | 3.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 2-Butanone                     | ND     | 10    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Carbon disulfide               | ND     | 10    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Carbon Tetrachloride           | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Chlorobenzene                  | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Chloroethane                   | ND     | 2.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Chloroform                     | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Chioromethane                  | ND     | 3.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 2-Chiorotoluene                | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 4-Chlorotoluene                | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| cis-1,2-DCE                    | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| cis-1,3-Dichloropropene        | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,2-Dibromo-3-chloropropane    | ND     | 2.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Dibromochloromethane           | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Dibromomethane                 | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,2-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,3-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,4-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Dichlorodifluoromethane        | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,1-Dichloroethane             | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,1-Dichloroethene             | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,2-Dichloropropane            | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit D.
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 1/16/2014

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: Trip Blank

Project: Lightning Dock Geothermal Water Qualit

**Collection Date:** 

1312B40-002 Lab ID:

CLIENT: Cyrq Energy Inc

Matrix: TRIP BLANK

Received Date: 12/24/2013 10:30:00 AM

| Analyses                    | Result | RL Qu  | al Units | DF | Date Analyzed         | Batch  |
|-----------------------------|--------|--------|----------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |        |          |    | Analyst:              | cadg   |
| 1,3-Dichloropropane         | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 2,2-Dichloropropane         | ND     | 2.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,1-Dichloropropene         | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Hexachlorobutadiene         | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 2-Hexanone                  | ND     | 10     | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Isopropylbenzene            | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 4-Isopropyltoluene          | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 4-Methyl-2-pentanone        | ND     | 10     | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Methylene Chloride          | ND     | 3.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| n-Butylbenzene              | ND     | 3.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| n-Propylbenzene             | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| sec-Butylbenzene            | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| Styrene                     | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| tert-Butylbenzene           | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| Tetrachloroethene (PCE)     | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| trans-1,2-DCE               | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| trans-1,3-Dichloropropene   | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,2,3-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,2,4-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,1,1-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774 |
| 1,1,2-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| Trichloroethene (TCE)       | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| Trichlorofluoromethane      | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| 1,2,3-Trichloropropane      | ND     | 2.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| Vinyl chloride              | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| Xylenes, Total              | ND     | 1.5    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| Surr: 1,2-Dichloroethane-d4 | 103    | 70-130 | %REC     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| Surr: 4-Bromofluorobenzene  | 109    | 70-130 | %REC     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| Surr: Dibromofluoromethane  | 111    | 70-130 | %REC     | 1  | 12/28/2013 8:43:59 AM | R1577  |
| Surr: Toluene-d8            | 96.5   | 70-130 | %REC     | 1  | 12/28/2013 8:43:59 AM | R1577  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Not Detected at the Reporting Limit Page 8 of 34 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (203) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D - Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: Address: HALL ENVIRONMENTAL ANALYSIS LAB

4901 HAWKINS NE SUITE D

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

Batch #:

131227021

Project Name:

1312B40

### **Analytical Results Report**

Sample Number

131227021-001

Sampling Date

12/21/2013

Date/Time Received 12/27/2013 12:23 PM

Client Sample ID

1312B40-001M / LDG 47-7

Sampling Time

1:00 PM

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 1/2/2014      | CRW     | EPA 335.4 |           |

Sample Number

131227021-002

Sampling Date 12/21/2013 Date/Time Received 12/27/2013 12:23 PM

Client Sample ID Matrix

1312B40-0010 / LDG 47-7

Sampling Time

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method   | Qualifier |
|-----------|--------|-------|------|---------------|---------|----------|-----------|
| Total P   | 0.243  | mg/L  | 0.01 | 1/7/2014      | CRW     | SM4500PF |           |

Authorized Signature

MCL

EPA's Maximum Contaminant Level

**PQ**L

Not Detected Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.

The results reported relate only to the samples indicated.

Soil/solid results are reported on a dry-weight basis unless otherwise noted.



Helens, MT 877-472-0711 · Billings, MT 890-735-4469 · Casper, WY 898-235-0515 Gilletta, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 898-690-2218

### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

B13121948-001

Client Sample ID: 1312B40-001K-L, LDG 47-7

Report Date: 01/09/14

Collection Date: 12/21/13 13:00

DateReceived: 12/27/13

Matrix: Aqueous

| Analyses                | Result | Units | Qualifiers | RL   | MCL/<br>QCL | Method   | Analysis Date / By      |
|-------------------------|--------|-------|------------|------|-------------|----------|-------------------------|
| METALS, DISSOLVED       |        |       |            |      |             |          |                         |
| Lithium                 | 1.0    | mg/L  |            | 0.1  |             | E200.7   | 12/30/13 13:27 / rlh    |
| Rubidium                | 0.24   | mg/L  |            | 0.01 |             | E200.8   | 01/09/14 11:38 / jjw    |
| Tungsten                | ND     | mg/L  |            | 0.1  |             | E200.8   | 01/09/14 11:38 / jjw    |
| RADIONUCLIDES           |        |       |            |      |             |          |                         |
| Radon 222               | -33.4  | pCl/L | UН         |      |             | D5072-92 | 12/31/13 12:25 / eli-ca |
| Radon 222 precision (±) | 185    | pCi/L | Н          |      |             | D5072-92 | 12/31/13 12:25 / ell-ca |
| Radon 222 MDC           | 322    | pCi/L | Н          |      |             | D5072-92 | 12/31/13 12:25 / eli-ca |

Report **Definitions:**  RL - Analyte reporting limit.

QCL - Quality control limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

H - Analysis performed past recommended holding time.

Helene, MT 877-472-0711 · Billings, MT 800-735-4489 · Casper, WY 888-235-0515 Gillette, WY 886-688-7175 · Repid City, SD 888-972-1225 · College Station, TX 888-690-2218

## **QA/QC Summary Fleport**

Prepared by Billings, MT Branch

Client: Hall Environmental

Report Date: 01/09/14

Project: Not Indicated

Work Order: B13121948

| Analyte    |                    | Count        | Result        | Units              | RL          | %FIEC | Low Limit  | High Limit  | RPD         | RPDLimit     | Qual              |
|------------|--------------------|--------------|---------------|--------------------|-------------|-------|------------|-------------|-------------|--------------|-------------------|
| Method:    | E200.7             |              |               |                    |             |       |            | An          | alytical Ru | in: ICP203-B | 131230A           |
| Sample ID: | ICV                | Co           | ntinuing Cali | bration Verificati | on Standard |       |            |             |             | 12/30/       | /13 10:48         |
| Lithium    |                    |              | 1.20          | mg/L               | 0.10        | 96    | 95         | 105         |             |              |                   |
| Method:    | E200.7             |              |               |                    |             |       |            |             |             | Batch:       | R217135           |
| Sample ID: | MB-6500DIS131230A  | . Me         | thod Blank    |                    |             |       | Run: ICP20 | 3-B_131230A |             | 12/30        | /13 11:11         |
| Lithium    |                    |              | ND            | mg/L               | 0.0003      |       |            |             |             |              |                   |
| Sample ID: | LFB-6500DIS131230A | <b>A</b> Lal | boratory Fort | ified Blank        |             |       | Run: ICP20 | 3-B_131230A |             | 12/30        | /13 11:15         |
| Lithium    |                    |              | 1.02          | mg/L               | 0.10        | 102   | 85         | 115         |             |              |                   |
| Sample ID: | B13121948-001AMS2  | sa Sa        | mple Matrix   | Spike              |             |       | Run: ICP20 | 3-B_131230A |             | 12/30        | /13 13:35         |
| Lithium    |                    |              | 6.00          | mg/L               | 0.10        | 101   | 70         | 130         |             |              |                   |
| Sample ID: | B13121948-001AMS   | <b>)2</b> Sa | mple Matrix   | Spike Duplicate    |             |       | Run: ICP20 | 3-B_131230A |             | 12/30        | /13 13: <b>38</b> |
| Lithium    |                    |              | 6.30          | mg/L               | 0.10        | 107   | 70         | 130         | 4.8         | 20           |                   |



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## **QA/QC Summary Report**

Prepared by Billings, MT Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 01/09/14

Work Order: B13121948

| Analyte                      | Count        | Result             | Units            | RL.   | %REC | Low Limit  | High Limit     | RPD       | RPDLimit  | Qual       |
|------------------------------|--------------|--------------------|------------------|-------|------|------------|----------------|-----------|-----------|------------|
| Method: E200.8               | J.,          |                    |                  |       |      |            | Analytic       | al Run; I | CPMS203-B | 140109A    |
| Sample ID: QCS-              | 2 li         | nitial Calibration | Verification Sta | ndard |      |            |                |           | 01/09     | /14 09:38  |
| Rubidium                     |              | 0.0527             | mg/L             | 0.010 | 105  | 90         | 110            |           |           |            |
| Tungsten                     |              | 0.0526             | mg/L             | 0.10  | 105  | 90         | 110            |           |           |            |
| Method: E200.8               |              |                    |                  |       |      |            |                |           | Batch:    | R217575    |
| Sample ID: LFB               | 2 Ł          | aboratory Forti    | fied Blank       |       |      | Run: ICPMS | S203-B_140109/ | Α.        | 01/09     | /14 09:54  |
| Rubidium                     |              | 0.0492             | mg/L             | 0.010 | 98   | 85         | 115            |           |           |            |
| Tungsten                     |              | 0.0508             | mg/L             | 0.10  | 102  | 85         | 115            |           |           |            |
| Sample ID: LRB               | 2 1          | Vethod Blank       |                  |       |      | Run: ICPMS | S203-B_140109/ | 4         | 01/09     | /14 10:22  |
| Rubidium                     |              | ND                 | mg/L             | 0.001 |      |            |                |           |           |            |
| Tungsten                     |              | ND                 | mg/L             | 0.001 |      |            |                |           |           |            |
| Sample ID: B13121948-001AMS  | 2 9          | Sample Matrix S    | Spike            |       |      | Run: ICPMS | S203-B_140109/ | 4         | 01/09     | )/14 11:54 |
| Rubidium                     |              | 0.186              | mg/L             | 0.010 |      | 70         | 130            |           |           | Α          |
| Tungsten                     |              | 0.141              | mg/L             | 0.10  | 137  | 70         | 130            |           |           | S          |
| Sample ID: B13121948-001AMSI | <b>D</b> 2 5 | Sample Matrix S    | Spike Duplicate  |       |      | Run: (CPMS | S203-B_140109/ | 4         | 01/09     | 9/14 11:58 |
| Rubidium                     |              | 0.183              | mg/L             | 0.010 |      | 70         | 130            | 1.5       | 20        | Α          |
| Tungsten                     |              | 0.138              | mg/L             | 0.10  | 131  | 70         | 130            | 2.1       | 20        | S          |



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Gilletta, WY 888-886-7175 © Rapid City, SD 888-672-1225 © College Station, TX 888-698-2218

## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Hall Environmental

Report Date: 01/02/14

Project: Not Indicated

Work Order: B13121948

| Analyte                                   | Result            | Units              | RL | %F.EC | Low Limit | High Limit   | RPD     | RPDLimit | Qual       |
|---|-------------------|--------------------|----|-------|-----------|--------------|---------|----------|------------|
| Method: D5072-92                          |                   |                    |    |       |           |              |         | Batch:   | R182194    |
| Sample ID: B13121948-001BDUP              | Sample Duplica    | ate                |    |       | Run: PACK | ARD 3100TR_  | 131231A | 12/31    | /13 12:25  |
| Radon 222                                 | 53.2              | pCi/L              |    |       |           |              | 870     | 20       | UR         |
| Radon 222 precision (:t)                  | 187               | pCi/L              |    |       |           |              |         |          |            |
| Radon 222 MDC                             | 322               | pCi/L              |    |       |           |              |         |          |            |
| - The Sample and the Duplicate are both b | elow the MDC. The | RPD is acceptable. |    |       |           |              |         |          |            |
| Sample ID: MB-R182194                     | Method Blank      |                    |    |       | Run: PACk | ARD 3100TR_  | 131231A | 12/31    | 1/13 12:25 |
| Radon 222                                 | 10                | pCi/L              |    |       |           |              |         |          | U          |
| Radon 222 precision (±)                   | 30                | pCi/L              |    |       |           |              |         |          |            |
| Radon 222 MDC                             | 50                | pCi/L              |    |       |           |              |         |          |            |
| Sample ID: LCS-R182194                    | Laboratory Con    | itrol Sample       |    |       | Run: PACK | (ARD 3100TR_ | 131231A | 12/31    | 1/13 12:25 |
| Radon 222                                 | 548               | pCi/L              |    | 94    | 80        | 120          |         |          |            |



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

### **ANALYTICAL RESULTS**

Project:

1312B40

Pace Project No.: 30110466

Sample: 1312B40-001 LDG 47-7 PWS:

EPA 904.0

Lab ID: 30110466001 Site ID:

Sample Type: Act ± Unc (MDC)

Analyzed

Collected: 12/21/13 13:00 Received: 12/27/13 09:30 Matrix: Water

CAS No.

Qual

Radium-226

Radium-228

Parameters Method EPA 903.1

0.0340 ± 0.481 (0.981) -0.191 ± 0.378 (0.924)

pCi/L pCi/L

01/10/14 16:13 13982-63-3

Units

01/14/14 15:02 15262-20-1



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### QUALITY CONTROL DATA

Project:

1312B40

Pace Project No.: 30110466

QC Batch:

RADC/18217

Analysis Method:

EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples: 30110466001

Matrix: Water

METHOD BLANK: 675523 Associated Lab Samples: 30110466001

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-226

 $-0.139 \pm 0.532 \quad (0.990)$ 

pCi/l\_

01/10/14 15:26



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### **QUALITY CONTROL DATA**

Project:

1312B40

Pace Project No.:

QC Batch Method:

30110466

QC Batch:

RADC/18211 EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples: 30110466001

METHOD BLANK: 675092

Matrix: Water

Associated Lab Samples:

30110466001

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-228

0.120 ± 0.275 (0.611)

pCi/L

01/14/14 11:53

**REPORT OF LABORATORY ANALYSIS** 

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1312B40** *16-Jan-14* 

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB   | Samp       | Туре: МЕ        | BLK       | Tes         | tCode: Ef | PA Method | 200.7: Dissol | ved Meta | ls       |      |
|----------------|------------|-----------------|-----------|-------------|-----------|-----------|---------------|----------|----------|------|
| Client ID: PBW | Batc       | h ID: <b>R1</b> | 5768      | F           | RunNo: 1  | 5768      |               |          |          |      |
| Prep Date:     | Analysis [ | Date: 12        | 2/27/2013 | 8           | SeqNo: 4  | 55078     | Units: mg/L   |          |          |      |
| Analyte        | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |
| Barium         | ND         | 0.0020          |           |             |           |           |               |          |          |      |
| Boron          | ND         | 0.040           |           |             |           |           |               |          |          |      |
| Cadmium        | ND         | 0.0020          |           |             |           |           |               |          |          |      |
| Cobalt         | ND         | 0.0060          |           |             |           |           |               |          |          |      |
| Copper         | ND         | 0.0060          |           |             |           |           |               |          |          |      |
| Manganese      | ND         | 0.0020          |           |             |           |           |               |          |          |      |
| Molybdenum     | ND         | 0.0080          |           |             |           |           |               |          |          |      |
| Nickel         | ND         | 0.010           |           |             |           |           |               |          |          |      |
| Silver         | ND         | 0.0050          |           |             |           |           |               |          |          |      |
| Zinc           | ND         | 0.010           |           |             |           |           |               |          |          |      |

| Sample ID LCS   | SampT      | ype: <b>LC</b> | s         | Tes         | tCode: E | PA Method | 200.7: Disso | ved Meta | s        |      |
|-----------------|------------|----------------|-----------|-------------|----------|-----------|--------------|----------|----------|------|
| Client ID: LCSW | Batch      | iD: <b>R1</b>  | 5768      | R           | RunNo: 1 | 5768      |              |          |          |      |
| Prep Date:      | Analysis D | ate: 12        | 2/27/2013 | S           | SeqNo: 4 | 55079     | Units: mg/L  |          |          |      |
| Analyte         | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit    | %RPD     | RPDLimit | Qual |
| Barium          | 0.51       | 0.0020         | 0.5000    | 0           | 102      | 85        | 115          |          |          |      |
| Boron           | 0.52       | 0.040          | 0.5000    | 0           | 104      | 85        | 115          |          |          |      |
| Cadmium         | 0.52       | 0.0020         | 0.5000    | 0           | 103      | 85        | 115          |          |          |      |
| Cobalt          | 0.51       | 0.0060         | 0.5000    | 0           | 101      | 85        | 115          |          |          |      |
| Copper          | 0.51       | 0.0060         | 0.5000    | 0           | 102      | 85        | 115          |          |          |      |
| Manganese       | 0.53       | 0.0020         | 0.5000    | 0           | 105      | 85        | 115          |          |          |      |
| Molybdenum      | 0.52       | 0.0080         | 0.5000    | 0           | 103      | 85        | 115          |          |          |      |
| Nickel          | 0.50       | 0.010          | 0.5000    | 0           | 99.4     | 85        | 115          |          |          |      |
| Silver          | 0.10       | 0.0050         | 0.1000    | 0           | 105      | 85        | 115          |          |          |      |
| Zinc            | 0.52       | 0.010          | 0.5000    | 0           | 103      | 85        | 115          |          |          |      |

| Sample ID MB   | SampT      | уре: <b>М</b> Е | BLK       | Tes         | tCode: E | PA Method | 200.7: Dissol | ved Meta | ls       |      |
|----------------|------------|-----------------|-----------|-------------|----------|-----------|---------------|----------|----------|------|
| Client ID: PBW | Batch      | 1D: <b>R1</b>   | 5805      | F           | RunNo: 1 | 5805      |               |          |          |      |
| Prep Date:     | Analysis D | )ate: 12        | 2/30/2013 | S           | SeqNo: 4 | 56073     | Units: mg/L   |          |          |      |
| Analyte        | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |
| Calcium        | ND         | 1.0             |           |             |          |           |               |          |          |      |
| Iron           | ND         | 0.020           |           |             |          |           |               |          |          |      |
| Magnesium      | ND         | 1.0             |           |             |          |           |               |          |          |      |
| Potassium      | ND         | 1.0             |           |             |          |           |               |          |          |      |
| Sodium         | ND         | 1.0             |           |             |          |           |               |          |          |      |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Page 9 of 34

## 'all Environmental Analysis Laboratory, Inc.

WO#: **1312B40 16-Jan-14** 

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID LCS   | SampT      | Type: <b>LC</b> | s         | Tes         | tCode: El | PA Method | 200.7: Dissol | ved Meta | ls       |      |
|-----------------|------------|-----------------|-----------|-------------|-----------|-----------|---------------|----------|----------|------|
| Client ID: LCSW | Batch      | h ID: <b>R1</b> | 5805      | F           | RunNo: 1  | 5805      |               |          |          |      |
| Prep Date:      | Analysis D | Date: 12        | 2/30/2013 | S           | SeqNo: 4  | 56074     | Units: mg/L   |          |          |      |
| Analyte         | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |
| Calcium         | 50         | 1.0             | 50.00     | 0           | 101       | 85        | 115           |          |          |      |
| Iron            | 0.54       | 0.020           | 0.5000    | 0           | 107       | 85        | 115           |          |          |      |
| Magnesium       | 51         | 1.0             | 50.00     | 0           | 102       | 85        | 115           |          |          |      |
| Potassium       | 50         | 1.0             | 50.00     | 0           | 101       | 85        | 115           |          |          |      |
| Sodium          | 50         | 1.0             | 50.00     | 0           | 100       | 85        | 115           |          |          |      |

| Sample ID  | 1312B40-001JMS | SampT      | ype: MS       | 6         | Tes         | tCode: El | PA Method | 200.7: Dissol | ved Metal | s        |      |
|------------|----------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|-----------|----------|------|
| Client ID: | LDG 47-7       | Batch      | 1D: <b>R1</b> | 5805      | F           | RunNo: 1  | 5805      |               |           |          |      |
| Prep Date: |                | Analysis D | ate: 12       | 2/30/2013 | S           | SeqNo: 4  | 56137     | Units: mg/L   |           |          |      |
| Analyte    |                | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD      | RPDLimit | Qual |
| Calcium    |                | 61         | 1.0           | 50.00     | 12.45       | 96.3      | 70        | 130           |           |          |      |
| Iron       |                | 0.81       | 0.020         | 0.5000    | 0.3210      | 96.9      | 70        | 130           |           |          |      |
| Magnesium  |                | 49         | 1.0           | 50.00     | 0.5473      | 96.3      | 70        | 130           |           |          |      |
| Potassium  |                | 70         | 1.0           | 50.00     | 21.92       | 96.5      | 70        | 130           |           |          |      |

| ample ID   | 1312B40-001JMSD | SampTy      | pe: <b>MS</b> | SD        | Tes         | tCode: El | PA Method | 200.7: Dissolv | ved Metal | s        |      |
|------------|-----------------|-------------|---------------|-----------|-------------|-----------|-----------|----------------|-----------|----------|------|
| lient ID:  | LDG 47-7        | Batch       | ID: <b>R1</b> | 5805      | F           | RunNo: 1  | 5805      |                |           |          |      |
| Prep Date: |                 | Analysis Da | ite: 12       | 2/30/2013 | S           | SeqNo: 4  | 56138     | Units: mg/L    |           |          |      |
| Analyte    |                 | Result      | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit      | %RPD      | RPDLimit | Qual |
| Calcium    |                 | 60          | 1.0           | 50.00     | 12.45       | 95.0      | 70        | 130            | 1.05      | 20       |      |
| Iron       |                 | 0.81        | 0.020         | 0.5000    | 0.3210      | 98.2      | 70        | 130            | 0.793     | 20       |      |
| Magnesium  |                 | 48          | 1.0           | 50.00     | 0.5473      | 95.2      | 70        | 130            | 1.17      | 20       |      |
| Potassium  |                 | 70          | 1.0           | 50.00     | 21.92       | 95.2      | 70        | 130            | 0.905     | 20       |      |

| Sample ID 1312B40-001JMS | SampTy      | /pe: <b>MS</b> | 5         | Test        | tCode: El | PA Method | 200.7: Dissol | ved Meta | ls       |      |
|--------------------------|-------------|----------------|-----------|-------------|-----------|-----------|---------------|----------|----------|------|
| Client ID: LDG 47-7      | Batch       | ID: <b>R1</b>  | 5921      | R           | tunNo: 1  | 5921      |               |          |          |      |
| Prep Date:               | Analysis Da | ate: 1/        | 7/2014    | S           | eqNo: 4   | 59107     | Units: mg/L   |          |          |      |
| Analyte                  | Result      | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |
| Aluminum                 | 0.63        | 0.020          | 0.5000    | 0.04959     | 116       | 70        | 130           |          |          |      |

| Sample ID  | 1312B40-001JMSD | SampType:      | MSD   |          | Test        | Code: E  | PA Method | 200.7: Dissolv | ed Metals | S        |      |
|------------|-----------------|----------------|-------|----------|-------------|----------|-----------|----------------|-----------|----------|------|
| Client ID: | LDG 47-7        | Batch ID:      | R1592 | 21       | R           | lunNo: 1 | 5921      |                |           |          |      |
| Prep Date: |                 | Analysis Date: | 1/7/2 | 014      | S           | eqNo: 4  | 59108     | Units: mg/L    |           |          |      |
| Analyte    |                 | Result Po      | QL SI | PK value | SPK Ref Val | %REC     | LowLimit  | HighLimit      | %RPD      | RPDLimit | Qual |
| Aluminum   |                 | 0.64 0.0       | 020   | 0.5000   | 0.04959     | 118      | 70        | 130            | 2.02      | 20       |      |

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

Yalue above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

RL Reporting Detection Limit

Page 10 of 34

## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB

SampType: MBLK

TestCode: EPA Method 200.7: Dissolved Metals

Client ID: **PBW** 

Batch ID: R15921

RunNo: 15921

Prep Date:

Analysis Date: 1/7/2014

**PQL** 

SeqNo: 459138

Units: mg/L HighLimit

%RPD

**RPDLimit** 

Qual

Analyte Aluminum

ND 0.020

Result

SampType: LCS

TestCode: EPA Method 200.7: Dissolved Metals RunNo: 15921

Sample ID LCS Client ID: LCSW

Batch ID: R15921 Analysis Date: 1/7/2014

SeqNo: 459139

LowLimit

Units: mg/L

Analyte

Prep Date:

PQL

SPK value SPK Ref Val %REC

111

85

%RPD

**RPDLimit** 

Result

0.5000

Qual

0.020

Aluminum

0.56

0

SPK value SPK Ref Val %REC LowLimit

HighLimit

115

## Qualifiers:

S

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

- E Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit
- Н Holding times for preparation or analysis exceeded
- Page 11 of 34

## 'all Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID LCS   | Samp       | Type: <b>LC</b> | s         | Tes         | Code: El | PA 200.8: I | Dissolved Me | als  |          |      |
|-----------------|------------|-----------------|-----------|-------------|----------|-------------|--------------|------|----------|------|
| Client ID: LCSW | Bato       | h ID: <b>R1</b> | 5963      | R           | RunNo: 1 | 5963        |              |      |          |      |
| Prep Date:      | Analysis [ | Date: 1/        | 8/2014    | S           | SeqNo: 4 | 60078       | Units: mg/L  |      |          |      |
| Analyte         | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit    | HighLimit    | %RPD | RPDLimit | Qual |
| Arsenic         | 0.025      | 0.0010          | 0.02500   | 0           | 98.7     | 85          | 115          |      |          |      |
| Lead            | 0.026      | 0.0010          | 0.02500   | 0           | 104      | 85          | 115          |      |          |      |
| Selenium        | 0.023      | 0.0010          | 0.02500   | 0           | 93.5     | 85          | 115          |      |          |      |
| Uranium         | 0.025      | 0.0010          | 0.02500   | 0           | 101      | 85          | 115          |      |          |      |

| Claritatii     | 0.020      | 0.0010           | 0.02000   |             |           |           |              |      |          |      |
|----------------|------------|------------------|-----------|-------------|-----------|-----------|--------------|------|----------|------|
| Sample ID MB   | Samp       | Туре: МЕ         | BLK       | Tes         | tCode: El | PA 200.8: | Dissolved Me | tals |          |      |
| Client ID: PBW | Bato       | Batch ID: R15963 |           |             | RunNo: 1  | 5963      |              |      |          |      |
| Prep Date:     | Analysis [ | Date: 1/         | 8/2014    | S           | SeqNo: 4  | 60079     | Units: mg/L  |      |          |      |
| Analyte        | Result     | PQL              | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Arsenic        | ND         | 0.0010           |           |             |           |           |              |      |          |      |
| Lead           | ND         | 0.0010           |           |             |           |           |              |      |          |      |
| Selenium       | ND         | 0.0010           |           |             |           |           |              |      |          |      |
| Uranium        | ND         | 0.0010           |           |             |           |           |              |      |          |      |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits J
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1312B40** 

vironmental Analysis Laboratory, Inc. 16-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID MB-11092 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 11092 RunNo: 15947

Prep Date: 1/6/2014 Analysis Date: 1/7/2014 SeqNo: 459682 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury ND 0.00020

 Sample ID
 LCS-11092
 SampType: LCS
 TestCode: EPA Method 245.1: Mercury

 Client ID:
 LCSW
 Batch ID:
 11092
 RunNo:
 15947

 Prep Date:
 1/6/2014
 Analysis Date:
 1/7/2014
 SeqNo:
 459683
 Units: mg/L

Analyte PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.0051 0.00020 0.005000 0 101 80 120 Mercury

Qualifiers:

Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

RL Reporting Detection Limit

Page 13 of 34

## 'all Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB                     | SampT      | ype: <b>ME</b> | BLK       | Tes         | PA Method    | ;        |             |      |          |      |
|----------------------------------|------------|----------------|-----------|-------------|--------------|----------|-------------|------|----------|------|
| Client ID: PBW                   | Batch      | ID: <b>R1</b>  | 5742      | R           | RunNo: 15742 |          |             |      |          |      |
| Prep Date:                       | Analysis D | ate: 12        | 2/24/2013 | S           | SeqNo: 4     | 54474    | Units: mg/L |      |          |      |
| Analyte                          | Result     | PQL            | SPK value | SPK Ref Val | %REC         | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | ND         | 0.10           |           |             |              |          |             |      |          |      |
| Chloride                         | ND         | 0.50           |           |             |              |          |             |      |          |      |
| Bromide                          | ND         | 0.10           |           |             |              |          |             |      |          |      |
| Phosphorus, Orthophosphate (As`P | ND         | 0.50           |           |             |              |          |             |      |          |      |
| Sulfate                          | ND         | 0.50           |           |             |              |          |             |      |          |      |

| Sample ID LCS-b                  | SampT      | ype: LC       | s         | Tes         | tCode: El | s        |             |      |          |      |  |
|----------------------------------|------------|---------------|-----------|-------------|-----------|----------|-------------|------|----------|------|--|
| Client ID: LCSW                  | Batch      | 1D: <b>R1</b> | 5742      | F           | RunNo: 1  | 5742     |             |      |          |      |  |
| Prep Date:                       | Analysis D | )ate: 12      | 2/24/2013 | 5           | SeqNo: 4  | 54478    | Units: mg/L |      |          |      |  |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit | HighLimit   | %RPD | RPDLimit | Quai |  |
| Fluoride                         | 0.52       | 0.10          | 0.5000    | 0           | 104       | 90       | 110         |      |          |      |  |
| Chloride                         | 4.7        | 0.50          | 5.000     | 0           | 94.1      | 90       | 110         |      |          |      |  |
| Bromide                          | 2.5        | 0.10          | 2.500     | 0           | 98.7      | 90       | 110         |      |          |      |  |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50          | 5.000     | 0           | 95.0      | 90       | 110         |      |          |      |  |
| Sulfate                          | 9.6        | 0.50          | 10.00     | 0           | 96.1      | 90       | 110         |      |          |      |  |

| ample ID A5                      | SampT      | SampType: CCV_5 TestCode: EPA Method 300.0: Anions |           |             |          |          |             |      |          |      |
|----------------------------------|------------|--|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b>                                      | 5742      | F           | RunNo: 1 | 5742     |             |      |          |      |
| Prep Date:                       | Analysis D | ate: 12  | 2/24/2013 | 5           | SeqNo: 4 | 54484    | Units: mg/L |      |          |      |
| Analyte                          | Result     | PQL  | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.7        | 0.10   | 1.600     | 0           | 108      | 90       | 110         |      |          |      |
| Chloride                         | 7.9        | 0.50   | 8.000     | 0           | 98.4     | 90       | 110         |      |          |      |
| Bromide                          | 8.1        | 0.10   | 8.000     | 0           | 101      | 90       | 110         |      |          |      |
| Phosphorus, Orthophosphate (As P | 8.0        | 0.50   | 8.000     | 0           | 99.4     | 90       | 110         |      |          |      |
| Sulfate                          | 20         | 0.50   | 20.00     | 0           | 100      | 90       | 110         |      |          |      |

| Sample ID A4                     | SampT      | ype: <b>CC</b> | V_4       | Tes         | tCode: El | PA Method | 300.0: Anions |      |          |      |
|----------------------------------|------------|----------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b>  | 5742      | F           | RunNo: 1  | 5742      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12        | 2/24/2013 | S           | SeqNo: 4  | 54496     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.1        | 0.10           | 1.000     | 0           | 109       | 90        | 110           |      |          |      |
| Chloride                         | 4.8        | 0.50           | 5.000     | 0           | 95.6      | 90        | 110           |      |          |      |
| Bromide                          | 5.0        | 0.10           | 5.000     | 0           | 99.4      | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.8        | 0.50           | 5.000     | 0           | 95.7      | 90        | 110           |      |          |      |
| Sulfate                          | 12         | 0.50           | 12.50     | 0           | 97.1      | 90        | 110           |      |          |      |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 5 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID 1312B40-001GMS

SampType: MS

TestCode: EPA Method 300.0: Anions

Client ID:

LDG 47-7

Batch ID: R15742

RunNo: 15742

Analysis Date: 12/24/2013

SeqNo: 4:54504

Units: mg/L

Prep Date:

Analyte

Result PQL SPK value SPK Ref Val 0.3221 2.500

%REC

LowLimit

%RPD **RPDLimit** 

Qual

Bromide

Sample ID 1312B40-001GIMSD

SampType: MSD

TestCode: EPA Method 300.0: Anions

HighLimit

Batch ID: R15742

0.10

RunNo: 15742

Prep Date:

Client ID: LDG 47-7

Analysis Date: 12/24/2013

0.10

SeqNo: 454505

Units: mg/L HighLimit

Qual

Analyte Bromide

Result 2.8 PQL SPK value SPK Ref Val

0.3221

0

O

0

0

0

LowLimit 85.9

111 0.397 **RPDLimit** 

20

Sample ID A5

SampType: CCV\_5

2.500

8.000

8.000

8.000

20.00

%REC

100

TestCode: EPA Method 300.0: Anions

Client ID: **BatchQC** 

Analysis Date: 12/24/2013

0.50

0.10

0.50

Batch ID: R15742

RunNo: 15742

110

110

110

110

110

Analyte

Prep Date:

Result 1.8 8.0

SPK value SPK Ref Val PQL 0.10 1.600

%REC

109

99.5

101

99.9

SeqNo: 454508 LowLimit Units: mg/L

HighLimit %RPD

%RPD

**RPDLimit** Quai

Fluoride Chloride Bromide

Phosphorus, Orthophosphate (As P Sulfate

Sample ID A4

Client ID:

Prep Date:

20 0.50

SampType: CCV\_4

Batch ID: R15742

8.1

8.0

1.1

4.8

12

101 TestCode: EPA Method 300.0: Anions

RunNo: 15742

Analysis Date: 12/24/2013 SPK value SPK Ref Val Result PQL 0.10

SeqNo: 454513

90

90

90

90

90

Units: mg/L

**RPDLimit** Qual

Analyte Fluoride Chloride

Phosphorus, Orthophosphate (As P

BatchQC

**BatchQC** 

4.8 0.50 5.000 5.0 0.10 5.000 0.50

0.50

Batch ID: R15794

1.000 n

0

O

n

%REC 107 96.4

100

96.9

LowLimit 90

HighLimit

%RPD

110

90 110 90 110 90 110

Sulfate Sample ID A6

SampType: CCV\_6

97.8 TestCode: EPA Method 300.0: Anions RunNo: 15794

90

Units: mg/L

110

Prep Date: Analyte

Bromide

Analysis Date: 12/27/2013

SPK value SPK Ref Val

5.000

12.50

SeqNo: 455808 %REC

HighLimit Lowl imit

%RPD

Qual

Nitrate+Nitrite as N

Client ID:

Result POI 13 0.20

12.00

0

106

90

110

**RPDLimit** 

Qualifiers: Value exceeds Maximum Contaminant Level.

Value above quantitation range Е

Analyte detected below quantitation limits J

O RSD is greater than RSDlimit R RPD outside accepted recovery limits Analyte detected ir. the associated Method Blank

E ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only. RLReporting Detection Limit

Holding times for preparation or analysis exceeded

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S Spike Recovery outside accepted recovery limits

## 'all Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions Client ID: PBW Batch ID: R15794 RunNo: 15794 Prep Date: Analysis Date: 12/27/2013 SeqNo: 455810 Units: mg/L SPK value SPK Ref Val %REC LowLimit %RPD **RPDLimit** Analyte Result PQL HighLimit Qual ND Nitrate+Nitrite as N 0.20 Sample ID LCS SampType: LCS TestCode: EPA Method 300.0: Anions Client ID: Batch ID: R15794 LCSW RunNo: 15794 Prep Date Analysis Date: 12/27/2013 SeqNo: 455811 Units: mg/L SPK value SPK Ref Val %RPD **RPDLimit** Result POL %REC HighLimit Analyte LowLimit Qual 0.20 Nitrate+Nitrite as N 3.4 3.500 97.6 110 Sample ID A4 SampType: CCV\_4 TestCode: EPA Method 300.0: Anions Client ID: **BatchQC** Batch ID: R15794 RunNo: 15794 Prep Date: Analysis Date: 12/27/2013 SeqNo: 455820 Units: mg/L SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result POL LowLimit HighLimit Qual 4.9 0.20 Nitrate+Nitrite as N 5.000 98.0 110 n Sample ID A5 SampType: CCV\_5 TestCode: EPA Method 300.0: Anions Batch ID: R15794 RunNo: 15794 lient ID: **BatchQC** SeqNo: 455832 Prep Date: Analysis Date: 12/27/2013 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Nitrate+Nitrite as N 8.1 0.20 8.000 ٩n 110 102 Sample ID A4 SampType: CCV 4 TestCode: EPA Method 300.0: Anions Client ID: **BatchQC** Batch ID: R15794 RunNo: 15794 Prep Date: Analysis Date: 12/27/2013 SeqNo: 455844 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.20 5.000 Nitrate+Nitrite as N 98.2 110 Sample ID A5 SampType: CCV\_5 TestCode: EPA Method 300.0: Anions Client ID: BatchQC Batch ID: R15794 RunNo: 15794

### Qualifiers:

Prep Date:

Nitrate+Nitrite as N

Analyte

\* Value exceeds Maximum Contaminant Level.

Analysis Date: 12/27/2013

**PQL** 

0.20

Result

8.1

SPK value SPK Ref Val

8.000

- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

SeqNo: 455883

%REC

101

Units: mg/L

HighLimit

110

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Alialyte detected in the associated intelled blank

LowLimit

Troiding times for preparation of analysis exceeded

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**RPDLimit** 

Qual

%RPD

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40 16-Jan-14

Client:

Cyra Energy Inc

| Project:             | Lightning Dock Geothermal Water Quality Moni                                |
|----------------------|---|
| Sample ID A4         | SampType: CCV_4 TestCode: EPA Method 300.0: Anions                          |
| Client ID: Batch     | QC Batch ID: R15794 RunNo: 15794  |
| Prep Date:           | Analysis Date: 12/28/2013 SeqNo: 455895 Units: mg/L                         |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | 4.9 0.20 5.000 0 97.8 90 110  |
| Sample ID A5         | SampType: CCV_5 TestCode: ElPA Method 300.0: Anions                         |
| Client ID: Batch     | QC Batch ID: R15794 RunNo: 15794  |
| Prep Date:           | Analysis Date: 12/28/2013 SeqNo: 455907 Units: mg/L                         |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | 7.9 0.20 8.000 0 99.2 90 110  |
| Sample ID A4         | SampType: CCV_4 TestCode: ElPA Method 300.0: Anions                         |
| Client ID: Batch     | QC Batch ID: R15794 RunNo: 15794  |
| Prep Date:           | Analysis Date: 12/28/2013 SeqNo: 455915 Units: mg/L                         |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | 4.8 0.20 5.000 0 96.4 90 110  |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSD limit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- E Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit CN
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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## Iall Environmental Analysis Laboratory, Inc.

WO#:

1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Analyte

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10991

SampType: MBLK

TestCode: EPA Method 418.1: TPH

PBW Client ID:

Batch ID: 10991

RunNo: 15761

Prep Date: 12/26/2013 Analysis Date: 12/27/2013

SeqNo: 454975

Units: mg/L HighLimit

**RPDLimit** Qual

Petroleum Hydrocarbons, TR

Prep Date: 12/26/2013

Result ND

PQL 1.0

TestCode: EPA Method 418.1: TPH

Sample ID LCS-10991

SampType: LCS

%RPD

Client ID: **LCSW**  Batch ID: 10991

RunNo: 15761

120

SeqNo: 454976

Units: mg/L

Result **PQL** SPK value SPK Ref Val

Analysis Date: 12/27/2013

%REC

LowLimit 80

%RPD HighLimit

**RPDLimit** Qual

Petroleum Hydrocarbons, TR

5.3

1.0

5.000 106

Sample ID LCSD-10991

Client ID: LCSS02

SampType: LCSD Batch ID: 10991

PQL

TestCode: EPA Method 418.1: TPH RunNo: 15761

SPK value SPK Ref Val %REC LowLimit

Units: mg/L

Qual

Analyte

Prep Date: 12/26/2013

Analysis Date: 12/27/2013

SeqNo: 454977

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

**RPDLimit** 

Petroleum Hydrocarbons, TR

1.0 5.000

108

120

2.24

20

## Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10989

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

Client ID:

**PBW** 

Batch ID: 10989

**PQL** 

RunNo: 15731

Prep Date: 12/26/2013

Analysis Date: 12/26/2013

SeqNo: 454148

Units: µg/L HighLimit

%RPD **RPDLimit** 

Qual

1,2-Dibromoethane

Client ID:

Analyte

ND 0.010

SampType: LCS

TestCode: EPA Method 8011/504.1: EDB

SPK value SPK Ref Val %REC LowLimit

0

RunNo: 15731

LCSW

Batch ID: 10989

PQL

Prep Date: 12/26/2013

Sample ID LCS-10989

Analysis Date: 12/26/2013

Result

SeqNo: 4:54165

Units: µg/L

%RPD

**RPDLimit** Qual

Analyte

Result

SPK value SPK Ref Val %REC LowLimit

117

1,2-Dibromoethane

0.12

0.010

0.1000

70

HighLimit 130

### Qualifiers:

S

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

Value above quantitation range E

Analyte detected below quantitation limits

0 RSD is greater than RSDlimit

R RPD outside accepted recovery limits B

Analyte detected ir. the associated Method Blank Н

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit RL

Holding times for preparation or analysis exceeded

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## all Environmental Analysis Laboratory, Inc.

WO#:

1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-10979         | SampT      | ype: <b>ME</b> | BLK       | Test        | Code: El | PA Method | 8082: PCB's |      |          |      |
|----------------------------|------------|----------------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: PBW             | Batch      | ID: 109        | 979       | F           | RunNo: 1 | 5776      |             |      |          |      |
| Prep Date: 12/24/2013      | Analysis D | ate: 12        | 2/29/2013 | S           | SeqNo: 4 | 55290     | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | ND         | 1.0            |           |             |          |           |             |      |          |      |
| Aroclor 1221               | ND         | 1.0            |           |             |          |           |             |      |          |      |
| Aroclor 1232               | ND         | 1.0            |           |             |          |           |             |      |          |      |
| Aroclor 1242               | ND         | 1.0            |           |             |          |           |             |      |          |      |
| Aroclor 1248               | ND         | 1.0            |           |             |          |           |             |      |          |      |
| Aroclor 1254               | ND         | 1.0            |           |             |          |           |             |      |          |      |
| Aroclor 1260               | ND         | 1.0            |           |             |          |           |             |      |          |      |
| Surr: Decachlorobiphenyl   | 2.1        |                | 2.500     |             | 82.4     | 17        | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 2.0        |                | 2.500     |             | 81.6     | 22.6      | 113         |      |          |      |

| Sample ID LCS-10979        | SampT      | ype: <b>LC</b>  | S         | Tes         | tCode: El | PA Method | 8082: PCB's |      |          |      |
|----------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: LCSW            | Batch      | ID: <b>10</b> ! | 979       | F           | RunNo: 1  | 5776      |             |      |          |      |
| Prep Date: 12/24/2013      | Analysis D | ate: 12         | 2/31/2013 | S           | SeqNo: 4  | 56267     | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | 3.2        | 1.0             | 5.000     | 0           | 63.8      | 18.6      | 134         |      |          |      |
| clor 1260                  | 3.7        | 1.0             | 5.000     | 0           | 74.1      | 35.7      | 137         |      |          |      |
| 3urr: Decachlorobiphenyl   | 2.8        |                 | 2.500     |             | 113       | 17        | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 2.9        |                 | 2.500     |             | 116       | 22.6      | 113         |      |          | S    |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1312B40 16-Jan-14** 

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb               | SampT      | ype: MBLK         | Test        | Code: EP         | A Method | 8260B: VOL  | ATILES |          |      |
|--------------------------------|------------|-------------------|-------------|------------------|----------|-------------|--------|----------|------|
| Client ID: PBW                 | Batch      | 1D: <b>R15774</b> | R           | tunNo: <b>15</b> | 774      |             |        |          |      |
| Prep Date:                     | Analysis D | oate: 12/27/2013  | S           | eqNo: 45         | 5189     | Units: µg/L |        |          |      |
| Analyte                        | Result     | PQL SPK value     | SPK Ref Val | %REC             | LowLimit | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND         | 1.0               |             |                  |          |             |        |          |      |
| Toluene                        | ND         | 1.0               |             |                  |          |             |        |          |      |
| Ethylbenzene                   | ND         | 1.0               |             |                  |          |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND         | 1.0               |             |                  |          |             |        |          |      |
| Naphthalene                    | ND         | 2.0               |             |                  |          |             |        |          |      |
| 1-Methylnaphthalene            | ND         | 4.0               |             |                  |          |             |        |          |      |
| 2-Methylnaphthalene            | ND         | 4.0               |             |                  |          |             |        |          |      |
| Acetone                        | ND         | 10                |             |                  |          |             |        |          |      |
| Bromobenzene                   | ND         | 1.0               |             |                  |          |             |        |          |      |
| Bromodichloromethane           | ND         | 1.0               |             |                  |          |             |        |          |      |
| Bromoform                      | ND         | 1.0               |             |                  |          |             |        |          |      |
| Bromomethane                   | ND         | 3.0               |             |                  |          |             |        |          |      |
| 2-Butanone                     | ND         | 10                |             |                  |          |             |        |          |      |
| Carbon disulfide               | ND         | 10                |             |                  |          |             |        |          |      |
| Carbon Tetrachloride           | ND         | 1.0               |             |                  |          |             |        |          |      |
| Chlorobenzene                  | ND         | 1.0               |             |                  |          |             |        |          |      |
| Chloroethane                   | ND         | 2.0               |             |                  |          |             |        |          |      |
| Chloroform                     | ND         | 1.0               |             |                  |          |             |        |          |      |
| Chloromethane                  | ND         | 3.0               |             |                  |          |             |        |          |      |
| 2-Chlorotoluene                | ND         | 1.0               |             |                  |          |             |        |          |      |
| 4-Chlorotoluene                | ND         | 1.0               |             |                  |          |             |        |          |      |
| cis-1,2-DCE                    | ND         | 1.0               |             |                  |          |             |        |          |      |
| cis-1,3-Dichloropropene        | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,2-Dibromo-3-chloropropane    | ND         | 2.0               |             |                  |          |             |        |          |      |
| Dibromochloromethane           | ND         | 1.0               |             |                  |          |             |        |          |      |
| Dibromomethane                 | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,2-Dichlorobenzene            | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,3-Dichlorobenzene            | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,4-Dichlorobenzene            | ND         | 1.0               |             |                  |          |             |        |          |      |
| Dichlorodifluoromethane        | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,1-Dichloroethane             | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,1-Dichloroethene             | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,2-Dichloropropane            | ND         | 1.0               |             |                  |          |             |        |          |      |
| 1,3-Dichloropropane            | ND         | 1.0               |             |                  |          |             |        |          |      |
| 2,2-Dichloropropane            | ND         | 2.0               |             |                  |          |             |        |          |      |

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## 'all Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb            | SampT      | ype: <b>ME</b> | BLK       | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|----------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch      | ID: <b>R1</b>  | 5774      | R           | RunNo: 1  | 5774      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 12        | 2/27/2013 | S           | SeqNo: 4  | 55189     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,1-Dichloropropene         | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Hexachlorobutadiene         | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 2-Hexanone                  | ND         | 10             |           |             |           |           |             |        |          |      |
| Isopropylbenzene            | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 4-isopropyltoluene          | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 4-Methyl-2-pentanone        | ND         | 10             |           |             |           |           |             |        |          |      |
| Methylene Chloride          | ND         | 3.0            |           |             |           |           |             |        |          |      |
| n-Butylbenzene              | ND         | 3.0            |           |             |           |           |             |        |          |      |
| n-Propylbenzene             | ND         | 1.0            |           |             |           |           |             |        |          |      |
| sec-Butylbenzene            | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Styrene                     | ND         | 1.0            |           |             |           |           |             |        |          |      |
| tert-Butylbenzene           | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND         | 2.0            |           |             |           |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND         | 1.0            |           |             |           |           |             |        |          |      |
| trans-1,2-DCE               | ND         | 1.0            |           |             |           |           |             |        |          |      |
| ns-1,3-Dichloropropene      | ND         | 1.0            |           |             |           |           |             |        |          |      |
| _,3-Trichlorobenzene        | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,1,2-Trichloroethane       | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Trichloroethene (TCE)       | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Trichlorofluoromethane      | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,2,3-Trichloropropane      | ND         | 2.0            |           |             |           |           |             |        |          |      |
| Vinyl chloride              | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Xylenes, Total              | ND         | 1.5            |           |             |           |           |             |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 11         |                | 10.00     |             | 107       | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 11         |                | 10.00     |             | 114       | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 12         |                | 10.00     |             | 116       | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 11         |                | 10.00     |             | 105       | 70        | 130         |        |          |      |

| Sample ID 100ng Ics | SampT      | ype: LC       | s         | Tes         | tCode: <b>El</b> | ATILES   |             |      |          |      |
|---------------------|------------|---------------|-----------|-------------|------------------|----------|-------------|------|----------|------|
| Client ID: LCSW     | Batch      | iD: <b>R1</b> | 5774      | F           | RunNo: 1         | 5774     |             |      |          |      |
| Prep Date:          | Analysis D | ate: 12       | 2/27/2013 | 8           | SeqNo: 4         | 55191    | Units: µg/L |      |          |      |
| Analyte             | Result     | PQL           | SPK value | SPK Ref Val | %REC             | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene             | 20         | 1.0           | 20.00     | 0           | 102              | 70       | 130         |      |          |      |
| Toluene             | 20         | 1.0           | 20.00     | 0           | 99.3             | 82.2     | 124         |      |          |      |
| Chlorobenzene       | 19         | 1.0           | 20.00     | 0           | 94.2             | 70       | 130         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 9 Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 100ng Ics         | SampT      | ype: LC       | s         | Tes         | Code: El | ATILES   |             |      |          |      |
|-----------------------------|------------|---------------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: LCSW             | Batch      | ID: <b>R1</b> | 5774      | F           | tunNo: 1 | 5774     |             |      |          |      |
| Prep Date:                  | Analysis D | ate: 12       | 2/27/2013 | S           | eqNo: 4  | 55191    | Units: µg/L |      |          |      |
| Analyte                     | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| 1,1-Dichloroethene          | 23         | 1.0           | 20.00     | 0           | 116      | 83.5     | 155         |      |          |      |
| Trichloroethene (TCE)       | 18         | 1.0           | 20.00     | 0           | 91.7     | 70       | 130         |      |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.8        |               | 10.00     |             | 98.3     | 70       | 130         |      |          |      |
| Surr: 4-Bromofluorobenzene  | 11         |               | 10.00     |             | 114      | 70       | 130         |      |          |      |
| Surr: Dibromofluoromethane  | 10         |               | 10.00     |             | 101      | 70       | 130         |      |          |      |
| Surr: Toluene-d8            | 10         |               | 10.00     |             | 100      | 70       | 130         |      |          |      |

| Sample ID b5                   | SampType: MBLK   |         |           | TestCode: EPA Method 8260B: VOLATILES |           |          |             |      |          |      |
|--------------------------------|------------------|---------|-----------|---------------------------------------|-----------|----------|-------------|------|----------|------|
| Client ID: PBW                 | Batch ID: R15774 |         |           | RunNo: 1:5774                         |           |          |             |      |          |      |
| Prep Date:                     | Analysis D       | ate: 12 | 2/27/2013 | S                                     | SeqNo: 4: | 55218    | Units: µg/L |      |          |      |
| Analyte                        | Result           | PQL     | SPK value | SPK Ref Val                           | %REC      | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene                        | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| Toluene                        | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| Ethylbenzene                   | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| Methyl tert-butyl ether (MTBE) | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| 1,2,4-Trimethylbenzene         | NĐ               | 1.0     |           |                                       |           |          |             |      |          |      |
| 1,3,5-Trimethylbenzene         | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| 1,2-Dichloroethane (EDC)       | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| 1,2-Dibromoethane (EDB)        | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| Naphthalene                    | ND               | 2.0     |           |                                       |           |          |             |      |          |      |
| 1-Methylnaphthalene            | ND               | 4.0     |           |                                       |           |          |             |      |          |      |
| 2-Methylnaphthalene            | ND               | 4.0     |           |                                       |           |          |             |      |          |      |
| Acetone                        | ND               | 10      |           |                                       |           |          |             |      |          |      |
| Bromobenzene                   | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| Bromodichloromethane           | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| Bromoform                      | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| Bromomethane                   | NĐ               | 3.0     |           |                                       |           |          |             |      |          |      |
| 2-Butanone                     | ND               | 10      |           |                                       |           |          |             |      |          |      |
| Carbon disulfide               | ND               | 10      |           |                                       |           |          |             |      |          |      |
| Carbon Tetrachloride           | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| Chlorobenzene                  | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| Chloroethane                   | ND               | 2.0     |           |                                       |           |          |             |      |          |      |
| Chloroform                     | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| Chloromethane                  | ND               | 3.0     |           |                                       |           |          |             |      |          |      |
| 2-Chlorotoluene                | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| 4-Chlorotoluene                | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| cis-1,2-DCE                    | ND               | 1.0     |           |                                       |           |          |             |      |          |      |
| cis-1,3-Dichloropropene        | ND               | 1.0     |           |                                       |           |          |             |      |          |      |

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- E Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- NO Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## 'all Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project: Lightnin

Lightning Dock Geothermal Water Quality Moni

| Sample ID b5                | SampT            | ype: MBL | .K        | TestCode: EPA Method 8260B: VOLATILES |         |          |             |      |          |      |
|-----------------------------|------------------|----------|-----------|---------------------------------------|---------|----------|-------------|------|----------|------|
| Client ID: PBW              | Batch ID: R15774 |          |           | RunNo: 15774                          |         |          |             |      |          |      |
| Prep Date:                  | Analysis D       |          |           |                                       | eqNo: 4 |          | Units: µg/L |      |          |      |
| Analyte                     | Result           | PQL S    | SPK value | SPK Ref Val                           | %REC    | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| 1,2-Dibromo-3-chloropropane | ND               | 2.0      |           |                                       |         |          |             |      |          |      |
| Dibromochloromethane        | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| Dibromomethane              | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,2-Dichlorobenzene         | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,3-Dichlorobenzene         | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,4-Dichlorobenzene         | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| Dichlorodifluoromethane     | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,1-Dichloroethane          | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,1-Dichloroethene          | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,2-Dichloropropane         | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,3-Dichloropropane         | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 2,2-Dichloropropane         | ND               | 2.0      |           |                                       |         |          |             |      |          |      |
| 1,1-Dichloropropene         | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| Hexachlorobutadiene         | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 2-Hexanone                  | ND               | 10       |           |                                       |         |          |             |      |          |      |
| Isopropylbenzene            | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| sopropyltoluene             | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| Methyl-2-pentanone          | ND               | 10       |           |                                       |         |          |             |      |          |      |
| Methylene Chloride          | ND               | 3.0      |           |                                       |         |          |             |      |          |      |
| n-Butylbenzene              | ND               | 3.0      |           |                                       |         |          |             |      |          |      |
| n-Propylbenzene             | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| sec-Butylbenzene            | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| Styrene                     | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| tert-Butylbenzene           | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,1,1,2-Tetrachloroethane   | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,1,2,2-Tetrachloroethane   | ND               | 2.0      |           |                                       |         |          |             |      |          |      |
| Tetrachloroethene (PCE)     | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| trans-1,2-DCE               | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| trans-1,3-Dichloropropene   | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,2,3-Trichlorobenzene      | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,2,4-Trichlorobenzene      | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,1,1-Trichloroethane       | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,1,2-Trichloroethane       | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| Trichloroethene (TCE)       | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| Trichlorofluoromethane      | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| 1,2,3-Trichloropropane      | ND               | 2.0      |           |                                       |         |          |             |      |          |      |
| Vinyl chloride              | ND               | 1.0      |           |                                       |         |          |             |      |          |      |
| Xylenes, Total              | ND               | 1.5      |           |                                       |         |          |             |      |          |      |
| Surr: 1,2-Dichloroethane-d4 | 10               | 1.0      | 10.00     |                                       | 101     | 70       | 130         |      |          |      |
| Juli. 1,2-Diomorbellane-04  | 10               |          | 10.00     |                                       | 101     | , 0      | .50         |      |          |      |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID <b>b5</b>        | SampType: MBLK   |          |           | Tes         | Code: El     | PA Method |             |      |          |      |
|----------------------------|------------------|----------|-----------|-------------|--------------|-----------|-------------|------|----------|------|
| Client ID: PBW             | Batch ID: R15774 |          |           | F           | RunNo: 15774 |           |             |      |          |      |
| Prep Date:                 | Analysis D       | )ate: 12 | 2/27/2013 | 5           | SeqNo: 4     | 55218     | Units: µg/L |      |          |      |
| Analyte                    | Result           | PQL      | SPK value | SPK Ref Val | %REC         | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Surr: 4-Bromofluorobenzene | 11               |          | 10.00     |             | 111          | 70        | 130         |      |          | -4   |
| Surr: Dibromofluoromethane | 11               |          | 10.00     |             | 108          | 70        | 130         |      |          |      |
| Surr: Toluene-d8           | 10               |          | 10.00     |             | 103          | 70        | 130         |      |          |      |

| Sample ID 100ng lcs 2       | SampT                     | ype: <b>LC</b> | s         | Tes           | tCode: E     |          |             |      |          |      |
|-----------------------------|---------------------------|----------------|-----------|---------------|--------------|----------|-------------|------|----------|------|
| Client ID: LCSW             | Batch                     | 1D: <b>R1</b>  | 5774      | F             | RunNo: 15774 |          |             |      |          |      |
| Prep Date:                  | Analysis Date: 12/27/2013 |                |           | SeqNo: 455220 |              |          | Units: µg/L |      |          |      |
| Analyte                     | Result                    | PQL            | SPK value | SPK Ref Val   | %REC         | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene                     | 21                        | 1.0            | 20.00     | 0             | 106          | 70       | 130         |      |          |      |
| Toluene                     | 19                        | 1.0            | 20.00     | 0             | 95.1         | 82.2     | 124         |      |          |      |
| Chlorobenzene               | 19                        | 1.0            | 20.00     | 0             | 93.5         | 70       | 130         |      |          |      |
| 1,1-Dichloroethene          | 24                        | 1.0            | 20.00     | 0             | 122          | 83.5     | 155         |      |          |      |
| Trichloroethene (TCE)       | 19                        | 1.0            | 20.00     | 0             | 93.7         | 70       | 130         |      |          |      |
| Surr: 1,2-Dichloroethane-d4 | 10                        |                | 10.00     |               | 101          | 70       | 130         |      |          |      |
| Surr: 4-Bromofluorobenzene  | 11                        |                | 10.00     |               | 114          | 70       | 130         |      |          |      |
| Surr: Dibromofluoromethane  | 11                        |                | 10.00     |               | 106          | 70       | 130         |      |          |      |
| Surr: Toluene-d8            | 9.8                       |                | 10.00     |               | 97.8         | 70       | 130         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#: **1312B40** *16-Jan-14* 

Client:

Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID mb-10980          | SampTy      | /pe: MBLK        | TestCode: EPA Method 8270C: Semivolatiles |                    |               |      |  |  |  |
|-----------------------------|-------------|------------------|---|--------------------|---------------|------|--|--|--|
| Client ID: PBW              | Batch       | ID: <b>10980</b> | RunNo: <b>157</b> 4                       |                    |               |      |  |  |  |
| Prep Date: 12/24/2013       | Analysis Da | ate: 12/26/2013  | SeqNo: <b>454</b> 6                       | 620 Units: μg/L    | Units: µg/L   |      |  |  |  |
| Analyte                     | Result      | PQL SPK value    | SPK Ref Val %REC L                        | _owLimit HighLimit | %RPD RPDLimit | Qual |  |  |  |
| Acenaphthene                | ND          | 10               |   |                    |               |      |  |  |  |
| Acenaphthylene              | ND          | 10               |   | 1                  |               |      |  |  |  |
| Aniline                     | ND          | 10               |   |                    |               |      |  |  |  |
| Anthracene                  | ND          | 10               |   |                    |               |      |  |  |  |
| Azobenzene                  | ND          | 10               |   |                    |               |      |  |  |  |
| Benz(a)anthracene           | ND          | 10               |   |                    |               |      |  |  |  |
| Benzo(a)pyrene              | ND          | 10               |   |                    |               |      |  |  |  |
| Benzo(b)fluoranthene        | ND          | 10               |   |                    |               |      |  |  |  |
| Benzo(g,h,i)perylene        | ND          | 10               |   |                    |               |      |  |  |  |
| Benzo(k)fluoranthene        | ND          | 10               |   |                    |               |      |  |  |  |
| Benzoic acid                | ND          | 40               |   |                    |               |      |  |  |  |
| Benzyl alcohol              | ND          | 10               |   |                    |               |      |  |  |  |
| Bis(2-chloroethoxy)methane  | ND          | 10               |   |                    |               |      |  |  |  |
| Bis(2-chloroethyl)ether     | ND          | 10               |   |                    |               |      |  |  |  |
| Bis(2-chloroisopropyl)ether | ND          | 10               |   |                    |               |      |  |  |  |
| Pis(2-ethylhexyl)phthalate  | ND          | 10               |   |                    |               |      |  |  |  |
| romophenyl phenyl ether     | ND          | 10               |   |                    |               |      |  |  |  |
| .(yl benzyl phthalate       | ND          | 10               |   |                    |               |      |  |  |  |
| Carbazole                   | ND          | 10               |   |                    |               |      |  |  |  |
| 4-Chloro-3-methylphenol     | ND          | 10               |   |                    |               |      |  |  |  |
| 4-Chloroaniline             | ND          | 10               |   |                    |               |      |  |  |  |
| 2-Chloronaphthalene         | ND          | 10               |   |                    |               |      |  |  |  |
| 2-Chlorophenol              | ND          | 10               |   |                    |               |      |  |  |  |
| 4-Chlorophenyl phenyl ether | ND          | 10               |   |                    |               |      |  |  |  |
| Chrysene                    | ND          | 10               |   |                    |               |      |  |  |  |
| Dí-n-butyl phthalate        | ND          | 10               |   |                    |               |      |  |  |  |
| Di-n-octyl phthalate        | ND          | 10               |   |                    |               |      |  |  |  |
| Dibenz(a,h)anthracene       | ND          | 10               |   |                    |               |      |  |  |  |
| Dibenzofuran                | ND          | 10               |   |                    |               |      |  |  |  |
| 1,2-Dichlorobenzene         | ND          | 10               |   |                    |               |      |  |  |  |
| 1,3-Dichlorobenzene         | ND          | 10               |   |                    |               |      |  |  |  |
| 1,4-Dichlorobenzene         | ND          | 10               |   |                    |               |      |  |  |  |
| 3,3'-Dichlorobenzidine      | ND          | 10               |   |                    |               |      |  |  |  |
| Diethyl phthalate           | ND          | 10               |   |                    |               |      |  |  |  |
| Dimethyl phthalate          | ND          | 10               |   |                    |               |      |  |  |  |
| 2,4-Dichlorophenol          | ND          | 20               |   |                    |               |      |  |  |  |
| 2,4-Dimethylphenol          | ND          | 10               |   |                    |               |      |  |  |  |
| 4,6-Dinitro-2-methylphenol  | ND          | 20               |   |                    |               |      |  |  |  |
| 2,4-Dinitrophenol           | ND          | 20               |   |                    |               |      |  |  |  |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1312B40** 

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID mb-10980         | SampT      | ype: MBLK       | Tes         | tCode: EPA          | Method  | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|-----------------|-------------|---------------------|---------|-------------|-----------|----------|------|
| Client ID: PBW             | Batch      | ID: 10980       | F           | RunNo: <b>157</b> 4 | 47      |             |           |          |      |
| Prep Date: 12/24/2013      | Analysis D | ate: 12/26/2013 | S           | SeqNo: <b>454</b>   | 620     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL SPK value   | SPK Ref Val | %REC L              | owLimit | HighLimit   | %RPD      | RPDLimit | Qual |
| 2,4-Dinitrotoluene         | ND         | 10              |             |                     |         |             |           |          |      |
| 2,6-Dinitrotoluene         | ND         | 10              |             |                     |         |             |           |          |      |
| Fluoranthene               | ND         | 10              |             |                     |         |             |           |          |      |
| Fluorene                   | ND         | 10              |             |                     |         |             |           |          |      |
| Hexachlorobenzene          | ND         | 10              |             |                     |         |             |           |          |      |
| Hexachlorobutadiene        | ND         | 10              |             |                     |         |             |           |          |      |
| Hexachlorocyclopentadiene  | ND         | 10              |             |                     |         |             |           |          |      |
| Hexachloroethane           | ND         | 10              |             |                     |         |             |           |          |      |
| indeno(1,2,3-cd)pyrene     | ND         | 10              |             |                     |         |             |           |          |      |
| Isophorone                 | ND         | 10              |             |                     |         |             |           |          |      |
| 1-Methylnaphthalene        | ND         | 10              |             |                     |         |             |           |          |      |
| 2-Methylnaphthalene        | ND         | 10              |             |                     |         |             |           |          |      |
| 2-Methylphenol             | ND         | 10              |             |                     |         |             |           |          |      |
| 3+4-Methylphenol           | ND         | 10              |             |                     |         |             |           |          |      |
| N-Nitrosodi-n-propylamine  | ND         | 10              |             |                     |         |             |           |          |      |
| N-Nitrosodimethylamine     | ND         | 10              |             |                     |         |             |           |          |      |
| N-Nitrosodiphenylamine     | ND         | 10              |             |                     |         |             |           |          |      |
| Naphthalene                | ND         | 10              |             |                     |         |             |           |          |      |
| 2-Nitroaniline             | ND         | 10              |             |                     |         |             |           |          |      |
| 3-Nitroaniline             | ND         | 10              |             |                     |         |             |           |          |      |
| 4-Nitroaniline             | ND         | 10              |             |                     |         |             |           |          |      |
| Nitrobenzene               | ND         | 10              |             |                     |         |             |           |          |      |
| 2-Nitrophenol              | ND         | 10              |             |                     |         |             |           |          |      |
| 4-Nitrophenol              | ND         | 10              |             |                     |         |             |           |          |      |
| Pentachlorophenol          | ND         | 20              |             |                     |         |             |           |          |      |
| Phenanthrene               | ND         | 10              |             |                     |         |             |           |          |      |
| Phenoi                     | ND         | 10              |             |                     |         |             |           |          |      |
| Pyrene                     | ND         | 10              |             |                     |         |             |           |          |      |
| Pyńdine                    | ND         | 10              |             |                     |         |             |           |          |      |
| 1,2,4-Trichlorobenzene     | ND         | 10              |             |                     |         |             |           |          |      |
| 2,4,5-Trichlorophenol      | ND         | 10              |             |                     |         |             |           |          |      |
| 2,4,6-Trichlorophenol      | ND         | 10              |             |                     |         |             |           |          |      |
| Surr: 2-Fluorophenol       | 110        | 200.0           | 1           | 55.1                | 22.7    | 98          |           |          |      |
| Surr: Phenol-d5            | 79         | 200.0           | 1           | 39.3                | 23.4    | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 130        | 200.0           | )           | 66.7                | 23.3    | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 69         | 100.0           | )           | 68.8                | 36.8    | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 71         | 100.0           | )           | 70.6                | 38.3    | 110         |           |          |      |
| Surr: 4-Terphenyl-d14      | 77         | 100.0           | •           | 77.5                | 52.1    | 116         |           |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- F Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# 'all Environmental Analysis Laboratory, Inc.

WO#:

1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID Ics-10980        | SampT      | SampType: LCS TestCode: EPA Method 8270C: Semivolatiles |           |             |          |          |             |      |          |      |
|----------------------------|------------|---|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: LCSW            | Batch      | 1D: 10  | 980       | F           | tunNo: 1 | 5747     |             |      |          |      |
| Prep Date: 12/24/2013      | Analysis D | ate: 12   | 2/26/2013 | S           | eqNo: 4  | 54621    | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL   | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Acenaphthene               | 66         | 10  | 100.0     | 0           | 65.8     | 48       | 101         |      |          |      |
| 4-Chloro-3-methylphenol    | 130        | 10  | 200.0     | 0           | 66.5     | 47.9     | 109         |      |          |      |
| 2-Chlorophenol             | 120        | 10  | 200.0     | 0           | 59.5     | 40       | 105         |      |          |      |
| 1,4-Dichlorobenzene        | 57         | 10  | 100.0     | 0           | 57.2     | 40.8     | 94.3        |      |          |      |
| 2,4-Dinitrotoluene         | 64         | 10  | 100.0     | 0           | 64.1     | 28.3     | 131         |      |          |      |
| N-Nitrosodi-n-propylamine  | 66         | 10  | 100.0     | 0           | 65.6     | 46.2     | 119         |      |          |      |
| 4-Nitrophenol              | 44         | 10  | 200.0     | 0           | 21.9     | 10.5     | 67.9        |      |          |      |
| Pentachlorophenol          | 53         | 20  | 200.0     | 0           | 26.7     | 22.4     | 81.1        |      |          |      |
| Phenol                     | 73         | 10  | 200.0     | 0           | 36.7     | 21.4     | 72.9        |      |          |      |
| Pyrene                     | 61         | 10  | 100.0     | 0           | 60.9     | 46.9     | 109         |      |          |      |
| 1,2,4-Trichlorobenzene     | 55         | 10  | 100.0     | 0           | 54.6     | 43.1     | 98.4        |      |          |      |
| Surr: 2-Fluorophenol       | 94         |   | 200.0     |             | 47.1     | 22.7     | 98          |      |          |      |
| Surr: Phenol-d5            | 72         |   | 200.0     |             | 36.0     | 23.4     | 74.9        |      |          |      |
| Surr: 2,4,6-Tribromophenol | 130        |   | 200.0     |             | 63.8     | 23.3     | 111         |      |          |      |
| Surr: Nitrobenzene-d5      | 60         |   | 100.0     |             | 59.7     | 36.8     | 111         |      |          |      |
| Surr: 2-Fluorobiphenyl     | 68         |   | 100.0     |             | 67.9     | 38.3     | 110         |      |          |      |
| Surr: 4-Terphenyl-d14      | 72         |   | 100.0     |             | 71.6     | 52.1     | 116         |      |          |      |

| Sample ID Icsd-10980       | SampT      | ype: <b>LC</b>  | SD        | Tes         | tCode: El | PA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: LCSS02          | Batch      | 1D: <b>10</b> 9 | 980       | R           | RunNo: 1  | 5747      |             |           |          |      |
| Prep Date: 12/24/2013      | Analysis D | ate: 12         | 2/26/2013 | S           | SeqNo: 4  | 54622     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 76         | 10              | 100.0     | 0           | 75.6      | 48        | 101         | 13.8      | 25       |      |
| 4-Chloro-3-methylphenol    | 150        | 10              | 200.0     | 0           | 74.3      | 47.9      | 109         | 11.1      | 32.7     |      |
| 2-Chlorophenol             | 120        | 10              | 200.0     | 0           | 62.4      | 40        | 105         | 4.89      | 20       |      |
| 1,4-Dichlorobenzene        | 60         | 10              | 100.0     | 0           | 60.1      | 40.8      | 94.3        | 4.94      | 20       |      |
| 2,4-Dinitrotoluene         | 68         | 10              | 100.0     | 0           | 68.5      | 28.3      | 131         | 6.64      | 29.9     |      |
| N-Nitrosodi-n-propylamine  | 69         | 10              | 100.0     | 0           | 69.0      | 46.2      | 119         | 5.17      | 23.1     |      |
| 4-Nitrophenol              | 48         | 10              | 200.0     | 0           | 24.0      | 10.5      | 67.9        | 8.93      | 40.5     |      |
| Pentachlorophenol          | 70         | 20              | 200.0     | 0           | 35.0      | 22.4      | 81.1        | 27.2      | 37.3     |      |
| Phenol                     | 77         | 10              | 200.0     | 0           | 38.4      | 21.4      | 72.9        | 4.45      | 20       |      |
| Pyrene                     | 74         | 10              | 100.0     | 0           | 73.8      | 46.9      | 109         | 19.2      | 26.5     |      |
| 1,2,4-Trichlorobenzene     | 59         | 10              | 100.0     | 0           | 59.4      | 43.1      | 98.4        | 8.32      | 27.2     |      |
| Surr: 2-Fluorophenol       | 92         |                 | 200.0     |             | 45.9      | 22.7      | 98          | 0         | 0        |      |
| Surr: Phenol-d5            | 74         |                 | 200.0     |             | 36.8      | 23.4      | 74.9        | 0         | 0        |      |
| Surr: 2,4,6-Tribromophenol | 140        |                 | 200.0     |             | 70.5      | 23.3      | 111         | 0         | 0        |      |
| Surr: Nitrobenzene-d5      | 63         |                 | 100.0     |             | 62.9      | 36.8      | 111         | 0         | 0        |      |
| Surr: 2-Fluorobiphenyl     | 73         |                 | 100.0     |             | 72.6      | 38.3      | 110         | 0         | 0        |      |
|                            |            |                 |           |             |           |           |             |           |          |      |

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- S Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrq Energy Inc

Surr: 4-Terphenyl-d14

Project: Lightning Dock Geothermal Water Quality Moni

81

Sample ID lcsd-10980 SampType: LCSD TestCode: EPA Method 8270C: Semivolatiles

100.0

Client ID: LCSS02 Batch ID: 10980 RunNo: 15747

Prep Date: 12/24/2013 Analysis Date: 12/26/2013 SeqNo: 454622 Units: μg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

80.5

52.1

116

0

0

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

RL Reporting Detection Limit

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# 'all Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

**Project:** 

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-10981    | SampT      | уре: МЕ   | BLK   | Tes         | tCode: <b>E</b> | PA Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|-----------|-------|-------------|-----------------|-----------|-------------|------|----------|------|
| Client ID: PBW        |            | 1 ID: 10! |       |             | RunNo: 1        |           |             |      |          |      |
| Prep Date: 12/24/2013 | Analysis D |           |       |             | SeqNo: 4        |           | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL       |       | SPK Ref Val | %REC            |           | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | ND         | 2.0       | 0     | 0           | 701120          |           | 9           | 74   |          |      |
| 1-Methylnaphthalene   | ND         | 2.0       |       |             |                 |           |             |      |          |      |
| 2-Methylnaphthalene   | ND         | 2.0       |       |             |                 |           |             |      |          |      |
| Acenaphthylene        | ND         | 2.5       |       |             |                 |           |             |      |          |      |
| Acenaphthene          | ND         | 5.0       |       |             |                 |           |             |      |          |      |
| Fluorene              | ND         | 0.80      |       |             |                 |           |             |      |          |      |
| Phenanthrene          | ND         | 0.60      |       |             |                 |           |             |      |          |      |
| Anthracene            | ND         | 0.60      |       |             |                 |           |             |      |          |      |
| Fluoranthene          | ND         | 0.30      |       |             |                 |           |             |      |          |      |
| Pyrene                | ND         | 0.30      |       |             |                 |           |             |      |          |      |
| Benz(a)anthracene     | ND         | 0.070     |       |             |                 |           |             |      |          |      |
| Chrysene              | ND         | 0.20      |       |             |                 |           |             |      |          |      |
| Benzo(b)fluoranthene  | ND         | 0.10      |       |             |                 |           |             |      |          |      |
| Benzo(k)fluoranthene  | ND         | 0.070     |       |             |                 |           |             |      |          |      |
| Benzo(a)pyrene        | ND         | 0.070     |       |             |                 |           |             |      |          |      |
| Dibenz(a,h)anthracene | ND         | 0.12      |       |             |                 |           |             |      |          |      |
| nzo(g,h,i)perylene    | ND         | 0.12      |       |             |                 |           |             |      |          |      |
| Jeno(1,2,3-cd)pyrene  | ND         | 0.25      |       |             |                 |           |             |      |          |      |
| Surr: Benzo(e)pyrene  | 22         |           | 20.00 |             | 108             | 24.5      | 139         |      |          |      |

| Sample ID LCS-10981   | SampT      | ype: LC         | s         | Test        | Code: EF | PA Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|-----------------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSW       | Batch      | 1D: <b>10</b> 9 | 981       | R           | lunNo: 1 | 5775      |             |      |          |      |
| Prep Date: 12/24/2013 | Analysis D | ate: 12         | 2/27/2013 | S           | eqNo: 4  | 55253     | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 43         | 2.0             | 80.00     | 0           | 53.2     | 43.8      | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 36         | 2.0             | 80.20     | 0           | 45.1     | 41.3      | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 34         | 2.0             | 80.00     | 0           | 41.9     | 36.6      | 89.6        |      |          |      |
| Acenaphthylene        | 47         | 2.5             | 80.20     | 0           | 58.3     | 43.6      | 103         |      |          |      |
| Acenaphthene          | 37         | 5.0             | 80.00     | 0           | 46.6     | 42.4      | 87.6        |      |          |      |
| Fluorene              | 3.9        | 0.80            | 8.020     | 0           | 48.1     | 40.5      | 93.6        |      |          |      |
| Phenanthrene          | 2.4        | 0.60            | 4.020     | 0           | 60.4     | 43.9      | 111         |      |          |      |
| Anthracene            | 2.3        | 0.60            | 4.020     | 0           | 57.2     | 44.3      | 103         |      |          |      |
| Fluoranthene          | 4.5        | 0.30            | 8.020     | 0           | 56.2     | 43.5      | 109         |      |          |      |
| Pyrene                | 4.8        | 0.30            | 8.020     | 0           | 59.2     | 32.6      | 103         |      |          |      |
| Benz(a)anthracene     | 0.47       | 0.070           | 0.8020    | 0           | 58.6     | 43        | 114         |      |          |      |
| Chrysene              | 2.2        | 0.20            | 4.020     | 0           | 55.2     | 40.2      | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.59       | 0.10            | 1.002     | 0           | 58.9     | 44.4      | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.32       | 0.070           | 0.5000    | 0           | 64.0     | 41.5      | 120         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Page 30 of 34

# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID LCS-10981    | Samp1      | ype: LC  | s         | Tes         | tCode: E | PA Method | 8310: PAHs  |      |          |      |
|------------------------|------------|----------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSW        | Batcl      | n ID: 10 | 981       | F           | RunNo: 1 | 5775      |             |      |          |      |
| Prep Date: 12/24/2013  | Analysis E | Date: 12 | 2/27/2013 | S           | SeqNo: 4 | 55253     | Units: µg/L |      |          |      |
| Analyte                | Result     | PQL      | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Benzo(a)pyrene         | 0.30       | 0.070    | 0.5020    | 0           | 59.8     | 34.5      | 118         |      |          |      |
| Dibenz(a,h)anthracene  | 0.60       | 0.12     | 1.002     | 0           | 59.9     | 38.3      | 107         |      |          |      |
| Benzo(g,h,i)perylene   | 0.55       | 0.12     | 1.000     | 0           | 55.0     | 38.4      | 110         |      |          |      |
| Indeno(1,2,3-cd)pyrene | 1.3        | 0.25     | 2.004     | 0           | 65.9     | 42.4      | 113         |      |          |      |
| Surr: Benzo(e)pyrene   | 16         |          | 20.00     |             | 77.8     | 24.5      | 139         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSD limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- NO Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### 'all Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-11134 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Batch ID: 11134 RunNo: 15937 Client ID: PBW

Analysis Date: 1/8/2014 SeqNo: 459499 Units: µg/L Prep Date: 1/8/2014

SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Result **PQL** Qual Analyte

ND Phenolics, Total Recoverable 2.5

TestCode: Total Phenolics by SW-846 9067 Sample ID LCS-11134 SampType: LCS Client ID: LCSW Batch ID: 11134 RunNo: 15937 Prep Date: 1/8/2014 SeqNo: 459500 Analysis Date: 1/8/2014 Units: µg/L SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Result **PQL** Analyte 22 20.00 110 73.7 2.5 135 Phenolics, Total Recoverable

Sample ID LCSD-11134 SampType: LCSD TestCode: Total Phenolics by SW-846 9067 Client ID: LCSS02 Batch ID: 11134 RunNo: 15937 Analysis Date: 1/8/2014 SeqNo: 459505 Units: µg/L Prep Date: 1/8/2014 PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Analyte Result

0

Phenolics, Total Recoverable

2.5 20.00

18

91.6

73.7

135

17.9

21.4

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

RPD outside accepted recovery limits R

Spike Recovery outside accepted recovery limits

Analyte detected in the associated Method Blank

Η Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID mb-1

SampType: mblk

TestCode: SM2320B: Alkalinity

Client ID: **PBW** 

Batch ID: R15744

Result

ND

RunNo: 15744

Prep Date: Analyte

Analysis Date: 12/26/2013

SeqNo: 454539

Units: mg/L CaCO3

Sample ID Ics-1

SPK value SPK Ref Val %REC LowLimit **PQL** 20

HighLimit %RPD

**RPDLimit** 

Qual

Total Alkalinity (as CaCO3)

SampType: Ics

TestCode: SM2320B: Alkalinity

RunNo: 15744

Prep Date:

Analyte

Client ID: LCSW

Batch ID: R15744 Analysis Date: 12/26/2013

SeqNo: 454540

Units: mg/L CaCO3

Qual

20

**PQL** 

80.00

98.6

90

%RPD

Total Alkalinity (as CaCO3)

110

**RPDLimit** 

79

SPK value SPK Ref Val %REC

LowLimit

HighLimit

### Qualifiers:

Value exceeds Maximum Contaminant Level.

Analyte detected below quantitation limits

- Value above quantitation range Ε
- RSD is greater than RSDlimit O RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. Reporting Detection Limit

P

Page 33 of 34

### 'all Environmental Analysis Laboratory, Inc.

WO#: **1312B40** 

16-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10984 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 10984 RunNo: 15756

Prep Date: 12/25/2013 Analysis Date: 12/27/2013 SeqNo: 454897 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids ND 20.0

Sample ID LCS-10984 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 10984 RunNo: 15756

Prep Date: 12/25/2013 Analysis Date: 12/27/2013 SeqNo: 454898 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids 1020 20.0 1000 0 102 80 120

#### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

# Sample Log-In Check List

| Client Name:                                   | AMEC  | Work Order Numbe  | er: 1312B40                       |  | RcptNo: 1                               |                                |
|--|---|---|-----------------------------------|--|---|--------------------------------|
| Received by/da                                 | ate: MA   | 12/24/13  |                                   |  |   |                                |
| Logged By:                                     | ( )<br>Michelle Garcia  | 12/24/2013 10:30:00   | AM                                | Michell Gare                           | un                                      |                                |
| Completed By:                                  |   | 12/24/2013 12:30:27   |                                   | Michell Gare<br>Michell Gare           | ,,,`)                                   |                                |
| Reviewed By:                                   | 777   | 12/24/2013  |                                   | J 944                                  |   |                                |
| Chain of Cu                                    |   |   |                                   | ······································ |   |                                |
|  | eals intact on sample bottle  | s?  | Yes []                            | No 🗔                                   | Not Present                             |                                |
| .,   | Custody complete?   |   | Yes 🗸                             | No 🗍                                   | Not Present                             |                                |
| 3. How was t                                   | he sample delivered?  |   | Client                            |  |   |                                |
| Log In   |   |   |                                   |  |   |                                |
|  | ttempt made to cool the sar   | mples?  | Yes 🗸                             | No !                                   | NA                                      |                                |
| 5. Were all s                                  | amples received at a temp   | erature of >0° C to 6.0°C   | Yes 🗹                             | No []                                  | NA L                                    |                                |
| 6. Sample(s                                    | ) in proper container(s)?   |   | Yes 🗸                             | No 🗌                                   |   |                                |
| 7. Sufficient                                  | sample volume for indicate  | d test(s)?  | Yes 🗹                             | No 🗆                                   |   |                                |
| 8. Are sample                                  | es (except VOA and ONG)   | properly preserved?   | Yes 🗸                             | No                                     |   |                                |
| 9. Was prese                                   | ervative added to bottles?  |   | Yes                               | No 🔀                                   | NA !                                    |                                |
| 10.VOA vials                                   | have zero headspace?  |   | Yes 🗸                             | No                                     | No VOA Vials                            |                                |
| 11, Were any                                   | sample containers receive   | d broken?   | Yes                               | No 🗹                                   | # of preserved                          | ,                              |
|  | erwork match bottle labels?<br>repancies on chain of custo                                |   | Yes 🗸                             | No 🗆                                   | bottles checked of for pH:              | 12 ynless noted)               |
| -  | ces correctly identified on C   | **  | Yes 🗹                             | No 🗔                                   | Adjusted?                               | 100                            |
| 14. Is it clear                                | what analyses were reques   | ted?  | Yes 🗸                             | No 🗀                                   |   | KX                             |
|  | nolding times able to be me<br>ify customer for authorization                             |   | Yes 🗸                             | No ! i .                               | Checked by:                             |                                |
| Special Hai                                    | ndling (if applicable)  |   |                                   |  |   | ,                              |
| 16. Was clien                                  | t notified of all discrepancie  | s with this order?  | Yes                               | No [                                   | NA 🗹                                    |                                |
| Ву   | son Notified: Whom: parding:  | Date:<br>Via:   | ,                                 | Phone  Fax                             | ☐ In Person                             |                                |
| Clie   | nt Instructions:  | ,   |                                   |  | an on                                   | genred                         |
| 17. Additiona<br>18. <u>Cooler II</u><br>Coole | al remarks: AS per a<br>Sample<br>of ormation<br>r No   Temp °C   Condition<br>r O   Good | enalyst reque<br>e, fi Hered, ar<br>on   Seal Intact   Seal No  <br>Yes | H, pirin<br>nd prese<br>Seal Date | red off<br>enved for<br>Signed By      | tom corporational for dissolve on 1/8/1 | Volume<br>ed netal<br>4. 1005. |

|                     |                  |                                     | stody Record                | Turn-Around                | Time:                                |                  |             |                  |                | E 4                |                     |               |   | , T F                        |             |                 | 4 E B |           |                      |
|---------------------|------------------|-------------------------------------|-----------------------------|----------------------------|--------------------------------------|------------------|-------------|------------------|----------------|--------------------|---------------------|---------------|---|------------------------------|-------------|-----------------|-------|-----------|----------------------|
| Client:             | AM               | EC                                  |                             |                            | : Lightning                          | DOCK GEOTHERM    | ر ا         |                  |                | 1A                 |                     | .Y:           | SIS   | S L                          | .AE         | 30              |       | TA<br>TOF |                      |
| Mailing             | Address          | 8519                                | Jefferson St NE             | GW Q                       | vality Mo                            | nitoring         |             | 490              | 01 Ha          | awkins             |                     |               |   |                              |             |                 | 109   |           |                      |
|                     | suerg            | ve Ni                               | M 87113<br>L1.1801          | Project #:                 | 7-00102                              | .06              |             |                  |                | 5-345-             | 3975                | {             | -   | 505-                         | 345         | -4107           |       |           |                      |
|                     |                  | david.ja                            | uney camec.com              | Project Mana               | ıger:                                | ggs - gg/gg 1949 | ()          | nly)             | (Q             |                    |                     |               | O <sub>4</sub> )  |                              |             |                 |       |           |                      |
| QA/QC I             | Package:<br>dard |                                     | ☐ Level 4 (Full Validation) |                            | Janne                                | 1                | 's (8021)   | + TPH (Gas only) | DRO / MRO)     |                    | SIMS)               |               | ,PO4,S(   | 2 PCB's                      |             |                 |       |           |                      |
| Accredi             | AP               | □ Othe                              |                             | On Ice:                    | A contraction of the contract of the | July July        | + TMB       | + TPH            | RO/D           | 418.1)             | r 8270              | s             | O3,NO   | 808 / se                     |             | OA)             |       |           | or N)                |
| Date                | Time             | Matrix                              | Sample Request ID           |                            | Preservative<br>Type                 | TIMES SAME       | BTEX + MTBE | BTEX + MTBE      | TPH 8015B (GRO | TPH (Method 418.1) | PAH's (8310 or 8270 | RCRA 8 Metals | Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> ) | 8081 Pesticides / 8082 PCB's | 8260B (VOA) | 8270 (Semi-VOA) |       |           | Air Bubbles (Y or N) |
| 12/21/13            | 1300             | Water                               | LDG 47-7                    | 21                         |                                      | -001             |             |                  |                |                    |                     |               |   |                              |             |                 |       |           |                      |
|                     |                  |                                     | Trip Black                  | 3                          |                                      |                  |             |                  |                |                    |                     |               |   |                              |             |                 |       |           |                      |
|                     |                  |                                     |                             |                            |                                      |                  |             |                  |                |                    |                     |               |   |                              |             |                 |       |           |                      |
|                     |                  |                                     | Note: 2 x 125               |                            |                                      |                  |             |                  | _              |                    | <u> </u>            |               |   |                              |             |                 |       |           |                      |
| ,                   |                  | /                                   | Dissolved,                  | Metals                     | ) were                               |                  |             |                  |                | _                  | <del> </del>        |               |   |                              |             |                 |       |           | $\square$            |
|                     |                  |                                     | not filtere                 | £,                         |                                      |                  |             | -                |                |                    |                     |               |   |                              |             |                 |       |           |                      |
|                     |                  |                                     |                             |                            |                                      |                  |             |                  |                |                    |                     |               |   |                              |             |                 |       |           |                      |
|                     |                  |                                     |                             |                            |                                      |                  |             |                  |                |                    | <u> </u>            |               |   |                              |             |                 | _     |           |                      |
|                     |                  |                                     |                             |                            |                                      |                  |             |                  | $\dashv$       |                    | -                   |               |   |                              |             |                 |       | +         |                      |
| Date: 2/23/13 Date: |                  | Relinquishe<br>Cluss<br>Relinquishe | les De July                 | Received by:  Received by: | 1 Ga                                 | Date Time        | Rem         | narks            |                | atta               | cheo                | <u>ر</u> ،    | ana   | Ŋ'n                          | 21          | ist:            |       |           |                      |

#### CYRO ENERGY WCICC BOTTLES FOR 1 SAMPLE

TEST

8260

EDB-504.1

1082-P€B

310-PAH

270-SV0C

henols

mions, TDS, pH, Soy, Cl, PSoy, Carbonate, Bicarbonate, Total Aix

lercury

issolved Metals/Cations

1, As, As, B, Ba, Ba, Cd, Cu, Co, Fr, F, / Ca, Na, K, P,
2, Li, Ma, Mg, Mo, Ni, Pb, Sc, Ky, W, Zn, U

18.1 TPH

otel Phosphorus

ladon

YIV

adium 226/228

**BOTTLE TYPE/PRESERVATIVE** 

3 x 40 ml HCl Voa's

2 x 40 ml voa's Na2S2O3

1 x itr unpreserved amber

1 x itr unpreserved amber

1 x itr unpreserved amber

1 x itr H2SO4 amber

1 x 500 unpreserved plastic

1 x 125 H2S04 plastic

1 x 500 HN03 plastic

2 x 125 HN03 plastic

1 x 500 HCl amber

Ask Hall

1)

Note Li, Ro, W on COC



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

OrderNo.: 1311B14

December 16, 2013

David Janney AMEC 8519 Jefferson Street, NE Albuquerque, NM 87113 TEL: (505) 796-7276

FAX (505) 821-7371

RE: Lightning Dock Geothermal Water Quality Monitoring

Dear David Janney:

Hall Environmental Analysis Laboratory received 8 sample(s) on 11/26/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109



Hall Environmental Analysis Laboratory
4901 Hawkins NE

Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

**Case Narrative** 

WO#: 1311B14

Date: 12/16/2013

CLIENT:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Analytical Notes Regarding EPA Method 418.1:

Sample MW-3 The addition of silica gel to the sample extract is performed to remove the grease portion in the sample result. The extract went through 10 silica gel steps before running out of extract. The sample result of 1.1mg/L is likely to be non petroleum related hydrocarbons. The sample result should be considered estimated.

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-1 **CLIENT: AMEC** 

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/25/2013 11:45:00 AM

Received Date: 11/26/2013 9:15:00 AM Lab ID: 1311B14-001 Matrix: AQUEOUS

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst:              | scc    |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Chrysene                          | ND     | 0.20     |      | µg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 107    | 24.5-139 |      | %REC  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          | ,      |          |      |       |    | Analyst               | JRR    |
| Fluoride                          | 7.7    | 0.50     | *    | mg/L  | 5  | 11/26/2013 6:48:08 PM | R15112 |
| Chloride                          | 100    | 10       |      | mg/L  | 20 | 11/26/2013 7:00:33 PM | R15112 |
| Bromide                           | ND     | 0.50     |      | mg/L  | 5  | 11/26/2013 6:48:08 PM | R15112 |
| Nitrogen, Nitrate (As N)          | 2.6    | 0.50     |      | mg/L  | 5  | 11/26/2013 6:48:08 PM | R15112 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      |      | mg/L  | 5  | 11/26/2013 6:48:08 PM | R15112 |
| Sulfate                           | 670    | 10       | *    | mg/L  | 20 | 11/26/2013 7:00:33 PM | R15112 |
| EPA METHOD 200.7: DISSOLVED MI    | ETALS  |          |      |       |    | Analyst               | : JLF  |
| Aluminum                          | 0.034  | 0.020    |      | mg/L  | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Barium                            | 0.063  | 0.0020   |      | mg/L  | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Boron                             | 0.70   | 0.20     |      | mg/L  | 5  | 12/4/2013 6:32:25 PM  | R15245 |
| Cadmium                           | ND     | 0.0020   |      | mg/L  | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Calcium                           | 51     | 1.0      |      | mg/L  | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Chromium                          | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Cobalt                            | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Copper                            | ND     | 0.0060   |      | mg/L  | 1  | 12/5/2013 1:37:05 PM  | R15267 |
| Iron                              | ND     | 0.020    |      | mg/L  | 1  | 12/5/2013 1:37:05 PM  | R15267 |
| Magnesium                         | 2.1    | 1.0      |      | mg/L  | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Manganese                         | 0.21   | 0.0020   | *    | mg/L  | 1  | 12/4/2013 6:20:46 PM  | R15245 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- Page 2 of 71 P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1311B14

Date Reported: 12/16/2013

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-1

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-001 Matrix: AQUEOUS

Collection Date: 11/25/2013 11:45:00 AM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result  | RL (    | Qual Units | DF | Date Analyzed         | Batch  |
|--------------------------------|---------|---------|------------|----|-----------------------|--------|
| EPA METHOD 200.7: DISSOLVED ME | TALS    |         |            |    | Analyst:              | JLF    |
| Molybdenum                     | 0.058   | 0.0080  | mg/L       | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Nickel                         | ИD      | 0.010   | mg/L       | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Potassium                      | 22      | 1.0     | mg/L       | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Silver                         | ND      | 0.0050  | mg/L       | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Sodium                         | 400     | 5.0     | mg/L       | 5  | 12/4/2013 6:32:25 PM  | R15245 |
| Zinc                           | ND      | 0.010   | mg/L       | 1  | 12/5/2013 1:37:05 PM  | R15267 |
| EPA 200.8: DISSOLVED METALS    |         |         |            |    | Analyst               | DBD    |
| Arsenic                        | 0.0055  | 0.0010  | mg/L       | 1  | 12/10/2013 2:05:58 PM | R15392 |
| Lead                           | ND      | 0.0010  | mg/L       | 1  | 12/10/2013 2:05:58 PM | R15392 |
| Selenium                       | 0.0052  | 0.0010  | mg/L       | 1  | 12/10/2013 2:05:58 PM | R15392 |
| Uranium                        | 0.011   | 0.0010  | mg/L       | 1  | 12/10/2013 2:05:58 PM | R15392 |
| EPA METHOD 245.1: MERCURY      |         |         |            |    | Analyst               | JML    |
| Mercury                        | 0.00079 | 0.00020 | mg/L       | 1  | 12/4/2013 5:46:41 PM  | 10596  |
| EPA METHOD 8270C: SEMIVOLATIL  | ES      |         |            |    | Analyst               | : DAM  |
| Acenaphthene                   | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Acenaphthylene                 | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Aniline                        | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Anthracene                     | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Azobenzene                     | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Benz(a)anthracene              | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Benzo(a)pyrene                 | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Benzo(b)fluoranthene           | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Benzo(g,h,i)perylene           | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Benzo(k)fluoranthene           | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Benzoic acid                   | ND      | 40      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Benzyl alcohol                 | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Bis(2-chloroethoxy)methane     | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Bis(2-chloroethyl)ether        | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Bis(2-chloroisopropyl)ether    | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Bis(2-ethylhexyl)phthalate     | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 4-Bromophenyl phenyl ether     | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Butyl benzyl phthalate         | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Carbazole                      | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 4-Chloro-3-methylphenol        | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 4-Chloroaniline                | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 2-Chloronaphthalene            | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 2-Chlorophenol                 | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 4-Chlorophenyl phenyl ether    | ND      | 10      | μg/L       | 1  | 12/2/2013 2:02:14 PM  | 10570  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 3 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Analytical Report Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-1

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/25/2013 11:45:00 AM

Lab ID: 1311B14-001 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                   | Result | RL Qu | al Units      | DF | Date Analyzed        | Batch |
|----------------------------|--------|-------|---------------|----|----------------------|-------|
| EPA METHOD 8270C: SEMIVOLA | TILES  |       |               |    | Analyst              | : DAM |
| Chrysene                   | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Di-n-butyl phthalate       | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Di-n-octyl phthalate       | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Dibenz(a,h)anthracene      | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Dibenzofuran               | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 1,2-Dichlorobenzene        | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 1,3-Dichlorobenzene        | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 1,4-Dichlorobenzene        | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 3,3'-Dichlorobenzidine     | ND     | 10    | µg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Diethyl phthalate          | ND     | 10    | µg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Dimethyl phthalate         | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2,4-Dichlorophenol         | ND     | 20    | µg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2,4-Dimethylphenol         | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 4,6-Dinitro-2-methylphenol | ND     | 20    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2,4-Dinitrophenol          | ND     | 20    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2,4-Dinitrotoluene         | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2,6-Dinitrotoluene         | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Fluoranthene               | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Fluorene                   | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Hexachlorobenzene          | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Hexachlorobutadiene        | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Hexachlorocyclopentadiene  | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Hexachloroethane           | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Indeno(1,2,3-cd)pyrene     | ND     | 10    | μ <b>g</b> /L | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Isophorone                 | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 1-Methylnaphthalene        | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2-Methylnaphthalene        | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2-Methylphenol             | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 3+4-Methylphenol           | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| N-Nitrosodi-n-propylamine  | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| N-Nitrosodimethylamine     | ND     | 10    | µg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| N-Nitrosodiphenylamine     | ND     | 10    | µg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Naphthalene                | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2-Nitroaniline             | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 3-Nitroaniline             | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 4-Nitroaniline             | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Nitrobenzene               | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2-Nitrophenol              | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 4-Nitrophenol              | ND     | 10    | μg/L          | 1  | 12/2/2013 2:02:14 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND N D to a local and a Recording Limit
- ND Not Detected at the Reporting Limit Page 4 of 71
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-1

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-001 Matrix: AQUEOUS

Collection Date: 11/25/2013 11:45:00 AM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL Qı     | ıal Units | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|-----------|-----------|----|-----------------------|--------|
| EPA METHOD 8270C: SEMIVOLATI   | LES    |           |           |    | Analyst               | DAM    |
| Pentachlorophenol              | ND     | 20        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Phenanthrene                   | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Phenol                         | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Pyrene                         | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Pyridine                       | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: 2-Fluorophenol           | 44.5   | 22.7-98   | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: Phenol-d5                | 34.1   | 23.4-74.9 | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: 2,4,6-Tribromophenol     | 63.1   | 23.3-111  | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: Nitrobenzene-d5          | 52.3   | 36.8-111  | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: 2-Fluorobiphenyl         | 60.7   | 38.3-110  | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: 4-Terphenyl-d14          | 64.5   | 52.1-116  | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| EPA METHOD 8260B: VOLATILES    |        |           |           |    | Analyst               | cadg   |
| Benzene                        | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Toluene                        | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Ethylbenzene                   | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Naphthalene                    | ND     | 2.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| 1-Methylnaphthalene            | ND     | 4.0       | µg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Acetone                        | ND     | 10        | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Bromobenzene                   | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Bromodichloromethane           | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Bromoform                      | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Bromomethane                   | ND     | 3.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| 2-Butanone                     | ND     | 10        | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Carbon disulfide               | ND     | 10        | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Carbon Tetrachloride           | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Chlorobenzene                  | ND     | 1.0       | µg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Chloroethane                   | ND     | 2.0       | µg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Chloroform                     | 28     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| Chloromethane                  | ND     | 3.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |
| 2-Chlorotoluene                | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R1510  |

Refer to the QC Summary report and sample login checklist fcr flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-1

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/25/2013 11:45:00 AMLab ID:1311B14-001Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu | al Units | DF Date Analyzed B        | Batch  |
|-----------------------------|--------|-------|----------|---------------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       |          | Analyst: c                | adg    |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 1,1-Dichloroethane          | ND     | 1.0   | µg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 1,2-Dichloropropane         | ND     | 1.0   | µg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 1,3-Dichloropropane         | ND     | 1.0   | µg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| Isopropylbenzene            | ND     | 1.0   | µg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | R15104 |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1 11/26/2013 4:26:34 PM R | ₹15104 |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM F | R15104 |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM F | R15104 |
| Styrene                     | ND     | 1.0   | µg/L     | 1 11/26/2013 4:26:34 PM F |        |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM F | R15104 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM F | R15104 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1 11/26/2013 4:26:34 PM F |        |
| Tetrachloroethene (PCE)     | ND     | 1.0   | µg/∟     | 1 11/26/2013 4:26:34 PM F |        |
| trans-1,2-DCE               | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM F |        |
| trans-1,3-Dichloropropene   | NĐ     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM F |        |
| 1,2,3-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM F |        |
| 1,2,4-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM F |        |
| 1,1,1-Trichloroethane       | ND     | 1.0   | µg/L     | 1 11/26/2013 4:26:34 PM F |        |
| 1,1,2-Trichloroethane       | ND     | 1.0   | µg/L     | 1 11/26/2013 4:26:34 PM F |        |
| Trichloroethene (TCE)       | ND     | 1.0   | μg/L     | 1 11/26/2013 4:26:34 PM F |        |
| Trichlorofluoromethane      | ND     | 1.0   | µg/L     | 1 11/26/2013 4:26:34 PM F |        |
| 1,2,3-Trichloropropane      | ND     | 2.0   | μg/L     | 1 11/26/2013 4:26:34 PM F | R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 6 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-1

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/25/2013 11:45:00 AM

Lab ID: 1311B14-001 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                     | Result | RL Ç   | Qual U | Jnits      | DF | Date Analyzed         | Batch        |
|------------------------------|--------|--------|--------|------------|----|-----------------------|--------------|
| EPA METHOD 8260B: VOLATILES  |        |        |        |            |    | Analys                | t: cadg      |
| Vinyl chloride               | ND     | 1.0    | t      | μg/L       | 1  | 11/26/2013 4:26:34 PM | R15104       |
| Xylenes, Total               | ND     | 1.5    | 1      | μg/L       | 1  | 11/26/2013 4:26:34 PM | 1 R15104     |
| Surr: 1,2-Dichloroethane-d4  | 95.9   | 70-130 | •      | %REC       | 1  | 11/26/2013 4:26:34 PM | 1 R15104     |
| Surr: 4-Bromofluorobenzene   | 107    | 70-130 |        | %REC       | 1  | 11/26/2013 4:26:34 PM | 1 R15104     |
| Surr: Dibromofluoromethane   | 103    | 70-130 | •      | %REC       | 1  | 11/26/2013 4:26:34 PM | 1 R15104     |
| Surr: Toluene-d8             | 96.6   | 70-130 | (      | %REC       | 1  | 11/26/2013 4:26:34 PM | 1 R15104     |
| EPA METHOD 418.1: TPH        |        |        |        |            |    | Analys                | t: JME       |
| Petroleum Hydrocarbons, TR   | ND     | 1.1    |        | mg/L       | 1  | 11/27/2013            | 10569        |
| SM2510B: SPECIFIC CONDUCTANO | E      |        |        |            |    | Analys                | t: JML       |
| Conductivity                 | 2000   | 0.010  | I      | µmhos/cm   | 1  | 11/27/2013 8:57:38 PN | 1 R15156     |
| SM4500-H+B: PH               |        |        |        |            |    | Analys                | t: JML       |
| ρΗ                           | 7.69   | 1.68   | Н      | pH units   | 1  | 11/27/2013 8:57:38 PM | 1 R15156     |
| SM2320B: ALKALINITY          |        |        |        |            |    | Analys                | t: JML       |
| Bicarbonate (As CaCO3)       | 220    | 20     | 1      | mg/L CaCO3 | 1  | 11/27/2013 8:57:38 PM | R15156       |
| Carbonate (As CaCO3)         | ٨D     | 2.0    | ;      | mg/L CaCO3 | 1  | 11/27/2013 8:57:38 PM | A R15156     |
| Total Alkalinity (as CaCO3)  | 220    | 20     |        | mg/L CaCO3 | 1  | 11/27/2013 8:57:38 PM | / R15156     |
| SM2540C MOD: TOTAL DISSOLVED | SOLIDS |        |        |            |    | Analys                | t: <b>KS</b> |
| Total Dissolved Solids       | 1780   | 200    | *      | mg/L       | 1  | 11/29/2013 2:50:00 PM | A 10567      |

### Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 7
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-2

**Project:** Lightning Dock Geothermal Water Qualit

**Collection Date:** 11/25/2013 9:00:00 AM

**Lab ID:** 1311B14-002

**CLIENT: AMEC** 

Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                          | Result | RL Q     | ual Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|-----------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |           |    | Analyst               | scc    |
| Naphthalene                       | ND     | 2.0      | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Fluorene                          | ND     | 0.80     | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Anthracene                        | ND     | 0.60     | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Pyrene                            | ND     | 0.30     | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Chrysene                          | ND     | 0.20     | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     | μg/L      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 135    | 24.5-139 | %REC      | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |           |    | Analyst               | JRR    |
| Fluoride                          | 11     | 0.50     | * mg/L    | 5  | 11/26/2013 7:12:58 PM | R15112 |
| Chloride                          | 96     | 2.5      | mg/L      | 5  | 11/26/2013 7:12:58 PM | R15112 |
| Bromide                           | ND     | 0.50     | mg/L      | 5  | 11/26/2013 7:12:58 PM | R15112 |
| Nitrogen, Nitrate (As N)          | 3.1    | 0.50     | mg/L      | 5  | 11/26/2013 7:12:58 PM | R15112 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | mg/L      | 5  | 11/26/2013 7:12:58 PM | R15112 |
| Sulfate                           | 510    | 10       | * mg/L    | 20 | 11/26/2013 7:25:22 PM | R15112 |
| EPA METHOD 200.7: DISSOLVED ME    | ETALS  |          |           |    | Analyst               | : JLF  |
| Aluminum                          | 0.049  | 0.020    | mg/L      | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Barium                            | 0.044  | 0.0020   | mg/L      | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Boron                             | 0.37   | 0.040    | mg/L      | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Cadmium                           | ND     | 0.0020   | mg/L      | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Calcium                           | 26     | 1.0      | mg/L      | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Chromium                          | ND     | 0.0060   | mg/L      | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Cobalt                            | ND     | 0.0060   | mg/L      | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Copper                            | ND     | 0.0060   | mg/L      | 1  | 12/5/2013 1:39:03 PM  | R15267 |
| Iron                              | ND     | 0.020    | mg/L      | 1  | 12/5/2013 1:39:03 PM  | R15267 |
| Magnesium                         | ND     | 1.0      | mg/L      | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Manganese                         | 0.041  | 0.0020   | mg/L      | 1  | 12/4/2013 6:43:12 PM  | R15245 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 8 of 71
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-2

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/25/2013 9:00:00 AM Lab ID: 1311B14-002 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL Qu   | al Units | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|---------|----------|----|-----------------------|--------|
| EPA METHOD 200.7: DISSOLVED MI | ETALS  |         |          |    | Analyst               | : JLF  |
| Molybdenum                     | 0.027  | 0.0080  | mg/L     | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Nickel                         | ND     | 0.010   | mg/L     | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Potassium                      | 14     | 1.0     | mg/L     | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Silver                         | ND     | 0.0050  | mg/L     | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Sodium                         | 310    | 5.0     | mg/L     | 5  | 12/4/2013 6:46:59 PM  | R15245 |
| Zinc                           | 0.015  | 0.010   | mg/L     | 1  | 12/5/2013 1:39:03 PM  | R15267 |
| EPA 200.8: DISSOLVED METALS    |        |         |          |    | Analyst               | : DBD  |
| Arsenic                        | 0.0032 | 0.0010  | mg/L     | 1  | 12/10/2013 2:11:18 PM | R15392 |
| Lead                           | ND     | 0.0010  | mg/L     | 1  | 12/10/2013 2:11:18 PM | R15392 |
| Selenium                       | 0.0035 | 0.0010  | mg/L     | 1  | 12/10/2013 2:11:18 PM | R15392 |
| Uranium                        | ND     | 0.0010  | mg/L     | 1  | 12/10/2013 2:11:18 PM | R15392 |
| EPA METHOD 245.1: MERCURY      |        |         |          |    | Analyst               | : JML  |
| Mercury                        | ND     | 0.00020 | mg/L     | 1  | 12/4/2013 5:48:29 PM  | 10596  |
| EPA METHOD 8270C: SEMIVOLATIL  | .ES    |         |          |    | Analyst               | : DAM  |
| Acenaphthene                   | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Acenaphthylene                 | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Aniline                        | ND     | 10      | µg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Anthracene                     | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Azobenzene                     | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benz(a)anthracene              | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzo(a)pyrene                 | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzo(b)fluoranthene           | ND     | 10      | µg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzo(g,h,i)perylene           | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzo(k)fluoranthene           | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzoic acid                   | ND     | 40      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzyl alcohol                 | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Bis(2-chloroethoxy)methane     | ND     | 10      | µg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Bis(2-chloroethyl)ether        | ND     | 10      | µg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Bis(2-chloroisopropyl)ether    | ND     | 10      | µg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Bis(2-ethylhexyl)phthalate     | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 4-Bromophenyl phenyl ether     | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Butyl benzyl phthalate         | ND     | 10      | µg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Carbazole                      | N'D    | 10      | µg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 4-Chloro-3-methylphenol        | ٨D     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 4-Chloroaniline                | ٨D     | 10      | µg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 2-Chloronaphthalene            | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 2-Chlorophenol                 | ND     | 10      | μg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 4-Chlorophenyl phenyl ether    | ND     | 10      | µg/L     | 1  | 12/2/2013 2:31:05 PM  | 10570  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- Page 9 of 71 P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-2

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/25/2013 9:00:00 AM

Lab ID: 1311B14-002 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                   | Result | RL Qu | al Units | DF | Date Analyzed        | Batch |
|----------------------------|--------|-------|----------|----|----------------------|-------|
| EPA METHOD 8270C: SEMIVOLA | TILES  |       |          |    | Analyst              | : DAM |
| Chrysene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Di-n-butyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Di-n-octyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Dibenz(a,h)anthracene      | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Dibenzofuran               | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 1,2-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 1,3-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 1,4-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 3,3'-Dichlorobenzidine     | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Diethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Dimethyl phthalate         | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2,4-Dichlorophenol         | ND     | 20    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2,4-Dimethylphenol         | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 4,6-Dinitro-2-methylphenol | ND     | 20    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2,4-Dinitrophenol          | ND     | 20    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2,4-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2,6-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Fluoranthene               | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Fluorene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Hexachlorobenzene          | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Hexachlorobutadiene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Hexachlorocyclopentadiene  | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Hexachloroethane           | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Indeno(1,2,3-cd)pyrene     | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Isophorone                 | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 1-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2-Methylphenol             | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 3+4-Methylphenol           | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| N-Nitrosodi-n-propylamine  | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| N-Nitrosodimethylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| N-Nitrosodiphenylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Naphthalene                | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 3-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 4-Nitroaniline             | ND     | 10    | µg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Nitrobenzene               | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 4-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit Not Detected at the Reporting Limit Page 10 of 71 Sample pH greater than 2 for VOA and TOC only.
- Р
- RL Reporting Detection Limit

#### Lab Order 1311B14

Date Reported: 12/16/2013

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-2

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/25/2013 9:00:00 AMLab ID:1311B14-002Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| EPA METHOD 8270C: SEMIVOLATIL  | EC   |           |      |   |                       |        |
|--------------------------------|------|-----------|------|---|-----------------------|--------|
| LI A METHOD 02700. CEMITOEATIE | -E3  |           |      |   | Analyst:              | DAM    |
| Pentachlorophenol              | ND   | 20        | μg/L | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| Phenanthrene                   | ND   | 10        | μg/L | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| Phenol                         | ND   | 10        | μg/L | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| Pyrene                         | ND   | 10        | μg/L | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| Pyridine                       | ND   | 10        | μg/L | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| 1,2,4-Trichlorobenzene         | ND   | 10        | μg/L | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| 2,4,5-Trichlorophenol          | ND   | 10        | μg/L | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| 2,4,6-Trichlorophenol          | ND   | 10        | μg/L | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| Surr: 2-Fluorophenol           | 57.6 | 22.7-98   | %REC | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| Surr: Phenol-d5                | 42.0 | 23.4-74.9 | %REC | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| Surr: 2,4,6-Tribromophenol     | 78.5 | 23.3-111  | %REC | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| Surr: Nitrobenzene-d5          | 69.9 | 36.8-111  | %REC | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| Surr: 2-Fluorobiphenyl         | 69.2 | 38.3-110  | %REC | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| Surr: 4-Terphenyl-d14          | 78.5 | 52.1-116  | %REC | 1 | 12/2/2013 2:31:05 PM  | 10570  |
| EPA METHOD 8260B: VOLATILES    |      |           |      |   | Analyst               | cadg   |
| Benzene                        | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Toluene                        | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Ethylbenzene                   | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Methyl tert-butyl ether (MTBE) | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| 1,2,4-Trimethylpenzene         | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| 1,3,5-Trimethylbenzene         | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| 1,2-Dichloroethane (EDC)       | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| 1,2-Dibromoethane (EDB)        | ٨D   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Naphthalene                    | ND   | 2.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| 1-Methylnaphthalene            | ND   | 4.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| 2-Methylnaphthalene            | ND   | 4.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Acetone                        | ND   | 10        | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Bromobenzene                   | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Bromodichloromethane           | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Bromoform                      | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Bromomethane                   | ND   | 3.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| 2-Butanone                     | ND   | 10        | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Carbon disulfide               | ND   | 10        | µg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Carbon Tetrachloride           | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Chlorobenzene                  | ND   | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Chloroethane                   | ND   | 2.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Chloroform                     | 4.9  | 1.0       | μg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |
| Chloromethane                  | ND   | 3.0       | µg/∟ | 1 | 11/26/2013 5:53:08 PM | R15104 |
| 2-Chlorotoluene                | ND   | 1.0       | µg/L | 1 | 11/26/2013 5:53:08 PM | R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 11 of 71

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-2

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/25/2013 9:00:00 AMLab ID:1311B14-002Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu | al Units | DF Date Ar | ıalyzed        | Batch  |
|-----------------------------|--------|-------|----------|------------|----------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       | ,        |            | Analyst:       | cadg   |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1 11/26/20 | 13 5:53:08 PM  | R15104 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1 11/26/20 | 13 5:53:08 PM  | R15104 |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1 11/26/20 | 13 5:53:08 PM  | R15104 |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/20 | 13 5:53:08 PM  | R15104 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/20 | 13 5:53:08 PM  | R15104 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| Styrene                     | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| Tetrachloroethene (PCE)     | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| trans-1,2-DCE               | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| trans-1,3-Dichloropropene   | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,2,3-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,2,4-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,1,1-Trichloroethane       | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,1,2-Trichloroethane       | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| Trichloroethene (TCE)       | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| Trichlorofluoromethane      | ND     | 1.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |
| 1,2,3-Trichloropropane      | ND     | 2.0   | μg/L     | 1 11/26/20 | 013 5:53:08 PM | R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 12 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-2

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/25/2013 9:00:00 AMLab ID:1311B14-002Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed         | Batch        |
|--------------------------------|--------|--------|------|------------|----|-----------------------|--------------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analysi               | : cadg       |
| Vinyl chloride                 | ND     | 1.0    |      | μg/L       | 1  | 11/26/2013 5:53:08 PM | R15104       |
| Xylenes, Total                 | ND     | 1.5    |      | μg/L       | 1  | 11/26/2013 5:53:08 PM | R15104       |
| Surr: 1,2-Dichloroethane-d4    | 99.1   | 70-130 |      | %REC       | 1  | 11/26/2013 5:53:08 PM | R15104       |
| Surr: 4-Bromofluorobenzene     | 104    | 70-130 |      | %REC       | 1  | 11/26/2013 5:53:08 PM | 1 R15104     |
| Surr: Dibromofluoromethane     | 103    | 70-130 |      | %REC       | 1  | 11/26/2013 5:53:08 PM | 1 R15104     |
| Surr: Toluene-d8               | 100    | 70-130 |      | %REC       | 1  | 11/26/2013 5:53:08 PM | 1 R15104     |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analys                | t: JME       |
| Petroleum Hydrocarbons, TR     | ND     | 1.2    |      | mg/L       | 1  | 11/27/2013            | 10569        |
| SM2510B: SPECIFIC CONDUCTANCE  |        |        |      |            |    | Analys                | t: JML       |
| Conductivity                   | 1600   | 0.010  |      | µmhos/cm   | 1  | 11/27/2013 9:09:43 PM | 1 R15156     |
| SM4500-H+B: PH                 |        |        |      |            |    | Analys                | t: JML       |
| рН                             | 7.60   | 1.68   | Н    | ρH units   | 1  | 11/27/2013 9:09:43 PM | 1 R15156     |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analys                | t: JML       |
| Bicarbonate (As CaCO3)         | 72     | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:09:43 PM | 1 R15156     |
| Carbonate (As CaCO3)           | ND     | 2.0    |      | mg/L CaCO3 | 1  | 11/27/2013 9:09:43 PM | 1 R15156     |
| Total Alkalinity (as CaCO3)    | 72     | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:09:43 PM | 1 R15156     |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analys                | t: <b>KS</b> |
| Total Dissolved Solids         | 1380   | 200    | *    | mg/L       | 1  | 11/29/2013 2:50:00 PM | 1 10567      |

### Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 13 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-2B

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/25/2013 9:30:00 AMLab ID:1311B14-003Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst               | scc    |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | µg/L  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 112    | 24.5-139 |      | %REC  | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst               | JRR    |
| Fluoride                          | 11     | 0.50     | *    | mg/L  | 5  | 11/26/2013 7:37:47 PM | R15112 |
| Chloride                          | 96     | 2.5      |      | mg/L  | 5  | 11/26/2013 7:37:47 PM | R15112 |
| Bromide                           | ND     | 0.50     |      | mg/L  | 5  | 11/26/2013 7:37:47 PM | R15112 |
| Nitrogen, Nitrate (As N)          | 3.2    | 0.50     |      | mg/L  | 5  | 11/26/2013 7:37:47 PM | R15112 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      |      | mg/L  | 5  | 11/26/2013 7:37:47 PM | R15112 |
| Sulfate                           | 510    | 10       | *    | mg/L  | 20 | 11/26/2013 7:50:11 PM | R15112 |
| EPA METHOD 200.7: DISSOLVED ME    | ETALS  |          |      |       |    | Analyst               | JLF    |
| Aluminum                          | 0.024  | 0.020    |      | mg/L  | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Barium                            | 0.043  | 0.0020   |      | mg/L  | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Boron                             | 0.36   | 0.040    |      | mg/L  | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Cadmium                           | ND     | 0.0020   |      | mg/L  | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Calcium                           | 26     | 1.0      |      | mg/L  | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Chromium                          | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Cobalt                            | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Copper                            | ND     | 0.0060   |      | mg/L  | 1  | 12/5/2013 1:40:57 PM  | R15267 |
| Íron                              | ND     | 0.020    |      | mg/L  | 1  | 12/5/2013 1:40:57 PM  | R15267 |
| Magnesium                         | ND     | 1.0      |      | mg/L  | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Manganese                         | 0.036  | 0.0020   |      | mg/L  | 1  | 12/4/2013 6:55:38 PM  | R15245 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- $R \quad RPD \ outside \ accepted \ recovery \ limits$
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 14 of 71
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-2B **CLIENT: AMEC** 

Collection Date: 11/25/2013 9:30:00 AM Project: Lightning Dock Geothermal Water Qualit Lab ID: 1311B14-003 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                        | Result | RL Qu   | ial Units | DF | Date Analyzed         | Batch         |
|---------------------------------|--------|---------|-----------|----|-----------------------|---------------|
| EPA METHOD 200.7: DISSOLVED MET | ΓALS   |         |           |    | Analys                | t: JLF        |
| Molybdenum                      | 0.0:26 | 0.0080  | mg/L      | 1  | 12/4/2013 6:55:38 PM  | R15245        |
| Nickel                          | ND     | 0.010   | mg/L      | 1  | 12/4/2013 6:55:38 PM  | R15245        |
| Potassium                       | 15     | 1.0     | mg/L      | 1  | 12/4/2013 6:55:38 PM  | R15245        |
| Silver                          | ND     | 0.0050  | mg/L      | 1  | 12/4/2013 6:55:38 PM  | R15245        |
| Sodium                          | 310    | 5.0     | mg/L      | 5  | 12/4/2013 6:59:27 PM  | R15245        |
| Zinc                            | ND     | 0.010   | mg/L      | 1  | 12/5/2013 1:40:57 PM  | R15267        |
| EPA 200.8: DISSOLVED METALS     |        |         |           |    | Analys                | t: <b>DBD</b> |
| Arsenic                         | 0.0083 | 0.0010  | mg/L      | 1  | 12/10/2013 2:13:58 PM | 1 R15392      |
| Lead                            | ND     | 0.0010  | mg/L      | 1  | 12/10/2013 2:13:58 PM | 1 R15392      |
| Selenium                        | 0.0035 | 0.0010  | mg/L      | 1  | 12/10/2013 2:13:58 PM | 1 R15392      |
| Uranium                         | ND     | 0.0010  | mg/L      | 1  | 12/10/2013 2:13:58 PM | 1 R15392      |
| EPA METHOD 245.1: MERCURY       |        |         |           |    | Analys                | t: JML        |
| Mercury                         | ND     | 0.00020 | mg/L      | 1  | 12/4/2013 5:53:59 PM  | 10596         |
| EPA METHOD 8270C: SEMIVOLATILE  | s      |         |           |    | Analys                | t: DAM        |
| Acenaphthene                    | ND     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Acenaphthylene                  | ND     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Aniline                         | ND     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Anthracene                      | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Azobenzene                      | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benz(a)anthracene               | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzo(a)pyrene                  | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzo(b)fluoranthene            | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzo(g,h,i)perylene            | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzo(k)fluoranthene            | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzoic acid                    | ND     | 40      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzyl alcohol                  | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Bis(2-chloroethoxy)methane      | ND     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Bis(2-chloroethyl)ether         | ND     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Bis(2-chloroisopropyl)ether     | ND     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Bis(2-ethylhexyl)phthalate      | ND     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| 4-Bromophenyl phenyl ether      | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Butyl benzyl phthalate          | ND     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Carbazole                       | NĐ     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| 4-Chloro-3-methylphenol         | ND     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| 4-Chloroaniline                 | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| 2-Chloronaphthalene             | ND     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| 2-Chlorophenol                  | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| 4-Chlorophenyl phenyl ether     | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |

Refer to the QC Summary report and sample login checklist fcr flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

  - Not Detected at the Reporting Limit Page 15 of 71 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### **Analytical Report** Lab Order 1311B14

Date Reported: 12/16/2013

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-2B **CLIENT: AMEC** 

Collection Date: 11/25/2013 9:30:00 AM Project: Lightning Dock Geothermal Water Qualit

1311B14-003 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM Lab ID:

| Analyses                   | Result | RL Qu | al Units | DF | Date Analyzed        | Batch |
|----------------------------|--------|-------|----------|----|----------------------|-------|
| EPA METHOD 8270C: SEMIVOLA | TILES  |       |          |    | Analyst:             | DAM   |
| Chrysene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Di-n-butyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Di-n-octyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Dibenz(a,h)anthracene      | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Dibenzofuran               | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 1,2-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 1,3-Dichlorobenzene        | ND     | 10    | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 1,4-Dichlorobenzene        | ND     | 10    | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 3,3'-Dichlorobenzidine     | ND     | 10    | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Diethyl phthalate          | ND     | 10    | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Dimethyl phthalate         | ND     | 10    | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2,4-Dichlorophenol         | ND     | 20    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2,4-Dimethylphenol         | ND     | 10    | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 4,6-Dinitro-2-methylphenol | ND     | 20    | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2,4-Dinitrophenol          | ND     | 20    | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2,4-Dinitrotoluene         | ND     | 10    | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2,6-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Fluoranthene               | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Fluorene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Hexachlorobenzene          | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Hexachlorobutadiene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Hexachlorocyclopentadiene  | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Hexachloroethane           | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Indeno(1,2,3-cd)pyrene     | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Isophorone                 | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 1-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2-Methylphenol             | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 3+4-Methylphenol           | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| N-Nitrosodi-n-propylamine  | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| N-Nitrosodimethylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| N-Nitrosodiphenylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Naphthalene                | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 3-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 4-Nitroaniline             | ND     | 10    | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Nitrobenzene               | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 4-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- Page 16 of 71 Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

#### Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-2B

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/25/2013 9:30:00 AMLab ID:1311B14-003Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL Qu     | ıal Units | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|-----------|-----------|----|-----------------------|--------|
| EPA METHOD 8270C: SEMIVOLATILE | s      |           |           |    | Analyst               | DAM    |
| Pentachlorophenol              | ND     | 20        | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Phenanthrene                   | ND     | 10        | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Phenol                         | ND     | 10        | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Pyrene                         | ND     | 10        | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Pyridine                       | ND     | 10        | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: 2-Fluorophenol           | 38.8   | 22.7-98   | %REC      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: Phenol-d5                | 29.9   | 23.4-74.9 | %REC      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: 2,4,6-Tribromophenol     | 65.6   | 23.3-111  | %REC      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: Nitrobenzene-d5          | 49.1   | 36.8-111  | %REC      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: 2-Fluorobiphenyl         | 51.5   | 38.3-110  | %REC      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: 4-Terphenyl-d14          | 75.9   | 52.1-116  | %REC      | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| EPA METHOD 8260B: VOLATILES    |        |           |           |    | Analyst               | cadg   |
| Benzene                        | ND     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Toluene                        | ND     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Ethylbenzene                   | ND     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2,4-Trimethylbenzene         | ٨D     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,3,5-Trimethylbenzene         | ٨D     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2-Dichloroethane (EDC)       | ٨D     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Naphthalene                    | ND.    | 2.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Acetone                        | ND     | 10        | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Bromobenzene                   | ND     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Bromodichlorornethane          | ND     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Bromoform                      | ND     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Bromomethane                   | ND     | 3.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 2-Butanone                     | ND     | 10        | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Carbon disulfide               | ND     | 10        | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Carbon Tetrachloride           | ND     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Chlorobenzene                  | ND     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Chloroethane                   | ND     | 2.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Chloroform                     | 5.2    | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Chloromethane                  | ND     | 3.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 2-Chlorotoluene                | ND     | 1.0       | μg/L      | 1  | 11/26/2013 6:50:39 PM | R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 1
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-2B

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/25/2013 9:30:00 AMLab ID:1311B14-003Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu | al Units | DF Date Analyzed Ba       | atch   |
|-----------------------------|--------|-------|----------|---------------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       |          | Analyst: ca               | adg    |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 4-isopropyltoluene          | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| Styrene                     | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| Tetrachloroethene (PCE)     | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | 15104  |
| trans-1,2-DCE               | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | ₹15104 |
| trans-1,3-Dichloropropene   | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | ₹15104 |
| 1,2,3-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | ₹15104 |
| 1,2,4-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | ₹15104 |
| 1,1,1-Trichloroethane       | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | ₹15104 |
| 1,1,2-Trichloroethane       | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | ₹15104 |
| Trichloroethene (TCE)       | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | ₹15104 |
| Trichlorofluoromethane      | ND     | 1.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | ₹15104 |
| 1,2,3-Trichloropropane      | ND     | 2.0   | μg/L     | 1 11/26/2013 6:50:39 PM R | ₹15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 18 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Analytical Report Lab Order 1311B14

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-2B

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/25/2013 9:30:00 AMLab ID:1311B14-003Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed          | Batch          |
|--------------------------------|--------|--------|------|------------|----|------------------------|----------------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analys                 | t: cadg        |
| Vinyl chloride                 | ND     | 1.0    |      | µg/L       | 1  | 11/26/2013 6:50:39 PM  | / R15104       |
| Xylenes, Total                 | ND     | 1.5    |      | μg/L       | 1  | 11/26/2013 6:50:39 PM  | / R15104       |
| Surr: 1,2-Dichloroethane-d4    | 98.0   | 70-130 |      | %REC       | 1  | 11/26/2013 6:50:39 PM  | / R15104       |
| Surr: 4-Bromofluorobenzene     | 109    | 70-130 |      | %REC       | 1  | 11/26/2013 6:50:39 F/N | R15104         |
| Surr: Dibromofluoromethane     | 100    | 70-130 |      | %REC       | 1  | 11/26/2013 6:50:39 PM  | R15104         |
| Surr: Toluene-d8               | 93.7   | 70-130 |      | %REC       | 1  | 11/26/2013 6:50:39 PM  | R15104         |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analys                 | t: JME         |
| Petroleum Hydrocarbons, TR     | ND     | 1.1    |      | mg/L       | 1  | 11/27/2013             | 10569          |
| SM2510B: SPECIFIC CONDUCTANCE  |        |        |      |            |    | Analys                 | t: JML         |
| Conductivity                   | 1500   | 0.010  |      | µmhos/cm   | 1  | 11/27/2013 9:17:47 PM  | / R15156       |
| SM4500-H+B: PH                 |        |        |      |            |    | Analys                 | t: JML         |
| рН                             | 7.58   | 1.68   | Н    | pH units   | 1  | 11/27/2013 9:17:47 PM  | R15156         |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analys                 | t: JML         |
| Bicarbonate (As CaCO3)         | 72     | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:17:47 PM  | M R15156       |
| Carbonate (As CaCO3)           | ND     | 2.0    |      | mg/L CaCO3 | 1  | 11/27/2013 9:17:47 PM  | / R15156       |
| Total Alkalinity (as CaCO3)    | 72     | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:17:47 PM  | M R15156       |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analys                 | t: KS          |
| Total Dissolved Solids         | 1210   | 200    | *    | mg/L       | 1  | 11/29/2013 2:50:00 FM  | <i>I</i> 10567 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminan: Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 19 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-3

Collection Date: 11/24/2013 5:50:00 PM Project: Lightning Dock Geothermal Water Qualit

1311B14-004 Lab ID: Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst               | scc    |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | µg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      |      | µg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      |      | µg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | µg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | µg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | µg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | µg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | µg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 136    | 24.5-139 |      | %REC  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst               | JRR    |
| Fluoride                          | 12     | 0.50     | *    | mg/L  | 5  | 11/26/2013 8:27:26 PM | R15112 |
| Chloride                          | 94     | 10       |      | mg/L  | 20 | 11/26/2013 8:39:50 PM | R15112 |
| Bromide                           | ND     | 0.50     |      | mg/L  | 5  | 11/26/2013 8:27:26 PM | R15112 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 11/26/2013 8:27:26 PM | R15112 |
| Sulfate                           | 540    | 10       | *    | mg/L  | 20 | 11/26/2013 8:39:50 PM | R15112 |
| Nitrate+Nitrite as N              | 2.1    | 1.0      |      | mg/L  | 5  | 12/7/2013 3:55:41 AM  | R15322 |
| EPA METHOD 200.7: DISSOLVED MI    | ETALS  |          |      |       |    | Analyst               | JLF    |
| Aluminum                          | 0.31   | 0.020    | *    | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Barium                            | 0.060  | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Boron                             | 0.44   | 0.040    |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Cadmium                           | ND     | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Calcium                           | 24     | 1.0      |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Chromium                          | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Cobalt                            | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Copper                            | ND     | 0.0060   |      | mg/L  | 1  | 12/5/2013 1:42:50 PM  | R15267 |
| Iron                              | 0.24   | 0.020    |      | mg/L  | 1  | 12/5/2013 1:42:50 PM  | R15267 |
| Magnesium                         | ND     | 1.0      |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Manganese                         | 0.18   | 0.0020   | *    | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R15245 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit ND
- Page 20 of 71 P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-3

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-004 Matrix: AQUEOUS

Collection Date: 11/24/2013 5:50:00 PM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result  | RL Q    | ıal Units | DF | Date Analyzed         | Batch  |
|--------------------------------|---------|---------|-----------|----|-----------------------|--------|
| EPA METHOD 200.7: DISSOLVED ME | TALS    |         |           |    | Analyst               | : JLF  |
| Molybdenum                     | 0.065   | 0.0080  | mg/L      | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Nickel                         | ND      | 0.010   | mg/L      | 1  | 12/5/2013 1:42:50 PM  | R15267 |
| Potassium                      | 17      | 1.0     | mg/L      | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Silver                         | ND      | 0.0050  | mg/L      | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Sodium                         | 330     | 5.0     | mg/L      | 5  | 12/4/2013 7:21:02 PM  | R15245 |
| Zinc                           | ND      | 0.010   | mg/L      | 1  | 12/5/2013 1:42:50 PM  | R15267 |
| EPA 200.8: DISSOLVED METALS    |         |         |           |    | Analyst               | DBD    |
| Arsenic                        | 0.019   | 0.0010  | * mg/L    | 1  | 12/10/2013 2:22:00 PM | R15392 |
| Lead                           | ND      | 0.0010  | mg/L      | 1  | 12/10/2013 2:22:00 PM | R15392 |
| Selenium                       | 0.0034  | 0.0010  | mg/L      | 1  | 12/10/2013 2:22:00 PM | R15392 |
| Uranium                        | ND      | 0.0010  | mg/L      | 1  | 12/10/2013 2:22:00 PM | R15392 |
| EPA METHOD 245.1: MERCURY      |         |         |           |    | Analyst               | : JML  |
| Mercury                        | 0.00034 | 0.00020 | mg/L      | 1  | 12/4/2013 5:55:47 PM  | 10596  |
| EPA METHOD 8270C: SEMIVOLATIL  | ES      |         |           |    | Analyst               | : DAM  |
| Acenaphthene                   | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Acenaphthylene                 | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Aniline                        | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Anthracene                     | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Azobenzene                     | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benz(a)anthracene              | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzo(a)pyrene                 | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzo(b)fluoranthene           | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzo(g,h,i)perylene           | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzo(k)fluoranthene           | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzoic acid                   | 41      | 40      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzyl alcohol                 | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Bis(2-chloroethoxy)methane     | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Bis(2-chloroethyl)ether        | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Bis(2-chloroisopropyl)ether    | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Bis(2-ethylhexyl)phthalate     | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 4-Bromophenyl phenyl ether     | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Butyl benzyl phthalate         | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Carbazole                      | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 4-Chloro-3-methylphenol        | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 4-Chloroaniline                | ND      | 10      | µg/∟      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 2-Chloronaphthalene            | ND      | 10      | μg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 2-Chlorophenol                 | ND      | 10      | µg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 4-Chlorophenyl phenyl ether    | ND      | 10      | µg/L      | 1  | 12/2/2013 3:28:59 PM  | 10570  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 21 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-3

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/24/2013 5:50:00 PMLab ID:1311B14-004Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Chrysene   | Analyses                   | Result | RL Qu | al Units | DF | Date Analyzed        | Batch |
|--|----------------------------|--------|-------|----------|----|----------------------|-------|
| Din-butyl phthalate  | EPA METHOD 8270C: SEMIVOLA | TILES  |       |          |    | Analyst              | DAM   |
| Disparación phinhalate   ND   10   µg/L   1   12/2/2013 3:28:59 PM   10570   | Chrysene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Dibenz(a,h)anthracene  | Di-n-butyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Dibenzofuran   | Di-n-octyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 1,2-Dichlorobenzene  | Dibenz(a,h)anthracene      | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 1,3-Dichlorobenzene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           1,4-Dichlorobenzene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           3,3'-Dichlorobenzidine         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Diethyl phthalate         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           2,4-Dimethylphenol         ND         20         µg/L         1         12/2/2013 3:28:59 PM         10570           4,6-Dinitro-2-methylphenol         ND         20         µg/L         1         12/2/2013 3:28:59 PM         10570           4,6-Dinitro-2-methylphenol         ND         20         µg/L         1         12/2/2013 3:28:59 PM         10570           4,6-Dinitro-2-methylphenol         ND         20         µg/L         1         12/2/2013 3:28:59 PM         10570           4,6-Dinitro-2-methylphenol         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           2,4-Dinitrotoluene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           2,6-Dinitrotolue  | Dibenzofuran               | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 1,4-Dichlorobenzene  | 1,2-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 3,3'-Dichlorobenzidine ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Diethyl phthalate ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Dimethyl phthalate ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 2,4-Dimethyl phthalate ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 2,4-Dimethylphenol ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 4,6-Dinitro-2-methylphenol ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 4,6-Dinitro-2-methylphenol ND 20 µg/L 1 12/2/2013 3:28:59 PM 10570 4,6-Dinitro-2-methylphenol ND 20 µg/L 1 12/2/2013 3:28:59 PM 10570 2,4-Dinitrophenol ND 20 µg/L 1 12/2/2013 3:28:59 PM 10570 2,4-Dinitrophenol ND 20 µg/L 1 12/2/2013 3:28:59 PM 10570 2,4-Dinitrotoluene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 | 1,3-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Diethyl phthalate  | 1,4-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Dimethyl phthalate   | 3,3'-Dichlorobenzidine     | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 2,4-Dichlorophenol         ND         20         µg/L         1         12/2/2013 3:28:59 PM         10570           2,4-Dimethylphenol         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           4,6-Dinitro-Z-methylphenol         ND         20         µg/L         1         12/2/2013 3:28:59 PM         10570           2,4-Dinitrophenol         ND         20         µg/L         1         12/2/2013 3:28:59 PM         10570           2,4-Dinitrotoluene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           2,6-Dinitrotoluene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           2,6-Dinitrotoluene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Fluoranthene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Fluorene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorobutadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorobutadiene         ND         10 </td <td>Diethyl phthalate</td> <td>ND</td> <td>10</td> <td>μg/L</td> <td>1</td> <td>12/2/2013 3:28:59 PM</td> <td>10570</td>  | Diethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 2,4-Dimethylphenol       ND       10       µg/L       1       12/2/2013 3:28:59 PM       10570         4,6-Dinitro-2-methylphenol       ND       20       µg/L       1       12/2/2013 3:28:59 PM       10570         2,4-Dinitrotoluene       ND       10       µg/L       1       12/2/2013 3:28:59 PM       10570         2,4-Dinitrotoluene       ND       10       µg/L       1       12/2/2013 3:28:59 PM       10570         2,6-Dinitrotoluene       ND       10       µg/L       1       12/2/2013 3:28:59 PM       10570         Fluoranthene       ND       10       µg/L       1       12/2/2013 3:28:59 PM       10570         Fluorene       ND       10       µg/L       1       12/2/2013 3:28:59 PM       10570         Hexachlorobutadiene       ND       10       µg/L       1       12/2/2013 3:28:59 PM       10570         Hexachlorobutadiene       ND       10       µg/L       1       12/2/2013 3:28:59 PM       10570         Hexachlorobutadiene       ND       10       µg/L       1       12/2/2013 3:28:59 PM       10570         Hexachlorobutadiene       ND       10       µg/L       1       12/2/2013 3:28:59 PM       10570         Hexach  | Dimethyl phthalate         | ND     | 10    | µg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 4,6-Dinitro-2-methylphenol       ND       20       μg/L       1       12/2/2013 3:28:59 PM       10570         2,4-Dinitrophenol       ND       20       μg/L       1       12/2/2013 3:28:59 PM       10570         2,4-Dinitrotoluene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         2,6-Dinitrotoluene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Fluoranthene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Fluorene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Hexachlorobenzene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Hexachlorobutadiene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Hexachlorocyclopentadiene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Hexachlorochane       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Hexachlorochane       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Indenot(1   | 2,4-Dichlorophenol         | ND     | 20    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 2,4-Dinitrophenol         ND         20         µg/L         1         12/2/2013 3:28:59 PM         10570           2,4-Dinitrotoluene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           2,6-Dinitrotoluene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Fluoranthene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Fluorene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorobenzene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorobutadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND <td>2,4-Dimethylphenol</td> <td>ND</td> <td>10</td> <td>μg/L</td> <td>1</td> <td>12/2/2013 3:28:59 PM</td> <td>10570</td>   | 2,4-Dimethylphenol         | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 2,4-Dinitrotoluene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           2,6-Dinitrotoluene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Fluoranthene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Fluorene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorobenzene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorobutadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene <t< td=""><td>4,6-Dinitro-2-methylphenol</td><td>ND</td><td>20</td><td>μg/L</td><td>1</td><td>12/2/2013 3:28:59 PM</td><td>10570</td></t<>   | 4,6-Dinitro-2-methylphenol | ND     | 20    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 2,6-Dinitrotoluene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Fluoranthene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Fluorene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorobenzene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorobutadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         µg/L         1         12/2/2013 3:28:59 PM         10570           Indental Strate Park  | 2,4-Dinitrophenol          | ND     | 20    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Fluoranthene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Fluorene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Hexachlorobenzene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Hexachlorobutadiene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Hexachlorocyclopentadiene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Hexachlorocyclopentadiene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Hexachlorocyclopentadiene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Hexachlorocyclopentadiene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Indeno(1,2,3-cd)pyrene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Indeno(1,2,3-cd)pyrene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Isophorone ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 I-Methylnaphthalene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 I-Methylnaphthalene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 I-Methylphenol ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570  | 2,4-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Fluorene   ND   10   | 2,6-Dinitrotoluene         | ND     | 10    | µg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Hexachlorobenzene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorobutadiene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Indeno(1,2,3-cd)pyrene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Isophorone         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           1-Methylnaphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3+4-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodi-n-propylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodi-phenylamine <td< td=""><td>Fluoranthene</td><td>ND</td><td>10</td><td>μg/L</td><td>1</td><td>12/2/2013 3:28:59 PM</td><td>10570</td></td<>   | Fluoranthene               | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Hexachlorobutadiene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocyclopentadiene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Hexachlorocethane         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Indeno(1,2,3-cd)pyrene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Isophorone         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           1-Methylnaphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Methylnaphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3+4-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodi-n-propylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodiphenylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Naphthalene         ND   | Fluorene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Hexachlorocyclopentadiene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Hexachloroethane         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Indeno(1,2,3-cd)pyrene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Isophorone         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           1-Methylnaphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Methylnaphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3+4-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodi-n-propylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodimethylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Naphthalene         ND   | Hexachlorobenzene          | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Hexachloroethane         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Indeno(1,2,3-cd)pyrene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Isophorone         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           1-Methylnaphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3+4-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodi-n-propylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodimethylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodiphenylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Naphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitroaniline         ND         10<   | Hexachlorobutadiene        | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Indeno(1,2,3-cd)pyrene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Isophorone         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           1-Methylnaphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Methylpaphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3+4-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodi-n-propylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodimethylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodimethylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Naphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitroaniline         ND  | Hexachlorocyclopentadiene  | ND     | 10    | µg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Isophorone         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           1-Methylnaphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Methylnaphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3+4-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodi-n-propylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodimethylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodiphenylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Naphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           4-Nitroaniline         ND         10   | Hexachloroethane           | ND     | 10    | µg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 1-Methylnaphthalene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 2-Methylnaphthalene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 2-Methylphenol ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 3+4-Methylphenol ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 N-Nitrosodi-n-propylamine ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 N-Nitrosodimethylamine ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 N-Nitrosodiphenylamine ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 N-Nitrosodiphenylamine ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Naphthalene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 N-Nitrosodiphenylamine ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 N-Nitrosodiphenylamine ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 N-Nitrosodiphenylamine ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 N-Nitrosodiline ND 10 μg/L 1   | Indeno(1,2,3-cd)pyrene     | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 2-Methylnaphthalene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         2-Methylphenol       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         3+4-Methylphenol       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         N-Nitrosodi-n-propylamine       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         N-Nitrosodiphenylamine       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Naphthalene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         2-Nitroaniline       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         3-Nitroaniline       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         4-Nitroaniline       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Nitrobenzene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         2-Nitrophenol       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570   | Isophorone                 | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 2-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3+4-Methylphenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodi-n-propylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodiphenylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Naphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           4-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Nitrobenzene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitrophenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570   | 1-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 3+4-Methylphenol ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 N-Nitrosodi-n-propylamine ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 N-Nitrosodimethylamine ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 N-Nitrosodiphenylamine ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Naphthalene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Naphthalene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 2-Nitroaniline ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 3-Nitroaniline ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 4-Nitroaniline ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Nitrobenzene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Nitrobenzene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 10570 ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Nitrobenzene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 10570   | 2-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| N-Nitrosodi-n-propylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodimethylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodiphenylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Naphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           4-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Nitrobenzene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitrophenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570  | 2-Methylphenol             | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| N-Nitrosodimethylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           N-Nitrosodiphenylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Naphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           4-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Nitrobenzene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitrophenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570  | 3+4-Methylphenol           | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| N-Nitrosodiphenylamine         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Naphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           4-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Nitrobenzene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitrophenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570   | N-Nitrosodi-n-propylamine  | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Naphthalene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           3-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           4-Nitroaniline         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           Nitrobenzene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitrophenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570  | N-Nitrosodimethylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 2-Nitroaniline       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         3-Nitroaniline       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         4-Nitroaniline       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Nitrobenzene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         2-Nitrophenol       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570  | N-Nitrosodiphenylamine     | ND     | 10    |          | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 3-Nitroaniline ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 4-Nitroaniline ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Nitrobenzene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 2-Nitrophenol ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570   | Naphthalene                | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 4-Nitroaniline       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         Nitrobenzene       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570         2-Nitrophenol       ND       10       μg/L       1       12/2/2013 3:28:59 PM       10570  | 2-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| Nitrobenzene         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570           2-Nitrophenol         ND         10         μg/L         1         12/2/2013 3:28:59 PM         10570   | 3-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 2-Nitrophenol ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570  | 4-Nitroaniline             | ND     | 10    |          | 1  | 12/2/2013 3:28:59 PM | 10570 |
|  | Nitrobenzene               | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
| 4-Nitrophenol ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570  | 2-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |
|  | 4-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 3:28:59 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 22 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### **Analytical Report** Lab Order 1311B14

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

**CLIENT: AMEC** Client Sample ID: MW-3

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 5:50:00 PM 1311B14-004 Lab ID: Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL        | Qual Units | DF | Date Analyzed         | Batch    |
|--------------------------------|--------|-----------|------------|----|-----------------------|----------|
| EPA METHOD 8270C: SEMIVOLATILE | s      |           |            |    | Analyst               | : DAM    |
| Pentachlorophenol              | ND     | 20        | µg/L       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| Phenanthrene                   | ND     | 10        | μg/L       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| Phenol                         | ND     | 10        | μg/L       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| Pyrene                         | ND     | 10        | μg/L       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| Pyridine                       | ND     | 10        | μg/L       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| 2,4,6-Trichlorophenol          | ND     | 10        | µg/L       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| Surr: 2-Fluorophenol           | 39.0   | 22.7-98   | %REC       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| Surr: Phenol-d5                | 30.9   | 23.4-74.9 | %REC       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| Surr: 2,4,6-Tribromophenol     | 64.6   | 23.3-111  | %REC       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| Surr: Nitrobenzene-d5          | 50.6   | 36.8-111  | %REC       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| Surr: 2-Fluorobiphenyl         | 59.8   | 38.3-110  | %REC       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| Surr: 4-Terphenyl-d14          | 59.8   | 52.1-116  | %REC       | 1  | 12/2/2013 3:28:59 PM  | 10570    |
| EPA METHOD 8260B: VOLATILES    |        |           |            |    | Analyst               | : cadg   |
| Benzene                        | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Toluene                        | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Ethylbenzene                   | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Methyl tert-butyl ether (MTBE) | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| 1,2,4-Trimethy benzene         | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| 1,3,5-Trimethylbenzene         | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| 1,2-Dichloroethane (EDC)       | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | 1 R15104 |
| 1,2-Dibromoethane (EDB)        | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Naphthalene                    | ND     | 20        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| 1-Methylnaphthalene            | ND     | 40        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| 2-Methylnaphthalene            | ND     | 40        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Acetone                        | ND     | 100       | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Bromobenzene                   | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Bromodichloromethane           | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Bromoform                      | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Bromomethane                   | ND     | 30        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| 2-Butanone                     | ND     | 100       | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Carbon disulficle              | ND     | 100       | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Carbon Tetrachloride           | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Chlorobenzene                  | ND     | 10        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Chloroethane                   | ND     | 20        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Chloroform                     | 21     | 10        |            | 10 | 11/26/2013 7:19:21 PM | R15104   |
| Chloromethane                  | ND     | 30        | μg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |
| 2-Chlorotoluene                | ND     | 10        | µg/L       | 10 | 11/26/2013 7:19:21 PM | R15104   |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

- Not Detected at the Reporting Limit

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  Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-3

Lightning Dock Geothermal Water Qualit

Collection Date: 11/24/2013 5:50:00 PM

Lab ID: 1311B14-004

**CLIENT: AMEC** 

Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL  | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------|--------|-----|------|-------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES |        | -   |      |       |    | Analyst               | cadg   |
| 4-Chlorotoluene             | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| cis-1,2-DCE                 | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| cis-1,3-Dichloropropene     | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,2-Dibromo-3-chloropropane | ND     | 20  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Dibromochloromethane        | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Dibromomethane              | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,2-Dichlorobenzene         | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,3-Dichlorobenzene         | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,4-Dichlorobenzene         | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Dichlorodifluoromethane     | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,1-Dichloroethane          | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,1-Dichloroethene          | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 1,2-Dichloropropane         | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 1,3-Dichloropropane         | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 2,2-Dichloropropane         | ND     | 20  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 1,1-Dichloropropene         | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| Hexachlorobutadiene         | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 2-Hexanone                  | ND     | 100 |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| Isopropylbenzene            | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 4-Isopropyltoluene          | ND     | 10  |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 4-Methyl-2-pentanone        | ND     | 100 |      | μg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Methylene Chloride          | ND     | 30  | 1    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| n-Butylbenzene              | ND     | 30  | 1    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| n-Propylbenzene             | ND     | 10  | 1    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| sec-Butylbenzene            | ND     | 10  | ١    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| Styrene                     | ND     | 10  | ١    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| tert-Butylbenzene           | ND     | 10  | ١    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 1,1,1,2-Tetrachloroethane   | ND     | 10  | •    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 1,1,2,2-Tetrachloroethane   | ND     | 20  | )    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| Tetrachloroethene (PCE)     | ND     | 10  | )    | µg/L  | 10 | 11/26/2013 7:19:21 PM | R15104 |
| trans-1,2-DCE               | ND     | 10  | )    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| trans-1,3-Dichloropropene   | ND     | 10  | )    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 1,2,3-Trichlorobenzene      | ND     | 10  | )    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 1,2,4-Trichlorobenzene      | ND     | 10  | )    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 1,1,1-Trichloroethane       | ND     | 10  | )    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 1,1,2-Trichloroethane       | ND     | 10  | )    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| Trichloroethene (TCE)       | ND     | 10  | )    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| Trichlorofluoromethane      | ND     | 10  | )    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |
| 1,2,3-Trichloropropane      | ND     | 20  | )    | μg/L  | 10 | 11/26/2013 7:19:21 PM | R1510  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- Page 24 of 71 Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

### **Analytical Report**

### Lab Order 1311B14

Date Reported: 12/16/2013

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-3

Project: Lightning Dock Geothermal Water Qualit

Collection Date: 11/24/2013 5:50:00 PM

Lab ID: 1

1311B14-004

Matrix: AQUEOUS

Received Date: 11/26/2013 9:15:00 AM

| Analyses                        | Result | RL (   | Qual | Units      | DF | Date Analyzed         | Batch         |
|---------------------------------|--------|--------|------|------------|----|-----------------------|---------------|
| EPA METHOD 8260B: VOLATILES     |        |        |      |            |    | Analys                | t: cadg       |
| Vinyl chloride                  | ND     | 10     |      | μg/L       | 10 | 11/26/2013 7:19:21 PM | 1 R15104      |
| Xylenes, Total                  | ND     | 15     |      | µg/L       | 10 | 11/26/2013 7:19:21 PM | 1 R15104      |
| Surr: 1,2-Dichloroethane-d4     | 93.0   | 70-130 |      | %REC       | 10 | 11/26/2013 7:19:21 PM | 1 R15104      |
| Surr: 4-Bromofluorobenzene      | 103    | 70-130 |      | %REC       | 10 | 11/26/2013 7:19:21 PM | 1 R15104      |
| Surr: Dibromofluoromethane      | 98.0   | 70-130 |      | %REC       | 10 | 11/26/2013 7:19:21 PM | 1 R15104      |
| Surr: Toluene-d8                | 98.6   | 70-130 |      | %REC       | 10 | 11/26/2013 7:19:21 PM | 1 R15104      |
| EPA METHOD 418.1: TPH           |        |        |      |            |    | Analys                | t: JME        |
| Petroleum Hydrocarbons, TR      | 1.1    | 1.1    | Ε    | mg/L       | 1  | 11/27/2013            | 10569         |
| SM2510B: SPECIFIC CONDUCTANCE   |        |        |      |            |    | Analys                | t: <b>JML</b> |
| Conductivity                    | 1600   | 0.010  |      | µmhos/cm   | 1  | 11/27/2013 9:25:49 PN | 1 R15156      |
| SM4500-H+B: PH                  |        |        |      |            |    | Analys                | t: JML        |
| рН                              | 8.00   | 1.68   | H    | pH units   | 1  | 11/27/2013 9:25:49 PM | 1 R15156      |
| SM2320B: ALKALINITY             |        |        |      |            |    | Analys                | t: JML        |
| Bicarbonate (As CaCO3)          | 47     | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:25:49 PM | 1 R15156      |
| Carbonate (As CaCO3)            | ND     | 2.0    |      | mg/L CaCO3 | 1  | 11/27/2013 9:25:49 PM | 1 R15156      |
| Total Alkalinity (as CaCO3)     | 47     | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:25:49 PM | / R15156      |
| SM2540C MOD: TOTAL DISSOLVED SO | LIDS   |        |      |            |    | Analys                | t: <b>KS</b>  |
| Total Dissolved Solids          | 1330   | 200    | *    | mg/L       | 1  | 11/29/2013 2:50:00 PM | 1 10567       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-4

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 2:35:00 PM

Lab ID: 1311B14-005 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                          | Result | RL       | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst:              | scc    |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Chrysene                          | ND     | 0.20     |      | µg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 63.4   | 24.5-139 |      | %REC  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst:              | JRR    |
| Fluoride                          | 4.3    | 2.0      | *    | mg/L  | 20 | 11/26/2013 9:04:40 PM | R15112 |
| Chloride                          | 710    | 25       | *    | mg/L  | 50 | 11/27/2013 7:56:32 PM | R15178 |
| Bromide                           | 2.2    | 0.10     |      | mg/L  | 1  | 12/7/2013 5:22:32 AM  | R15322 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 12/9/2013 10:24:41 PM | R15376 |
| Sulfate                           | 1200   | 25       | *    | mg/L  | 50 | 11/27/2013 7:56:32 PM | R15178 |
| Nitrate+Nitrite as N              | 12     | 2.0      | *    | mg/L  | 10 | 12/7/2013 4:08:05 AM  | R1532  |
| EPA METHOD 200.7: DISSOLVED MI    | ETALS  |          |      |       |    | Analyst               | JLF    |
| Aluminum                          | ND     | 0.020    |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R1524  |
| Barium                            | 0.059  | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R1524  |
| Boron                             | 0.22   | 0.040    |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R1524  |
| Cadmium                           | ND     | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R1524  |
| Calcium                           | 200    | 5.0      |      | mg/L  | 5  | 12/4/2013 7:28:19 PM  | R1524  |
| Chromium                          | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R1524  |
| Cobalt                            | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R1524  |
| Copper                            | ND     | 0.0060   |      | mg/L  | 1  | 12/5/2013 1:44:48 PM  | R1526  |
| Iron                              | ND     | 0.020    |      | mg/L  | 1  | 12/5/2013 1:44:48 PM  | R1526  |
| Magnesium                         | 14     | 1.0      |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R1524  |
| Manganese                         | 0.15   | 0.0020   | *    | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R1524  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 26 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### **Analytical Report**

### Lab Order 1311B14

ry, Inc. Date Reported: 12/16/2013

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-4

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 2:35:00 PM

Lab ID: 1311B14-005 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL Q    | ual Units | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|---------|-----------|----|-----------------------|--------|
| EPA METHOD 200.7: DISSOLVED MI | ETALS  |         |           |    | Analyst               | : JLF  |
| Molybdenum                     | 0.014  | 0.0080  | mg/L      | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Nickel                         | ND     | 0.010   | mg/L      | 1  | 12/5/2013 1:44:48 PM  | R15267 |
| Potassium                      | 40     | 1.0     | mg/L      | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Silver                         | ND     | 0.0050  | mg/L      | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Sodium                         | 860    | 20      | mg/L      | 20 | 12/5/2013 1:46:49 PM  | R15267 |
| Zinc                           | 0.048  | 0.010   | mg/L      | 1  | 12/5/2013 1:44:48 PM  | R15267 |
| EPA 200.8: DISSOLVED METALS    |        |         |           |    | Analyst               | : DBD  |
| Arsenic                        | 0.012  | 0.0010  | * mg/L    | 1  | 12/10/2013 2:24:39 PM | R15392 |
| Lead                           | ND     | 0.0010  | mg/L      | 1  | 12/10/2013 2:24:39 PM | R15392 |
| Selenium                       | 0.033  | 0.0010  | mg/L      | 1  | 12/10/2013 2:24:39 PM | R15392 |
| Uranium                        | 0.0051 | 0.0010  | mg/L      | 1  | 12/10/2013 2:24:39 PM | R15392 |
| EPA METHOD 245.1: MERCURY      |        |         |           |    | Analyst               | : JML  |
| Mercury                        | ND     | 0.00020 | mg/L      | 1  | 12/4/2013 5:57:38 PM  | 10596  |
| EPA METHOD 8270C: SEMIVOLATIL  | ES     |         |           |    | Analyst               | : DAM  |
| Acenaphthene                   | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Acenaphthylene                 | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Aniline                        | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Anthracene                     | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Azobenzene                     | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benz(a)anthracene              | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzo(a)pyrene                 | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzo(b)fluoranthene           | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzo(g,h,i)perylene           | ND     | 10      | µg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzo(k)fluoranthene           | ND     | 10      | µg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzoic acid                   | ND     | 40      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzyl alcohol                 | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Bis(2-chloroisopropyl)ether    | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Bis(2-ethylhexyl)phthalate     | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 4-Bromophenyl phenyl ether     | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Butyl benzyl phthalate         | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Carbazole                      | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 4-Chloro-3-methylphenol        | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 4-Chloroaniline                | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 2-Chloronaphthalene            | ND     | 10      | μg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 2-Chlorophenol                 | ND     | 10      | µg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 4-Chlorophenyl phenyl ether    | ND     | 10      | µg/L      | 1  | 12/2/2013 3:57:51 PM  | 10570  |
|                                |        |         |           |    |                       |        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit D.
  - Page 27 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### **Analytical Report** Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-4

Collection Date: 11/24/2013 2:35:00 PM Project: Lightning Dock Geothermal Water Qualit 1311B14-005 Received Date: 11/26/2013 9:15:00 AM Lab ID: Matrix: AQUEOUS

| Analyses                      | Result | RL Qua | al Units | DF | Date Analyzed        | Batch |
|-------------------------------|--------|--------|----------|----|----------------------|-------|
| EPA METHOD 8270C: SEMIVOLATIL | .ES    |        |          |    | Analyst              | DAM   |
| Chrysene                      | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Di-n-butyl phthalate          | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Di-n-octyl phthalate          | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Dibenz(a,h)anthracene         | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Dibenzofuran                  | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 1,2-Dichlorobenzene           | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 1,3-Dichlorobenzene           | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 1,4-Dichlorobenzene           | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 3,3'-Dichlorobenzidine        | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Diethyl phthalate             | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Dimethyl phthalate            | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2,4-Dichlorophenol            | ND     | 20     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2,4-Dimethylphenol            | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 4,6-Dinitro-2-methylphenol    | ND     | 20     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2,4-Dinitrophenol             | ND     | 20     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2,4-Dinitrotoluene            | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2,6-Dinitrotoluene            | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Fluoranthene                  | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Fluorene                      | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Hexachlorobenzene             | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Hexachlorobutadiene           | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Hexachlorocyclopentadiene     | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Hexachloroethane              | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Indeno(1,2,3-cd)pyrene        | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Isophorone                    | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 1-Methylnaphthalene           | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2-Methylnaphthalene           | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2-Methylphenol                | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 3+4-Methylphenol              | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| N-Nitrosodi-n-propylamine     | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| N-Nitrosodimethylamine        | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| N-Nitrosodiphenylamine        | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Naphthalene                   | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2-Nitroaniline                | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 3-Nitroaniline                | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 4-Nitroaniline                | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Nitrobenzene                  | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2-Nitrophenol                 | ND     | 10     | µg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 4-Nitrophenol                 | ND     | 10     | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 28 of 71 P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# **Analytical Report**

### Lab Order 1311B14

Date Reported: 12/16/2013

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-4

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 2:35:00 PM 1311B14-005 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM Lab ID:

| Analyses                       | Result | RL (      | Qual Units | DF | Date Analyzed         | Batch    |
|--------------------------------|--------|-----------|------------|----|-----------------------|----------|
| EPA METHOD 8270C: SEMIVOLATIL  | ES     |           |            |    | Analys                | : DAM    |
| Pentachlorophenol              | ND     | 20        | μg/L       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Phenanthrene                   | ND     | 10        | μg/L       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Phenol                         | ND     | 10        | μg/L       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Pyrene                         | ND     | 10        | μg/L       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Pyridine                       | ND     | 10        | μg/L       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr: 2-Fluorophenol           | 46.2   | 22.7-98   | %REC       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr: Phenol-d5                | 36.4   | 23.4-74.9 | %REC       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr: 2,4,6-Tribromophenol     | 69.4   | 23.3-111  | %REC       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr: Nitrobenzene-d5          | 53.3   | 36.8-111  | %REC       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr: 2-Fluorobiphenyl         | 63.4   | 38.3-110  | %REC       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr: 4-Terphenyl-d14          | 68.5   | 52.1-116  | %REC       | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| EPA METHOD 8260B: VOLATILES    |        |           |            |    | Analys                | t: cadg  |
| Benzene                        | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Toluene                        | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Ethylbenzene                   | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | R15104   |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Naphthalene                    | ND     | 2.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | R15104   |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Acetone                        | ND     | 10        | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Bromobenzene                   | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Bromodichloromethane           | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Bromoform                      | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Bromomethane                   | ND     | 3.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| 2-Butanone                     | ND     | 10        | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Carbon disulfide               | ND     | 10        | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Carbon Tetrachloride           | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| Chlorobenzene                  | ٨D     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Chloroethane                   | ٨D     | 2.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Chloroform                     | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Chloromethane                  | ND     | 3.0       | μg/L       | 1  | 11/26/2013 8:16:46 PM | R15104   |
| 2-Chlorotoluene                | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:16:46 PN | 1 R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 29 of 71
- Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-4

Project: Lightning Dock Geothermal Water Qualit

Collection Date: 11/24/2013 2:35:00 PM

1311B14-005 Lab ID:

**CLIENT: AMEC** 

Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed         | Batch     |
|-----------------------------|--------|-------|----------|----|-----------------------|-----------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Analys                | t: cadg   |
| 4-Chlorotoluene             | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:16:46 PM | / R15104  |
| cis-1,2-DCE                 | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:16:46 PM | / R15104  |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | / R15104  |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | / R15104  |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | и R15104  |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | / R15104  |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | / R15104  |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | / R15104  |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | / R15104  |
| Dichlorodifluoromethane     | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:16:46 PM | / R15104  |
| 1,1-Dichloroethane          | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:16:46 PM | / R15104  |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | / R1510₄  |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | и R15104  |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | M R15104  |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM |           |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | и R1510   |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | и R1510   |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1  | 11/26/2013 8:16:46 PM | и R1510   |
| ſsopropylbenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM |           |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | M R15104  |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1  | 11/26/2013 8:16:46 PM | M R15104  |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM |           |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | M R15104  |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | и R15104  |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PM | и R1510₄  |
| Styrene                     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 Pt | и R15104  |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PI | vI R1510₄ |
| 1,1,1,2-Tetrachloroethane   | NĐ     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PI | И R15104  |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:16:46 PI | и R1510   |
| Tetrachloroethene (PCE)     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 Pt | M R15104  |
| trans-1,2-DCE               | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PI | M R15104  |
| trans-1,3-Dichloropropene   | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:16:46 PI | vi R1510  |
| 1,2,3-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PI | vi R1510  |
| 1,2,4-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PI | vi R1510  |
| 1,1,1-Trichloroethane       | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PI | vi R1510  |
| 1,1,2-Trichloroethane       | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PI | M R1510   |
| Trichloroethene (TCE)       | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PI | M R1510   |
| Trichlorofluoromethane      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:16:46 PI | M R1510   |
| 1,2,3-Trichloropropane      | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:16:46 PI | M R1510   |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 30 of 71 Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

#### **Analytical Report**

### Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Lightning Dock Geothermal Water Qualit Project:

Lab ID: 1311B14-005 Client Sample ID: MW-4

**Collection Date:** 11/24/2013 2:35:00 PM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                        | Result | RL Q   | nal Units  | DF  | Date Analyzed         | Batch         |
|---------------------------------|--------|--------|------------|-----|-----------------------|---------------|
| EPA METHOD 8260B: VOLATILES     |        |        |            |     | Analys                | st: cadg      |
| Vinyl chloride                  | ND     | 1.0    | μg/L       | 1   | 11/26/2013 8:16:46 PI | M R15104      |
| Xylenes, Total                  | ND     | 1.5    | μg/L       | 1   | 11/26/2013 8:16:46 PI | M R15104      |
| Surr: 1,2-Dichloroethane-d4     | 97.2   | 70-130 | %REC       | 1   | 11/26/2013 8:16:46 PI | M R15104      |
| Surr: 4-Bromofluorobenzene      | 107    | 70-130 | %REC       | 1   | 11/26/2013 8:16:46 P  | M R15104      |
| Surr: Dibromofluoromethane      | 101    | 70-130 | %REC       | 1   | 11/26/2013 8:16:46 PI | M R15104      |
| Surr: Toluene-d8                | 95.3   | 70-130 | %REC       | 1   | 11/26/2013 8:16:46 PI | M R15104      |
| SM2510B: SPECIFIC CONDUCTANCE   |        |        |            |     | Analys                | st: JML       |
| Conductivity                    | 4300   | 0.010  | µmhos/cm   | 1   | 11/27/2013 9:33:03 PI | M R15156      |
| SM4500-H+B: PH                  |        |        |            |     | Analys                | it: JML       |
| pΗ                              | 7.38   | 1.68   | H pH units | 1   | 11/27/2013 9:33:03 PI | M R15156      |
| SM2320B: ALKALINITY             |        |        |            |     | Analys                | st: JML       |
| Bicarbonate (As CaCO3)          | 110    | 20     | mg/L CaCO3 | 3 1 | 11/27/2013 9:33:03 PI | M R15156      |
| Carbonate (As CaCO3)            | ND     | 2.0    | mg/L CaCO3 | 3 1 | 11/27/2013 9:33:03 PI | M R15156      |
| Total Alkalinity (as CaCO3)     | 110    | 20     | mg/L CaCO3 | 3 1 | 11/27/2013 9:33:03 PI | M R15156      |
| SM2540C MOD: TOTAL DISSOLVED SC | DLIDS  |        |            |     | Analys                | st: <b>KS</b> |
| Total Dissolved Solids          | 3210   | 40.0   | * mg/L     | 1   | 11/29/2013 2:50:00 P  | M 10567       |

Matrix: AQUEOUS

### Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 31 of 71 Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-5

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 12:15:00 PM Lab ID: 1311B14-006 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                          | Result | RL       | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst               | scc    |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Pyrene                            | ND     | 0.30     |      | µg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | µg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | µg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | µg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | µg/L  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 60.6   | 24.5-139 |      | %REC  | 1  | 12/3/2013 6:10:52 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst               | : JRR  |
| Fluoride                          | 1.3    | 0.50     |      | mg/L  | 5  | 11/26/2013 9:17:05 PM | R15112 |
| Chloride                          | 230    | 10       |      | mg/L  | 20 | 11/26/2013 9:29:30 PM | R15112 |
| Bromide                           | 1.2    | 0.50     |      | mg/L  | 5  | 11/26/2013 9:17:05 PM | R15112 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 11/26/2013 9:17:05 PM | R15112 |
| Sulfate                           | 930    | 10       | *    | mg/L  | 20 | 11/26/2013 9:29:30 PM | R15112 |
| Nitrate+Nitrite as N              | 42     | 2.0      | *    | mg/L  | 10 | 12/7/2013 4:20:30 AM  | R15322 |
| EPA METHOD 200.7: DISSOLVED MI    | ETALS  |          |      |       |    | Analyst               | : JLF  |
| Aluminum                          | ND     | 0.020    |      | mg/L  | 1  | 12/4/2013 7:31:59 PM  | R15245 |
| Barium                            | 0.041  | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:31:59 PM  | R15245 |
| Boron                             | 0.31   | 0.040    |      | mg/L  | 1  | 12/4/2013 7:31:59 PM  | R15245 |
| Cadmium                           | ND     | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:31:59 PM  | R15245 |
| Calcium                           | 220    | 5.0      |      | mg/L  | 5  | 12/4/2013 7:35:37 PM  | R15245 |
| Chromium                          | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:31:59 PM  | R15245 |
| Cobalt                            | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:31:59 PM  | R15245 |
| Copper                            | ND     | 0.0060   |      | mg/L  | 1  | 12/5/2013 1:48:49 PM  | R15267 |
| Iron                              | 0.021  | 0.020    |      | mg/L  | 1  | 12/5/2013 1:48:49 PM  | R15267 |
| Magnesium                         | 38     | 1.0      |      | mg/L  | 1  | 12/4/2013 7:31:59 PM  | R15245 |
| Manganese                         | 0.27   | 0.0020   | *    | mg/L  | 1  | 12/4/2013 7:31:59 PM  | R15245 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- NDNot Detected at the Reporting Limit

  - Not Detected at the Reporting Limit

    Sample pH greater than 2 for VOA and TOC only.

    Page 32 of 71

    TOC only. P
- Reporting Detection Limit

Date Reported: 12/16/2013

#### Lab Order 1311B14

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-5

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 12:15:00 PM

Lab ID: 1311B14-006 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL Q    | ual Units | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|---------|-----------|----|-----------------------|--------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |           |    | Analyst               | : JLF  |
| Molybdenum                     | 0.031  | 0.0080  | mg/L      | 1  | 12/4/2013 7:31:59 PM  | R15245 |
| Nickel                         | ND     | 0.010   | mg/L      | 1  | 12/5/2013 1:48:49 PM  | R15267 |
| Potassium                      | 16     | 1.0     | mg/L      | 1  | 12/4/2013 7:31:59 PM  | R15245 |
| Silver                         | ND     | 0.0050  | mg/L      | 1  | 12/4/2013 7:31:59 PM  | R15245 |
| Sodium                         | 330    | 5.0     | mg/L      | 5  | 12/4/2013 7:35:37 PM  | R15245 |
| Zinc                           | 0.023  | 0.010   | mg/L      | 1  | 12/5/2013 1:48:49 PM  | R15267 |
| EPA 200.8: DISSOLVED METALS    |        |         |           |    | Analyst               | DBD    |
| Arsenic                        | 0.0060 | 0.0010  | mg/L      | 1  | 12/10/2013 2:27:18 PM | R15392 |
| Lead                           | ND     | 0.0010  | mg/L      | 1  | 12/10/2013 2:27:18 PM | R15392 |
| Selenium                       | 0.028  | 0.0010  | mg/L      | 1  | 12/10/2013 2:27:18 PM | R15392 |
| Uranium                        | 0.014  | 0.0010  | mg/L      | 1  | 12/10/2013 2:27:18 PM | R15392 |
| EPA METHOD 245.1: MERCURY      |        |         |           |    | Analyst               | : JML  |
| Mercury                        | 0.0010 | 0.00020 | mg/L      | 1  | 12/4/2013 5:59:29 PM  | 10596  |
| EPA METHOD 8270C: SEMIVOLATIL  | ES     |         |           |    | Analyst               | : DAM  |
| Acenaphthene                   | NĐ     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Acenaphthylene                 | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Aniline                        | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Anthracene                     | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Azobenzene                     | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Benz(a)anthracene              | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Benzo(a)pyrene                 | ٧D     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Benzo(b)fluoranthene           | ٧D     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Benzo(g,h,i)perylene           | ΝD     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Benzo(k)fluoranthene           | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Benzoic acid                   | ND     | 40      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Benzyl alcohol                 | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Bis(2-chloroisopropyl)ether    | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Bis(2-ethylhexyl)phthalate     | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| 4-Bromophenyl phenyl ether     | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Butyl benzyl phthalate         | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| Carbazole                      | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| 4-Chloro-3-methylphenol        | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| 4-Chloroaniline                | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| 2-Chloronaphthalene            | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| 2-Chlorophenol                 | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |
| 4-Chlorophenyl phenyl ether    | ND     | 10      | μg/L      | 1  | 12/2/2013 5:24:15 PM  | 10570  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 33 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

**CLIENT: AMEC** 

Lightning Dock Geothermal Water Qualit

Lab ID:

Project:

1311B14-006

Matrix: AQUEOUS

Client Sample ID: MW-5

Collection Date: 11/24/2013 12:15:00 PM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                   | Result | RL Qu | al Units | DF | Date Analyzed        | Batch |
|----------------------------|--------|-------|----------|----|----------------------|-------|
| EPA METHOD 8270C: SEMIVOLA | ATILES |       |          |    | Analyst              | DAM   |
| Chrysene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Di-n-butyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Di-n-octyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Dibenz(a,h)anthracene      | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Dibenzofuran               | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 1,2-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 1,3-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 1,4-Dichlorobenzene        | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 3,3'-Dichlorobenzidine     | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Diethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Dimethyl phthalate         | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 2,4-Dichlorophenol         | ND     | 20    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 2,4-Dimethylphenol         | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 4,6-Dinitro-2-methylphenol | ND     | 20    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 2,4-Dinitrophenol          | ND     | 20    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 2,4-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 2,6-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Fluoranthene               | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Fluorene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Hexachlorobenzene          | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Hexachlorobutadiene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Hexachlorocyclopentadiene  | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Hexachloroethane           | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Indeno(1,2,3-cd)pyrene     | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Isophorone                 | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 1-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 2-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 2-Methylphenol             | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 3+4-Methylphenol           | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| N-Nitrosodi-n-propylamine  | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| N-Nitrosodimethylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| N-Nitrosodiphenylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Naphthalene                | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 2-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 3-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 4-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| Nitrobenzene               | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 2-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |
| 4-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit ND
  - Page 34 of 71
  - Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Analytical Report Lab Order 1311B14

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-5

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/24/2013 12:15:00 PMLab ID:1311B14-006Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL        | Qual Units | DF | Date Analyzed         | Batch    |
|--------------------------------|--------|-----------|------------|----|-----------------------|----------|
| EPA METHOD 8270C: SEMIVOLATILE | s      |           | - 1        |    | Analys                | t: DAM   |
| Pentachlorophenol              | ИD     | 20        | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| Phenanthrene                   | ND     | 10        | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| Phenol                         | ND     | 10        | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| Pyrene                         | ND     | 10        | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| Pyridine                       | ND     | 10        | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| Surr: 2-Fluorophenol           | 48.4   | 22.7-98   | %REC       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| Surr: Phenol-d5                | 39.0   | 23.4-74.9 | %REC       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| Surr: 2,4,6-Tribromophenol     | 64.7   | 23.3-111  | %REC       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| Surr: Nitrobenzene-d5          | 60.9   | 36.8-111  | %REC       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| Surr: 2-Flucrobiphenyl         | 66.4   | 38.3-110  | %REC       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| Surr: 4-Terphenyl-d14          | 69.4   | 52.1-116  | %REC       | 1  | 12/2/2013 5:24:15 PM  | 10570    |
| EPA METHOD 8260B: VOLATILES    |        |           |            |    | Analys                | t: cadg  |
| Benzene                        | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Toluene                        | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Ethylbenzene                   | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Methyl tert-bulyl ether (MTBE) | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | M R1510  |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | µg/L       | 1  | 11/26/2013 8:45:24 PM | M R1510  |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| 1,2-Dichloroethane (EDC)       | :ND    | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| 1,2-Dibromoethane (EDB)        | ٧D     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Naphthalene                    | ND     | 2.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Acetone                        | ND     | 10        | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Bromobenzene                   | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | /I R1510 |
| Bromodichloromethane           | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | M R1510  |
| Bromoform                      | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Bromomethane                   | ND     | 3.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| 2-Butanone                     | ND     | 10        | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Carbon disulfide               | ND     | 10        | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Carbon Tetrachloride           | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Chlorobenzene                  | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Chloroethane                   | ND     | 2.0       | µg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Chloroform                     | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| Chloromethane                  | ND     | 3.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |
| 2-Chlorotoluene                | ND     | 1.0       | μg/L       | 1  | 11/26/2013 8:45:24 PM | / R1510  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 35 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-5

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/24/2013 12:15:00 PMLab ID:1311B14-006Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed         | Batch    |
|-----------------------------|--------|-------|----------|----|-----------------------|----------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Analys                | st: cadg |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PI | M R15104 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PI | M R15104 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PI | M R15104 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:45:24 PI | M R15104 |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PI | M R15104 |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PI | M R15104 |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| Styrene                     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,1,1,2-Tetrachioroethane   | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| Tetrachloroethene (PCE)     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| trans-1,2-DCE               | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| trans-1,3-Dichloropropene   | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,2,3-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,2,4-Trichlorobenzene      | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,1,1-Trichloroethane       | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,1,2-Trichloroethane       | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| Trichloroethene (TCE)       | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| Trichlorofluoromethane      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |
| 1,2,3-Trichloropropane      | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:45:24 P  | M R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 34
  - Page 36 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Analytical Report Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-5

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/24/2013 12:15:00 PMLab ID:1311B14-006Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL (   | Qual 1 | Units      | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|--------|--------|------------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES    |        |        |        |            |    | Analyst               | cadg   |
| Vinyl chloride                 | ND     | 1.0    |        | μg/L       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Xylenes, Total                 | ND     | 1.5    |        | μg/L       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Surr: 1,2-Dichloroethane-d4    | 96.0   | 70-130 |        | %REC       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Surr: 4-Bromofluorobenzene     | 109    | 70-130 |        | %REC       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Surr: Dibromofluoromethane     | 101    | 70-130 |        | %REC       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Surr: Toluene-d8               | 102    | 70-130 |        | %REC       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| SM2510B: SPECIFIC CONDUCTANCE  |        |        |        |            |    | Analyst               | JML    |
| Conductivity                   | 2600   | 0.010  |        | µmhos/cm   | 1  | 11/27/2013 9:42:31 PM | R15156 |
| SM4500-H+B: PH                 |        |        |        |            |    | Analyst               | JML    |
| рН                             | 7 62   | 1.68   | Н      | pH units   | 1  | 11/27/2013 9:42:31 PM | R15156 |
| SM2320B: ALKALINITY            |        |        |        |            |    | Analyst               | : JML  |
| Bicarbonate (As CaCO3)         | 140    | 20     |        | mg/L CaCO3 | 1  | 11/27/2013 9:42:31 PM | R15156 |
| Carbonate (As CaCO3)           | ND     | 2.0    |        | mg/L CaCO3 | 1  | 11/27/2013 9:42:31 PM | R15156 |
| Total Alkalinity (as CaCO3)    | 140    | 20     |        | mg/L CaCO3 | 1  | 11/27/2013 9:42:31 PM | R15156 |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |        |            |    | Analyst               | : KS   |
| Total Dissolved Solids         | 2010   | 200    | *      | mg/L       | 1  | 11/29/2013 2:50:00 PM | 10567  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 37 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-6

Project: Lightning Dock Geothermal Water Qualit

**Collection Date:** 11/23/2013 12:00:00 PM

**Lab ID:** 1311B14-007

**CLIENT: AMEC** 

Received Date: 11/26/2013 9:15:00 AM

| Analyses                          | Result | RL       | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst               | : SCC  |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | µg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | µg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      |      | µg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | µg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | µg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | µg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 60.0   | 24.5-139 |      | %REC  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst               | : JRR  |
| Fluoride                          | 6.9    | 0.50     | *    | mg/L  | 5  | 11/26/2013 9:41:54 PM | R15112 |
| Chloride                          | 130    | 10       |      | mg/L  | 20 | 11/26/2013 9:54:18 PM | R15112 |
| Bromide                           | ND     | 0.50     |      | mg/L  | 5  | 11/26/2013 9:41:54 PM | R15112 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 11/26/2013 9:41:54 PM | R15112 |
| Sulfate                           | 950    | 10       | *    | mg/L  | 20 | 11/26/2013 9:54:18 PM | R15112 |
| Nitrate+Nitrite as N              | 9.6    | 1.0      |      | mg/L  | 5  | 12/7/2013 4:32:54 AM  | R15322 |
| EPA METHOD 200.7: DISSOLVED ME    | ETALS  |          |      |       |    | Analyst               | : JLF  |
| Aluminum                          | 0.63   | 0.020    | *    | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Barium                            | 0.047  | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Boron                             | 0.39   | 0.040    |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Cadmium                           | ND     | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Calcium                           | 53     | 1.0      |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Chromium                          | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Cobalt                            | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Copper                            | ND     | 0.0060   |      | mg/L  | 1  | 12/5/2013 1:50:45 PM  | R15267 |
| Iron                              | 0.39   | 0.020    | *    | mg/L  | 1  | 12/5/2013 1:50:45 PM  | R15267 |
| Magnesium                         | 6.0    | 1.0      |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Manganese                         | 0.074  | 0.0020   | *    | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 38 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Lab Order 1311B14

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-6

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/23/2013 12:00:00 PM

Lab ID: 1311B14-007 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result  | RL Qu   | al Units | DF | Date Analyzed         | Batch  |
|--------------------------------|---------|---------|----------|----|-----------------------|--------|
| EPA METHOD 200.7: DISSOLVED ME | TALS    |         |          |    | Analyst               | : JLF  |
| Molybdenum                     | 0.035   | 0.0080  | mg/L     | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Nickel                         | ND      | 0.010   | mg/L     | 1  | 12/5/2013 1:50:45 PM  | R15267 |
| Potassium                      | 25      | 1.0     | mg/L     | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Silver                         | ND      | 0.0050  | mg/L     | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Sodium                         | 490     | 5.0     | mg/L     | 5  | 12/4/2013 7:47:57 PM  | R15245 |
| Zinc                           | 0.033   | 0.010   | mg/L     | 1  | 12/5/2013 1:50:45 PM  | R15267 |
| EPA 200.8: DISSOLVED METALS    |         |         |          |    | Analyst               | DBD    |
| Arsenic                        | 0.020   | 0.0010  | * mg/L   | 1  | 12/10/2013 2:29:58 PM | R15392 |
| Lead                           | ND      | 0.0010  | mg/L     | 1  | 12/10/2013 2:29:58 PM | R15392 |
| Selenium                       | 0.011   | 0.0010  | mg/L     | 1  | 12/10/2013 2:29:58 PM | R15392 |
| Uranium                        | 0.0012  | 0.0010  | mg/L     | 1  | 12/10/2013 2:29:58 PM | R15392 |
| EPA METHOD 245.1: MERCURY      |         |         |          |    | Analyst               | : JML  |
| Mercury                        | 0.00077 | 0.00020 | mg/L     | 1  | 12/4/2013 6:01:21 PM  | 10596  |
| EPA METHOD 8270C: SEMIVOLATILE | S       |         |          |    | Analyst               | : DAM  |
| Acenaphthene                   | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Acenaphthylene                 | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Aniline                        | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Anthracene                     | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Azobenzene                     | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benz(a)anthracene              | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzo(a)pyrene                 | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzo(b)fluoranthene           | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzo(g,h,i)perylene           | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzo(k)fluoranthene           | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzoic acid                   | ND      | 40      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzyl alcohol                 | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Bis(2-chloroethoxy)methane     | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Bis(2-chloroethyl)ether        | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Bis(2-chloroisopropyl)ether    | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Bis(2-ethylhexyl)phthalate     | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 4-Bromophenyl phenyl ether     | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Butyl benzyl phthalate         | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Carbazole                      | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 4-Chloro-3-methylphenol        | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 4-Chloroaniline                | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 2-Chloronaphthalene            | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 2-Chlorophenol                 | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 4-Chlorophenyl phenyl ether    | ND      | 10      | μg/L     | 1  | 12/2/2013 5:53:08 PM  | 10570  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 39 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-6

Project: Lightning Dock Geothermal Water Qualit

**CLIENT: AMEC** 

Collection Date: 11/23/2013 12:00:00 PM

Lab ID: 1311B14-007 Matrix: AQUEOUS

Received Date: 11/26/2013 9:15:00 AM

| Analyses                   | Result | RL Qu | al Units | DF | Date Analyzed        | Batch |
|----------------------------|--------|-------|----------|----|----------------------|-------|
| EPA METHOD 8270C: SEMIVOLA | ATILES |       |          |    | Analyst              | : DAM |
| Chrysene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Di-n-butyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Di-n-octyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Dibenz(a,h)anthracene      | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Dibenzofuran               | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 1,2-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 1,3-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 1,4-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 3,3'-Dichlorobenzidine     | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Diethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Dimethyl phthalate         | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2,4-Dichlorophenol         | ND     | 20    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2,4-Dimethylphenol         | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 4,6-Dinitro-2-methylphenol | ND     | 20    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2,4-Dinitrophenol          | ND     | 20    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2,4-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2,6-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Fluoranthene               | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Fluorene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Hexachlorobenzene          | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Hexachlorobutadiene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Hexachlorocyclopentadiene  | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Hexachloroethane           | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Indeno(1,2,3-cd)pyrene     | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Isophorone                 | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 1-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2-Methylphenol             | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 3+4-Methylphenol           | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| N-Nitrosodi-n-propylamine  | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| N-Nitrosodimethylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| N-Nitrosodiphenylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Naphthalene                | ND ´   | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 3-Nitroaniline             | ND     | 10    | µ9/∟     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 4-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Nitrobenzene               | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 4-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 5:53:08 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 40 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# **Analytical Report**

### Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-6

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/23/2013 12:00:00 PM 1311B14-007 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM Lab ID:

| Analyses                        | Result           | RL (      | Qual Units | DF | Date Analyzed         | Batch  |
|---------------------------------|------------------|-----------|------------|----|-----------------------|--------|
| EPA METHOD 8270C: SEMIVOLATILES | 6                |           |            |    | Analyst               | DAM    |
| Pentachlorophenol               | ND               | 20        | μg/L       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Phenanthrene                    | ИD               | 10        | μg/L       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Phenol                          | ND               | 10        | μg/L       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Pyrene                          | ND               | 10        | μg/L       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Pyridine                        | ND               | 10        | μg/L       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 1,2,4-Trichlorobenzene          | ND               | 10        | μg/L       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 2,4,5-Trichlorophenol           | ND               | 10        | μg/L       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 2,4,6-Trichlorophenol           | ND               | 10        | μg/L       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Surr: 2-Fluorophenol            | 37.0             | 22.7-98   | %REC       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Surr: Phenol-d5                 | 28.9             | 23.4-74.9 | %REC       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Surr: 2,4,6-Tribromophenol      | 55.8             | 23.3-111  | %REC       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Surr: Nitrobenzene-d5           | 46.0             | 36.8-111  | %REC       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Surr: 2-Fluorobiphenyl          | 53.6             | 38.3-110  | %REC       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Surr: 4-Terphenyl-d14           | 57.1             | 52.1-116  | %REC       | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| EPA METHOD 8260B: VOLATILES     |                  |           |            |    | Analyst               | cadg   |
| Benzene                         | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Toluene                         | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Ethylbenzene                    | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Methyl tert-butyl ether (MTBE)  | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,2,4-Trimethylbenzene          | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,3,5-Trimethylbenzene          | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,2-Dichloroethane (EDC)        | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,2-Dibromoethane (EDB)         | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Naphthalene                     | ND               | 2.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1-Methylnaphthalene             | ND               | 4.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 2-Methylnaphthalene             | ND               | 4.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Acetone                         | ND               | 10        | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Bromobenzene                    | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Bromodichloromethane            | N <sup>1</sup> D | 1.0       | µg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Bromoform                       | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Bromomethane-                   | ND               | 3.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 2-Butanone                      | ND               | 10        | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Carbon disulfide                | ND               | 10        | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Carbon Tetrachloride            | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Chlorobenzene                   | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Chloroethane                    | ND               | 2.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Chloroform                      | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Chloromethane                   | ND               | 3.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 2-Chlorotoluene                 | ND               | 1.0       | μg/L       | 1  | 11/26/2013 9:14:03 PM | R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 41 of 71 P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-6

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/23/2013 12:00:00 PMLab ID:1311B14-007Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qua | al Units | DF | Date Analyzed         | Batch  |
|-----------------------------|--------|--------|----------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |        |          |    | Analyst:              | cadg   |
| 4-Chlorotoluene             | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| cis-1,2-DCE                 | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| cis-1,3-Dichloropropene     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Dibromochloromethane        | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Dibromomethane              | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,2-Dichlorobenzene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,3-Dichlorobenzene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,4-Dichlorobenzene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Dichlorodifluoromethane     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,1-Dichloroethane          | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,1-Dichloroethene          | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,2-Dichloropropane         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,3-Dichloropropane         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 2,2-Dichloropropane         | ND     | 2.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,1-Dichloropropene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Hexachlorobutadiene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 2-Hexanone                  | ND     | 10     | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Isopropylbenzene            | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 4-Isopropyltoluene          | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 4-Methyl-2-pentanone        | ND     | 10     | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Methylene Chloride          | ND     | 3.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| n-Butylbenzene              | ND     | 3.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| n-Propylbenzene             | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| sec-Butylbenzene            | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Styrene                     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| tert-Butylbenzene           | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Tetrachloroethene (PCE)     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| trans-1,2-DCE               | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| trans-1,3-Dichloropropene   | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,2,3-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,2,4-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,1,1-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,1,2-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Trichloroethene (TCE)       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| Trichlorofluoromethane      | ND     | 1.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |
| 1,2,3-Trichloropropane      | ND     | 2.0    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 42 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### **Analytical Report**

### Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC Client Sample ID: MW-6** 

Collection Date: 11/23/2013 12:00:00 PM Project: Lightning Dock Geothermal Water Qualit Received Date: 11/26/2013 9:15:00 AM Lab ID: 1311B14-007 Matrix: AQUEOUS

| Analyses                      | Result | RL (   | Qual Uni | ts D             | F Date Analyzed       | Batch    |
|-------------------------------|--------|--------|----------|------------------|-----------------------|----------|
| EPA METHOD 8260B: VOLATILES   |        |        |          |                  | Analyst               | cadg     |
| Vinyl chloride                | ND     | 1.0    | μg/l     | _ 1              | 11/26/2013 9:14:03 PM | R15104   |
| Xylenes, Total                | ND     | 1.5    | μg/l     | _ 1              | 11/26/2013 9:14:03 PM | R15104   |
| Surr: 1,2-Dichloroethane-d4   | 98.4   | 70-130 | %R       | EC 1             | 11/26/2013 9:14:03 PM | R15104   |
| Surr: 4-Bromofluorobenzene    | 104    | 70-130 | %R       | EC 1             | 11/26/2013 9:14:03 PM | R15104   |
| Surr: Dibromofluoromethane    | 98.8   | 70-130 | %R       | EC 1             | 11/26/2013 9:14:03 PM | R15104   |
| Surr: Toluene-d8              | 97.7   | 70-130 | %R       | EC 1             | 11/26/2013 9:14:03 PM | R15104   |
| EPA METHOD 418.1: TPH         |        |        |          |                  | Analyst               | : JME    |
| Petroleum Hydrocarbons, TR    | ND     | 1.0    | mg/      | <sup>1</sup> L 1 | 11/27/2013            | 10569    |
| SM2510B: SPECIFIC CONDUCTANCE | E      |        |          |                  | Analyst               | : JML    |
| Conductivity                  | 2500   | 0.010  | μmi      | hos/cm 1         | 11/27/2013 9:52:37 PM | R15156   |
| SM4500-H+B: PH                |        |        |          |                  | Analys                | t: JML   |
| рН                            | 7.56   | 1.68   | Н рН     | units 1          | 11/27/2013 9:52:37 PM | R15156   |
| SM2320B: ALKALINITY           |        |        |          |                  | Analys                | t: JML   |
| Bicarbonate (As CaCO3)        | 1:30   | 20     | mg       | /L CaCO3 1       | 11/27/2013 9:52:37 PM | 1 R15156 |
| Carbonate (As CaCO3)          | ND     | 2.0    | mg.      | /L CaCO3 1       | 11/27/2013 9:52:37 PM | 1 R15156 |
| Total Alkalinity (as CaCO3)   | 130    | 20     | mg.      | /L CaCO3 1       | 11/27/2013 9:52:37 PM | 1 R15156 |
| SM2540C MOD: TOTAL DISSOLVED  | SOLIDS |        |          |                  | Analys                | t: KS    |
| Total Dissolvec Solids        | 1880   | 200    | * mg     | /L 1             | 11/29/2013 2:50:00 PM | 10567    |

### Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 43 of 71 P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Lab Order 1311B14

Date Reported: 12/16/2013

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: Trip Blank **CLIENT: AMEC** 

**Collection Date:** Lightning Dock Geothermal Water Qualit Project:

1311B14-008 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM Lab ID:

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed       | Batch            |
|--------------------------------|--------|-------|----------|----|---------------------|------------------|
| EPA METHOD 8260B: VOLATILES    |        |       |          |    | Anal                | yst: <b>cadg</b> |
| Benzene                        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| Toluene                        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| Ethylbenzene                   | NĐ     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| 1,2,4-Trimethylbenzene         | NÐ     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| 1,3,5-Trimethylbenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | B PM R15104      |
| Naphthalene                    | ND     | 2.0   | μg/L     | 1  | 11/26/2013 11:08:58 | B PM R15104      |
| 1-Methylnaphthalene            | ND     | 4.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| 2-Methylnaphthalene            | ND     | 4.0   | μg/L     | 1  | 11/26/2013 11:08:58 | B PM R15104      |
| Acetone                        | ND     | 10    | μg/L     | 1  | 11/26/2013 11:08:5  | B PM R15104      |
| Bromobenzene                   | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | B PM R15104      |
| Bromodichloromethane           | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | B PM R15104      |
| Bromoform                      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| Bromomethane                   | ND     | 3.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| 2-Butanone                     | ND     | 10    | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| Carbon disulfide               | ND     | 10    | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| Carbon Tetrachloride           | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| Chlorobenzene                  | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| Chloroethane                   | ND     | 2.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| Chloroform                     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| Chloromethane                  | ND     | 3.0   | μg/L     | 1  | 11/26/2013 11:08:5  | B PM R15104      |
| 2-Chlorotoluene                | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | B PM R15104      |
| 4-Chlorotoluene                | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| cis-1,2-DCE                    | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| cis-1,3-Dichloropropene        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| 1,2-Dibromo-3-chloropropane    | ND     | 2.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| Dibromochloromethane           | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| Dibromomethane                 | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| 1,2-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| 1,3-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| 1,4-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| Dichlorodifluoromethane        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| 1,1-Dichloroethane             | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| 1,1-Dichloroethene             | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| 1,2-Dichloropropane            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| 1,3-Dichloropropane            | NÐ     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |
| 2,2-Dichloropropane            | ND     | 2.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit О
- RPD outside accepted recovery limits R Spike Recovery outside accepted recovery limits

- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit Page 44 of 71
  - Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### **Analytical Report**

#### Lab Order 1311B14

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: Trip Blank

Project: Lightning Dock Geothermal Water Qualit Collection Date:

Lab ID: 1311B14-008 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu  | al Units | DF | Date Analyzed       | Batch     |
|-----------------------------|--------|--------|----------|----|---------------------|-----------|
| EPA METHOD 8260B: VOLATILES |        |        |          |    | Analy               | st: cadg  |
| 1,1-Dichloropropene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Hexachlorobutadiene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| 2-Hexanone                  | ND     | 10     | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Isopropylbenzene            | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| 4-Isopropyltoluene          | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| 4-Methyl-2-pentanone        | ND     | 10     | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Methylene Chloride          | ND     | 3.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| n-Butylbenzene              | ND     | 3.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| n-Propylbenzene             | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| sec-Butylbenzene            | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Styrene                     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| tert-Butylbenzene           | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Tetrachloroethene (PCE)     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| trans-1,2-DCE               | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| trans-1,3-Dichloropropene   | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| 1,2,3-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| 1,2,4-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| 1,1,1-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| 1,1,2-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Trichloroethene (TCE)       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Trichlorofluorornethane     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| 1,2,3-Trichloropropane      | ND     | 2.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Vinyl chloride              | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Xylenes, Total              | ND     | 1.5    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Surr: 1,2-Dichloroethane-d4 | 97.8   | 70-130 | %REC     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Surr: 4-Bromofluorobenzene  | 106    | 70-130 | %REC     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Surr: Dibromofluoromethane  | 99.3   | 70-130 | %REC     | 1  | 11/26/2013 11:08:58 | PM R15104 |
| Surr: Toluene-d8            | 94.5   | 70-130 | %REC     | 1  | 11/26/2013 11:08:58 | PM R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- Troiding times for preparation of aliasysis exceeds
- $\begin{array}{lll} \text{ND} & \text{Not Detected at the Reporting Limit} \\ \text{P} & \text{Sample pH greater than 2 for VOA and TOC only.} \end{array}$
- RL Reporting Detection Limit



12065 Lebanon Rd. Mt. Juliet, TN 37122 (615) 758-5858 1-800-767-5859 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Anne Thorne Hall Environmental Analysis Laborat 4901 Hawkins NE Albuquerque, NM 87109

December 10, 2013

Date Received : December 04, 2013

Description

Sample ID

: 1311B14-001J MW-1

Collected By : Collection Date : 11/25/13 11:45

ESC Sample # : L671947-01

Site ID :

Project # :

| Parameter         | Result | Det. Limit | Units | Method | Date     | Dil. |
|-------------------|--------|------------|-------|--------|----------|------|
| Phosphorus, Total | 0.88   | 0.10       | mg/l  | 365.4  | 12/09/13 | 1    |

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL) Note: The reported analytical results relate only to the sample submitted. This report shall not be reproduced, except in full, without the written approval from ESC.



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Tax I.D. 62-0814289

Est. 1970

YOUR LAB OF CHOICE

REPORT OF ANALYSIS

December 10, 2013

Anne Thorne Hall Environmental Analysis Laborat 4901 Hawkins NE Albuquerque, NM 87109

:

ESC Sample # : L671947-02

Date Received

December 04, 2013

Description

Site ID :

Sample ID

1311B14-002J MW-2

Project # :

Collected By : Collection Date : 11/25/13 09:00

Result Det. Limit Units Method Date D11. Parameter 12/09/13 1.3 365.4 0.10 mg/11 Phosphorus, Total

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

The reported analytical results relate only to the sample submitted.

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Anne Thorne Hall Environmental Analysis Laborat

4901 Hawkins NE

Albuquerque, NM 87109

Date Received :

December 04, 2013

Description Sample ID

: 1311B14-003J MW-2B

Collected By : Collection Date : 11/25/13 09:30

December 10, 2013

ESC Sample # : L671947-03

Site ID :

Project # :

Result Det. Limit Units Method Date Dil. Parameter Phosphorus, Total 1.4 0.10 mg/1365.4 12/09/13

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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12065 Lebanon Rd. Mt. Juliet, TN 37122 (615) 758-5858 1-800-767-5859 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

ESC Sample # : L671947-04

REPORT OF ANALYSIS

Anne Thorne Hall Environmental Analysis Laborat

4901 Hawkins NE Albuquerque, NM 87109

Date Received :

December 04, 2013

Description

1311B14-004J MW-3

Site ID : Project # :

December 10, 2013

Sample ID

Collected By

Collection Date :

11/24/13 17:50

Units Result Det. Limit Method Date Dil. Parameter Phosphorus, Total 3.7 0.10 mg/1365.4 12/09/13

BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Anne Thorne Hall Environmental Analysis Laborat

4901 Hawkins NE Albuquerque, NM 87109

Date Received : December 04, 2013

Description Sample ID

: 1311B14-005J MW-4

Collected By : Collection Date : 11/24/13 14:35

ESC Sample # : L671947-05

December 10, 2013

Site ID :

Project # :

| Parameter         | Result | Det. Limit | Units | Method | Date     | Dil. |  |
|-------------------|--------|------------|-------|--------|----------|------|--|
| Phosphorus, Total | 0.28   | 0.10       | mg/l  | 365.4  | 12/09/13 | 1    |  |

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL) Note: The reported analytical results relate only to the sample submitted. This report shall not be reproduced, except in full, without the written approval from ESC.



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Est. 1970

REPORT OF ANALYSIS

December 10, 2013

Site ID :

Anne Thorne Hall Environmental Analysis Laborat

4901 Hawkins NE Albuquerque, NM 87109

ESC Sample # : L671947-06

Date Received : December 04, 2013 Description

Sample ID 1311B14-006J MW-5 Project # :

Collected By 11/24/13 12:15 Collection Date :

Dil. Result Det. Limit Units Method Date Parameter Phosphorus, Total 1.2 0.10 mg/l365.4 12/09/13

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Est. 1970

REPORT OF ANALYSIS

Anne Thorne Hall Environmental Analysis Laborat 4901 Hawkins NE Albuquerque, NM 87109

December 10, 2013

Date Received : December 04, 2013

Description

Sample ID

: 1311B14-007J MW-6

Collected By : Collection Date : 11/23/13 12:00

ESC Sample # : L671947-07

Site ID :

Project # :

| Parameter         | Result | Det. Limit | Units | Method | Date     | Dil. |
|-------------------|--------|------------|-------|--------|----------|------|
| Phosphorus, Total | 2.6    | 0.10       | mg/l  | 365.4  | 12/09/13 | 1    |

BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

The reported analytical results relate only to the sample submitted. This report shall not be reproduced, except in full, without the written approval from ESC.



Hall Environmental Analysis Laboratory Anne Thorne 4901 Hawkins NE

Albuquerque, NM 87109

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Tax I.D. 62-0814289

Est. 1970

Quality Assurance Report Level II

L671947

December 10, 2013

|  |                    | Lab              | oratory Blan          | k 🖳                |          |                          |                      |
|--|--------------------|------------------|-----------------------|--------------------|----------|--------------------------|----------------------|
| Analyte                                | Result             | Un               | its %                 | Rec                | Limit    | Batch Date               | Analyzed             |
| Phosphorus, Total                      | <b>&lt; .1</b> .,. | ng               | 71,                   |                    |          | WG696162 12/0            | )/ <b>13</b> 15:52   |
|  |                    |                  | Duplicate             |                    |          |                          |                      |
| Analyte                                | Units              | Result           | Duplicat              | e RPD              | Limit    | Ref Samp                 | Batch                |
| Phosphorus, Total<br>Phosphorus, Total | mg/l               | 2,80<br>0.0      | 2.60<br>0.0           | 7.41<br>0.0        | 20<br>20 | L671947-07<br>L671941-01 | WG696162<br>WG696162 |
| Analyte                                | Units              | Laborat<br>Known | ory Control           | Sample  <br>Result | % Rec    | Limit                    | Batch                |
|  |                    |                  |                       |                    |          | 222                      | <del></del>          |
| Phosphorus, Total                      | mg/l               | 1                |                       | .944               | 94.4     | 90-110                   | WG696162             |
|  |                    | Laboratory C     | ontrol Sampl          | e Duplicate        |          |                          |                      |
| Analyte                                | Units              |                  |                       | Rec                | Limit    | RPD Limit                | Batch                |
| Phosphorus, Total                      | mg/1               | 0.953            | 0.944/ 9              | 5.0                | 90-110   | 0.949. 20                | wG696162             |
|  |                    | м                | atrix Spike           |                    |          |                          |                      |
| Analyte                                | Units              | MS Res           | Ref Res               | TV % Rec           | Limit    | Ref Samp                 | Batch                |
| Phosphorus, Total                      | mg/l               | 2.69             | 0.280 2               | .5 96.0            | 90-110   | L671947-05               | WG696162             |
| Analyte                                | Units              | Matrix<br>MSD Re | Spike Dupli<br>f %Rec | cate<br>Limit      | RPD      | Limít Ref Samp           | Batch                |
| Analyce                                | OUTES              | Re               | - *Nec                |                    |          | naute Ker damb           | Daten                |
| Phosphorus, Total                      | mg/l               | 2.73 2.          | 69 98.0               | 90-110             | 1.48     | 20 1671947-05            | WG696162             |

Batch number /Run number / Sample number cross reference

WG696162: R2865363: L671947-01 02 03 04 05 06 07

 $<sup>\</sup>star$   $\star$  Calculations are performed prior to rounding of reported values.

<sup>\*</sup> Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'Eist of Analytes with QC Qualifiers.'



Helena, MT 877-472-0711 . Billings, MT 809-735-4489 . Casper, WY 808-235-0515 Gillette, WY 866-888-7175 . Rapid City, SD 888-872-1225 . College Station, TX 888-690-2218

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13111073-001

Client Sample ID: 1311B14-001 MW-1

Report Date: 12/13/13

Collection Date: 11/25/13 11:45

DateReceived: 11/27/13

|                         |        |       |            |     | MCL/ |          |                        |
|-------------------------|--------|-------|------------|-----|------|----------|------------------------|
| Analyses                | Result | Units | Qualifiers | RL  | QCL  | Method   | Analysis Date / By     |
| METALS - DISSOLVED      |        |       |            |     |      |          |                        |
| ithium                  | 8,0    | mg/L  |            | 0.1 |      | E200.7   | 12/02/13 21:16 / sf    |
| Rubidium                | 0.2    | mg/L  |            | 0.1 |      | E200.8   | 12/13/13 10:33 / eli-b |
| 「ungsten                | ND     | mg/L  |            | 0.2 |      | E200.8   | 12/13/13 10:33 / eli-t |
| RADIONUCLIDES - TOTAL   |        |       |            |     |      |          |                        |
| Radon 222               | 238    | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 45.2   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 73.0   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |

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#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13111073-002

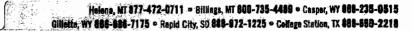
Client Sample ID: 1311B14-002 MW2

Report Date: 12/13/13

Collection Date: 11/25/13 09:00

DateReceived: 11/27/13 Matrix: Aqueous

|                         |        |       |            |     | MCL/ |          |                        |
|-------------------------|--------|-------|------------|-----|------|----------|------------------------|
| Analyses                | Result | Units | Qualifiers | RL  | QCL  | Method   | Analysis Date / By     |
| METALS - DISSOLVED      |        |       |            |     |      |          |                        |
| Lithium                 | 0.7    | mg/L  |            | 0.1 |      | E200.7   | 12/02/13 21:20 / sf    |
| Rubidium                | 0.1    | mg/L  |            | 0.1 |      | E200.8   | 12/13/13 10:35 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2 |      | E200.8   | 12/13/13 10:35 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |      |          |                        |
| Radon 222               | 580    | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 50.5   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 74.0   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |



Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID: C13111073-003

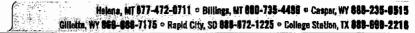
Client Sample ID: 1311B14-003 MW2B

Report Date: 12/13/13

Collection Date: 11/25/13 09:30

DateReceived: 11/27/13

| Analyses                | Result | Units | Qualiflers | RL  | MCL/<br>QCL | Method   | Analysis Date / By     |
|-------------------------|--------|-------|------------|-----|-------------|----------|------------------------|
| METALS - DISSOLVED      |        |       |            |     |             |          |                        |
| Lithium                 | 0.7    | mg/L  |            | 0.1 |             | E200.7   | 12/02/13 21:24 / sf    |
| Rubidium                | 0.1    | mg/L  |            | 0.1 |             | E200.8   | 12/13/13 10:37 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2 |             | E200.8   | 12/13/13 10:37 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |             |          |                        |
| Radon 222               | 567    | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 50.2   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | . 74.0 | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |



Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

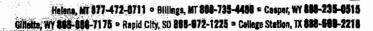
Lab ID:

C13111073-004 Client Sample ID: 1311B14-004 MW-3 Report Date: 12/13/13

Collection Date: 11/24/13 17:50

DateReceived: 11/27/13

| Analyses                | Result | Units | Qualifiers | RL  | MCL/<br>QCL | Method   | Analysis Date / By     |
|-------------------------|--------|-------|------------|-----|-------------|----------|------------------------|
| METALS - DISSOLVED      |        |       |            |     |             |          |                        |
| ithium                  | 0.5    | mg/L  |            | 0.1 |             | E200.7   | 12/02/13 21:32 / sf    |
| Rubidium                | 0.2    | mg/L  |            | 0.1 |             | E200.8   | 12/13/13 10:40 / eli-b |
| Fungsten                | ND     | mg/L  |            | 0.2 |             | E200.8   | 12/13/13 10:40 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |             |          |                        |
| Radon 222               | 781    | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 58.5   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 84.0   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |



Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13111073-005

Client Sample ID: 1311B14-005 MW-4

Report Date: 12/13/13

Collection Date: 11/24/13 14:35 DateReceived: 11/27/13

|                         |        |       |            |     | MCL/ |          |                        |
|-------------------------|--------|-------|------------|-----|------|----------|------------------------|
| Analyses                | Result | Units | Qualifiers | RL  | QCL  | Method   | Analysis Date / By     |
| METALS - DISSOLVED      |        |       |            |     |      |          |                        |
| Lithium                 | 1.7    | mg/L  |            | 0.1 |      | E200.7   | 12/02/13 21:36 / sf    |
| Rubidium                | 0.4    | mg/L  |            | 0.1 |      | E200.8   | 12/13/13 10:42 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2 |      | E200.8   | 12/13/13 10:42 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |      |          |                        |
| Radon 222               | 1090   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 63.4   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 86.0   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |

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#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13111073-006

Client Sample ID: 1311B14-006 MW-5

Report Date: 12/13/13

Collection Date: 11/24/13 12:15

DateReceived: 11/27/13 Matrix: Aqueous

| Analyses                | Result | Units | Qualifiers | RL  | MCL/<br>QCL | Method   | Analysis Date / By     |
|-------------------------|--------|-------|------------|-----|-------------|----------|------------------------|
| METALS - DISSOLVED      |        |       |            |     |             |          |                        |
| Lithium                 | 0.4    | mg/L  |            | 0.1 |             | E200.7   | 12/02/13 21:40 / sf    |
| Rubidium                | 0.1    | mg/L  |            | 0.1 |             | E200.8   | 12/13/13 10:45 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2 |             | E200.8   | 12/13/13 10:45 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |             |          |                        |
| Radon 222               | 197    | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 53.3   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 88.0   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Client Sample ID: 1311B14-007 MW-6

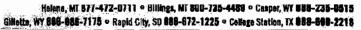
Lab ID:

C13111073-007

Report Date: 12/13/13

Collection Date: 11/23/13 12:00 DateReceived: 11/27/13

| Analyses                | Result | Units | Qualifiers | RL  | MCL/<br>QCL | Method   | Analysis Date / By     |
|-------------------------|--------|-------|------------|-----|-------------|----------|------------------------|
|                         |        |       |            |     |             |          |                        |
| METALS - DISSOLVED      |        |       |            |     |             |          |                        |
| Lithium                 | 8.0    | mg/L  |            | 0.1 |             | E200.7   | 12/02/13 21:44 / sf    |
| Rubidium                | 0.1    | mg/L  |            | 0.1 |             | E200.8   | 12/13/13 10:47 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2 |             | E200.8   | 12/13/13 10:47 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |             |          |                        |
| Radon 222               | 507    | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 68.1   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 106    | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |



## **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 12/13/13

Work Order: C13111073

| Analyte                      | Count  | Result       | Units       | RL | %REC | Low Limit | High Limit  | RPD     | RPDLimit | Qual      |
|------------------------------|--------|--------------|-------------|----|------|-----------|-------------|---------|----------|-----------|
| Method: D5072-92             |        |              |             |    |      |           |             |         | Batch:   | R18136    |
| Sample ID: C13111073-007BDUF | 9 3 Sa | mple Duplica | ate         |    |      | Run: PACK | ARD 3100TR_ | 131127A | 11/27    | /13 15:50 |
| Radon 222 .                  |        | 509          | pCi/L       |    |      |           |             | 0.4     | 20       |           |
| Radon 222 precision (±)      |        | 68.2         | pCi/L       |    |      |           |             |         |          |           |
| Radon 222 MDC                |        | 106          | pCi/L       |    |      |           |             |         |          |           |
| Sample ID: MB-R181361        | 3 Me   | thod Blank   |             |    |      | Run: PACK | ARD 3100TR_ | 131127A | 11/27    | /13 15:50 |
| Radon 222                    |        | 6            | pCi/L       |    |      |           |             |         |          | U         |
| Radon 222 precision (±)      |        | 30           | pCi/L       |    |      |           |             |         |          |           |
| Radon 222 MDC                |        | 50           | pCi/L       |    |      |           |             |         |          |           |
| Sample ID: LCS-R181361       | La     | boratory Con | trol Sample |    |      | Run: PACK | ARD 3100TR_ | 131127A | 11/27    | /13 15:50 |
| Radon 222                    |        | 549          | pCi/L       |    | 96   | 80        | 120         |         |          |           |



## **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 12/13/13

Work Order: C13111073

| Analyte    |                   | Count  | Result         | Units              | RL                                    | %REC | Low Limit  | High Limit | RPD        | RPDLimit    | Qual      |
|------------|-------------------|--------|----------------|--------------------|---------------------------------------|------|------------|------------|------------|-------------|-----------|
| Method:    | E200.7            |        |                |                    |                                       |      |            |            | Analytical | Run: ICP2-C | _131202B  |
| Sample ID; | ICA               | Initia | al Calibration | n Verification Sta | ndard                                 |      |            |            |            | 12/02       | /13 15:58 |
| Lithium    |                   |        | 0.992          | mg/L               | 0.10                                  | 99   | 95         | 105        |            |             |           |
| Sample ID: | ICSA              | Inter  | ference Ch     | eck Sample A       |                                       |      |            |            |            | 12/02       | /13 16:26 |
| Lithium    |                   |        | 0.00190        | mg/L               | 0.10                                  |      |            |            |            |             |           |
| Sample ID: | ICSAB             | Inter  | rference Ch    | eck Sample AB      | ,                                     |      |            |            |            | 12/02       | /13 16:30 |
| Lithium    |                   |        | 0.00210        | mg/L               | 0.10                                  |      |            |            |            |             |           |
| Method:    | E200.7            |        |                |                    | · · · · · · · · · · · · · · · · · · · |      |            |            |            | Batch       | R181387   |
| Sample ID: | MB-131202A        | Met    | hod Blank      |                    |                                       |      | Run: ICP2- | C_131202B  |            | 12/02       | /13 16:54 |
| Lithlum    |                   |        | ND             | mg/L               | 0.0002                                |      |            |            |            |             |           |
| Sample ID: | LFB-131202A       | Lab    | oratory Forti  | ified Blank        |                                       |      | Run: ICP2- | C_131202B  |            | 12/02       | /13 16:58 |
| Lithium    |                   |        | 0.949          | mg/L               | 0.10                                  | 95   | 85         | 115        |            |             |           |
| Sample ID: | C13111038-001BMS  | 2 San  | nple Matrix S  | Spike              |                                       |      | Run: ICP2- | C_131202B  |            | 12/02       | /13 21:04 |
| Lithium    |                   |        | 1.86           | mg/L               | 0.10                                  | 91   | 70         | 130        |            |             |           |
| Sample ID: | C13111038-001BMSI | D2 San | nple Matrix S  | Spike Duplicate    |                                       |      | Run: ICP2- | C_131202B  |            | 12/02       | /13 21:08 |
| Lithium    |                   |        | 1.89           | mg/L               | 0.10                                  | 93   | 70         | 130        | 1.6        | 20          |           |

### **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 12/13/13

Work Order: C13111073

| Analyte    |                   | Count | Result             | Units            | RL    | %REC | Low Limit  | High Limit | RPD      | RPDLimit     | Qual       |
|------------|-------------------|-------|--------------------|------------------|-------|------|------------|------------|----------|--------------|------------|
| Method:    | E200.8            |       |                    |                  |       |      |            |            | Analytic | cal Run: SUB | -B216493   |
| Sample ID: | QCS               | 2     | nitial Calibration | Verification Sta | ndard |      |            |            |          | 12/13        | /13 09:32  |
| Rubidium   |                   |       | 0.0533             | mg/L             | 0.010 | 107  | 90         | 110        |          |              |            |
| Tungsten   |                   |       | 0.0534             | mg/L             | 0.10  | 107  | 90         | 110        |          |              |            |
| Method:    | E200.8            |       |                    |                  |       |      |            |            |          | Batch: B     | R216493    |
| Sample ID: | LFB               | 2 [   | _aboratory Forti   | fied Blank       |       |      | Run: SUB-E | 3216493    |          | 12/13        | /13 09:34  |
| Rubidium   |                   |       | 0.0476             | mg/L             | 0.010 | 95   | 85         | 115        |          |              |            |
| Tungsten   |                   |       | 0.0487             | mg/L             | 0.10  | 97   | 85         | 115        |          |              |            |
| Sample ID: | LRB               | 2     | Method Blank       |                  |       |      | Run: SUB-E | 3216493    |          | 12/13        | /13 09:56  |
| Rubidium   |                   |       | 0.03               |                  |       |      |            |            |          |              |            |
| Tungsten   |                   |       | 1.0                |                  |       |      |            |            |          |              |            |
| Sample ID: | B13120270-001CMS  | 2 5   | Sample Matrix S    | Spike            |       |      | Run: SUB-6 | 3216493    |          | 12/13        | /13 10:52  |
| Rubidium   |                   |       | 0.713              | mg/L             | 0.010 |      | 70         | 130        |          |              | Α          |
| Tungsten   |                   |       | 0.113              | mg/L             | 0.10  | 120  | 70         | 130        |          |              |            |
| Sample ID: | B13120270-001CMSE | 2 :   | Sample Matrix S    | Spike Duplicate  |       |      | Run: SUB-E | 3216493    |          | 12/13        | 3/13 10:54 |
| Rubidium   |                   |       | 0.715              | mg/L             | 0.010 |      | 70         | 130        | 0.3      | 20           | Α          |
| Tungsten   |                   |       | 0.113              | mg/L             | 0.10  | 120  | 70         | 130        | 0.0      | 20           |            |

ND - Not detected at the reporting limit.

## 'all Environmental Analysis Laboratory, Inc.

WO#: 1311B14 16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID MB   | Samp       | Туре: МЕ        | BLK       | Tes         | tCode: E | PA Method | 200.7: Dissol | ved Meta | ls       |      |
|----------------|------------|-----------------|-----------|-------------|----------|-----------|---------------|----------|----------|------|
| Client ID: PBW | Bato       | h ID: <b>R1</b> | 5245      | F           | RunNo: 1 | 15245     |               |          |          |      |
| Prep Date:     | Analysis I | Date: 12        | 2/4/2013  | 9           | SeqNo: 4 | 139555    | Units: mg/L   |          |          |      |
| Analyte        | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |
| Aluminum       | ND         | 0.020           |           |             |          |           |               |          |          |      |
| Barium         | ND         | 0.0020          |           |             |          |           |               |          |          |      |
| Boron          | ND         | 0.040           |           |             |          |           |               |          |          |      |
| Cadmium        | ND         | 0.0020          |           |             |          |           |               |          |          |      |
| Calcium        | ND         | 1.0             |           |             |          |           |               |          |          |      |
| Chromium       | ND         | 0.0060          |           |             |          |           |               |          |          |      |
| Cobalt         | ND         | 0.0060          |           |             |          |           |               |          |          |      |
| Magnesium      | ND         | 1.0             |           |             |          |           |               |          |          |      |
| Manganese      | ND         | 0.0020          |           |             |          |           |               |          |          |      |
| Molybdenum     | ND         | 0.0080          |           |             |          |           |               |          |          |      |
| Nickel         | ND         | 0.010           |           |             |          |           |               |          |          |      |
| Potassium      | ND         | 1.0             |           |             |          |           |               |          |          |      |
| Silver         | ND         | 0.0050          |           |             |          |           |               |          |          |      |
| Sodium         | ND         | 1.0             |           |             |          |           |               |          |          |      |

| Sample ID LCS  | Samp     | Type: <b>LC</b> | s         | Test        |           |          |             |      |          |      |
|----------------|----------|-----------------|-----------|-------------|-----------|----------|-------------|------|----------|------|
| lient ID: LCSW | Bato     | ch ID: R1       | 5245      | R           | RunNo: 1  | 5245     |             |      |          |      |
| rep Date:      | Analysis | Date: 12        | 2/4/2013  | S           | SeqNo: 43 | 39556    | Units: mg/L |      |          |      |
| Analyte        | Result   | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Aluminum       | 0.48     | 0.020           | 0.5000    | 0           | 96.9      | 85       | 115         |      |          |      |
| Barium         | 0.48     | 0.0020          | 0.5000    | 0           | 96.0      | 85       | 115         |      |          |      |
| Boron          | 0.51     | 0.040           | 0.5000    | 0           | 101       | 85       | 115         |      |          |      |
| Cadmium        | 0.49     | 0.0020          | 0.5000    | 0           | 97.5      | 85       | 115         |      |          |      |
| Calcium        | 50       | 1.0             | 50.00     | 0           | 100       | 85       | 115         |      |          |      |
| Chromium       | 0.48     | 0.0060          | 0.5000    | 0           | 95.0      | 85       | 115         |      |          |      |
| Cobalt         | 0.47     | 0.0060          | 0.5000    | 0           | 93.3      | 85       | 115         |      |          |      |
| Magnesium      | 50       | 1.0             | 50.00     | 0           | 100       | 85       | 115         |      |          |      |
| Manganese      | 0.47     | 0.0020          | 0.5000    | 0           | 93.7      | 85       | 115         |      |          |      |
| Molybdenum     | 0.50     | 0.0080          | 0.5000    | 0           | 99.8      | 85       | 115         |      |          |      |
| Nickel         | 0.46     | 0.010           | 0.5000    | 0           | 92.1      | 85       | 115         |      |          |      |
| Potassium      | 48       | 1.0             | 50.00     | 0           | 96.1      | 85       | 115         |      |          |      |
| Silver         | 0.10     | 0.0050          | 0.1000    | 0           | 100       | 85       | 115         |      |          |      |
| Sodium         | 49       | 1.0             | 50.00     | 0           | 98.9      | 85       | 115         |      |          |      |

| Sample ID  | 1311B14-001GMS | SampType       | : MS         | Test        | tCode: E | PA Method | 200.7: Dissol | ved Metal | s        |      |
|------------|----------------|----------------|--------------|-------------|----------|-----------|---------------|-----------|----------|------|
| Client ID: | MW-1           | Batch ID:      | R15245       | R           | RunNo: 1 | 5245      |               |           |          |      |
| Prep Date: |                | Analysis Date: | 12/4/2013    | S           | SeqNo: 4 | 39580     | Units: mg/L   |           |          |      |
| Analyte    |                | Result P       | QL SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD      | RPDLimit | Qual |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- 5 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID 1311B14-001GMS | Samp     | Туре: М\$        | 3         | TestCode: EPA Method 200.7: Dissolved Metals |          |          |             |      |          |      |
|--------------------------|----------|------------------|-----------|--|----------|----------|-------------|------|----------|------|
| Client ID: MW-1          | Bato     | Batch ID: R15245 |           |  | RunNo: 1 | 5245     |             |      |          |      |
| Prep Date:               | Analysis | Date: 12         | 2/4/2013  | 8  | SeqNo: 4 | 39580    | Units: mg/L |      |          |      |
| Analyte                  | Result   | PQL              | SPK value | SPK Ref Val                                  | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Aluminum                 | 0.54     | 0.020            | 0.5000    | 0.03447                                      | 102      | 70       | 130         |      |          |      |
| Barium                   | 0.53     | 0.0020           | 0.5000    | 0.06312                                      | 93.7     | 70       | 130         |      |          |      |
| Cadmium                  | 0.49     | 0.0020           | 0.5000    | 0  | 97.9     | 70       | 130         |      |          |      |
| Calcium                  | 94       | 1.0              | 50.00     | 50.58  | 87.6     | 70       | 130         |      |          |      |
| Chromium                 | 0.46     | 0.0060           | 0.5000    | 0  | 92.4     | 70       | 130         |      |          |      |
| Cobalt                   | 0.46     | 0.0060           | 0.5000    | 0.001830                                     | 91.5     | 70       | 130         |      |          |      |
| Magnesium                | 51       | 1.0              | 50.00     | 2.055  | 98.8     | 70       | 130         |      |          |      |
| Manganese                | 0.67     | 0.0020           | 0.5000    | 0.2066                                       | 92.0     | 70       | 130         |      |          |      |
| Molybdenum               | 0.55     | 0.0080           | 0.5000    | 0.05781                                      | 98.2     | 70       | 130         |      |          |      |
| Nickel                   | 0.44     | 0.010            | 0.5000    | 0  | 87.5     | 70       | 130         |      |          |      |
| Potassium                | 70       | 1.0              | 50.00     | 21.70  | 96.8     | 70       | 130         |      |          |      |
| Silver                   | 0.096    | 0.0050           | 0.1000    | 0  | 96.2     | 70       | 130         |      |          |      |

| Sample ID  | 1311B14-001GMSD | Samp                     | Type: MS        | D         | TestCode: EPA Method 200.7: Dissolved Metals |          |          |             |         |          |      |
|------------|-----------------|--------------------------|-----------------|-----------|--|----------|----------|-------------|---------|----------|------|
| Client ID: | MW-1            | Batc                     | h ID: <b>R1</b> | 5245      | RunNo: 15245                                 |          |          |             |         |          |      |
| Prep Date: | A               | Analysis Date: 12/4/2013 |                 |           |  | SeqNo: 4 | 39582    | Units: mg/L | _       |          |      |
| Analyte    |                 | Result                   | PQL             | SPK value | SPK Ref Val                                  | %REC     | LowLimit | HighLimit   | %RPD    | RPDLimit | Qual |
| Aluminum   |                 | 0.54                     | 0.020           | 0.5000    | 0.03447                                      | 101      | 70       | 130         | 0.437   | 20       |      |
| Barium     |                 | 0.53                     | 0.0020          | 0.5000    | 0.06312                                      | 92.4     | 70       | 130         | 1.15    | 20       |      |
| Cadmium    |                 | 0.49                     | 0.0020          | 0.5000    | 0  | 97.9     | 70       | 130         | 0.00817 | 20       |      |
| Calcium    |                 | 96                       | 1.0             | 50.00     | 50.58  | 90.2     | 70       | 130         | 1.37    | 20       |      |
| Chromium   |                 | 0.46                     | 0.0060          | 0.5000    | 0  | 91.8     | 70       | 130         | 0.651   | 20       |      |
| Cobalt     |                 | 0.46                     | 0.0060          | 0.5000    | 0.001830                                     | 91.0     | 70       | 130         | 0.493   | 20       |      |
| Magnesium  |                 | 53                       | 1.0             | 50.00     | 2.055  | 103      | 70       | 130         | 3.58    | 20       |      |
| Manganese  |                 | 0.66                     | 0.0020          | 0.5000    | 0.2066                                       | 90.5     | 70       | 130         | 1.12    | 20       |      |
| Molybdenum |                 | 0.55                     | 0.0080          | 0.5000    | 0.05781                                      | 98.4     | 70       | 130         | 0.186   | 20       |      |
| Nickel     |                 | 0.43                     | 0.010           | 0.5000    | 0  | 86.8     | 70       | 130         | 0.718   | 20       |      |
| Potassium  |                 | 72                       | 1.0             | 50.00     | 21.70  | 101      | 70       | 130         | 3.16    | 20       |      |
| Silver     |                 | 0.095                    | 0.0050          | 0.1000    | 0  | 95.0     | 70       | 130         | 1.28    | 20       |      |

| Sample ID 1  | 311B14-001GMS | SampType      | : MS    |         | Test        | tCode: E | PA Method | 200.7: Dissol | ved Metal | s        |      |
|--------------|---------------|---------------|---------|---------|-------------|----------|-----------|---------------|-----------|----------|------|
| Client ID: N | /IW-1         | Batch ID      | R15245  |         | R           | RunNo: 1 | 5245      |               |           |          |      |
| Prep Date:   |               | Analysis Date | 12/4/20 | 13      | S           | SeqNo: 4 | 39584     | Units: mg/L   |           |          |      |
| Analyte      |               | Result P      | QL SP   | ( value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD      | RPDLimit | Qual |
| Boron        |               | 3.1 (         | 0.20    | 2.500   | 0.7014      | 97.8     | 70        | 130           |           |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### 'all Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID 1311B14-001GMSD

SampType: MSD

TestCode: EPA Method 200.7: Dissolved Metals

Client ID: MW-1 Batch ID: R15245

RunNo: 15245

Prep Date:

Analysis Date: 12/4/2013

SegNo: 439585

Units: mg/L

Analyte

Boron

**PQL** 3.2 0.20

SPK value SPK Ref Val %REC LowLimit

HighLimit

130

**RPDLimit** Qual

2.500

101

%RPD

%RPD

Sample ID MB

SampType: MBLK

ND

ND

ND

ND

ND

0.7014

SPK value SPK Ref Val %REC LowLimit

RunNo: 15267

TestCode: EPA Method 200.7: Dissolved Metals

Client ID:

Prep Date:

Analyte

PBW

Batch ID: R15267

Analysis Date: 12/5/2013

PQL

0.0060

0.020

0.010

0.010

1.0

SeqNo: 440169

Units: mg/L HighLimit

**RPDLimit** Qual

Copper Iron

Nickel Sodium

Zinc

LCSW

Sample ID LCS

SampType: LCS Batch ID: R15267

Analysis Date: 12/5/2013

0.010

TestCode: EPA Method 200.7: Dissolved Metals

LowLimit

85

85

85

RunNo: 15267 SeqNo: 440170

HighLimit

Units: mg/L

%RPD

**RPDLimit** 

Qual

nalyte Copper Iron

Nicke

Zinc

Sodium

Client ID:

Prep Date:

Result PQL 0.48 0.0060 0.51 0.020

0.5000 0.5000 0.010 0 0.5000 0 1.0 50.00

0.5000

SPK value SPK Ref Val

%REC 0 95.4 0 102

93.0

102

97.2

115 85 85

115 115 115

115

0.46

0.49

51

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 5 Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

| Project:   |      | Lightning Dock | Geothern         | nal Water Qu | ıality Moni |                  |             |               |      |          |      |
|------------|------|----------------|------------------|--------------|-------------|------------------|-------------|---------------|------|----------|------|
| Sample ID  | LCS  | Sai            | mpType: L        | cs           | Tes         | tCode: <b>EF</b> | PA 200.8: [ | Dissolved Met | als  |          |      |
| Client ID: | LCSW | В              | atch ID: F       | 15392        | F           | RunNo: 1         | 5392        |               |      |          |      |
| Prep Date: |      | Analys         | is Date:         | 12/10/2013   | 5           | SeqNo: 4         | 43415       | Units: mg/L   |      |          |      |
| Analyte    |      | Resu           | lt PQL           | SPK value    | SPK Ref Val | %REC             | LowLimit    | HighLimit     | %RPD | RPDLimit | Qual |
| rsenic     |      | 0.02           | 5 0.001          | 0.02500      | 0           | 98.1             | 85          | 115           |      |          |      |
| .ead       |      | 0.02           | 5 0.0010         | 0.02500      | 0           | 99.1             | 85          | 115           |      |          |      |
| Selenium   |      | 0.02           | 4 0.001          | 0.02500      | 0           | 97.7             | 85          | 115           |      |          |      |
| Jranium    |      | 0.02           | 5 0.001          | 0.02500      | 0           | 100              | 85          | 115           |      |          |      |
| Sample ID  | LCS  | Sa             | mpType: <b>L</b> | .cs          | Tes         | tCode: El        | PA 200.8: [ | Dissolved Me  | tals |          |      |
| Client ID: | LCSW | B              | atch ID: F       | R15392       | F           | RunNo: 1         | 5392        |               |      |          |      |
| Prep Date: |      | Analys         | is Date:         | 12/10/2013   | \$          | SeqNo: 4         | 43416       | Units: mg/L   |      |          |      |
| Analyte    |      | Resu           | lt PQL           | SPK value    | SPK Ref Val | %REC             | LowLimit    | HighLimit     | %RPD | RPDLimit | Qual |
| Arsenic    |      | 0.02           | 4 0.001          | 0.02500      | 0           | 97.8             | 85          | 115           |      |          |      |
| Lead       |      | 0.02           | 4 0.001          | 0.02500      | 0           | 96.8             | 85          | 115           |      |          |      |
| Selenium   |      | 0.02           | 5 0.001          | 0.02500      | 0           | 99.3             | 85          | 115           |      |          |      |
| Uranium    |      | 0.02           | 6 0.001          | 0.02500      | 0           | 102              | 85          | 115           |      |          |      |
| Sample ID  | мв   | Sa             | mpType: <b>N</b> | MBLK         | Tes         | tCode: El        | PA 200.8: [ | Dissolved Me  | tals |          |      |
| Client ID: | PBW  | E              | atch ID: F       | R15392       | F           | RunNo: 1         | 5392        |               |      |          |      |
| Prep Date: |      | Analys         | sis Date:        | 12/10/2013   | ;           | SeqNo: 4         | 43417       | Units: mg/L   |      |          |      |
| Analyte    |      | Resu           | lt PQL           | SPK value    | SPK Ref Val | %REC             | LowLimit    | HighLimit     | %RPD | RPDLimit | Qual |
| Arsenic    |      | N              | D 0.001          | 0            |             |                  |             |               |      |          |      |
| Lead       |      | N              |                  |              |             |                  |             |               |      |          |      |
| Selenium   |      | N              | D 0.001          | 0            |             |                  |             |               |      |          |      |
| Uranium    |      | N              | D 0.001          | 0            |             |                  |             |               |      |          |      |
| Sample ID  | мв   | Sa             | mpType: N        | MBLK         | Tes         | tCode: El        | PA 200.8: I | Dissolved Me  | tals |          |      |
| Client ID: | PBW  | E              | atch ID: F       | R15392       | F           | RunNo: 1         | 5392        |               |      |          |      |
| Prep Date: |      | Analys         | sis Date:        | 12/10/2013   | ;           | SeqNo: 4         | 43418       | Units: mg/L   |      |          |      |
| Analyte    |      | Resu           |                  |              | SPK Ref Val | %REC             | LowLimit    | HighLimit     | %RPD | RPDLimit | Qual |
| Arsenic    |      | N              |                  |              |             |                  |             |               |      |          |      |
| Lead       |      | N              |                  |              |             |                  |             |               |      |          |      |
| Selenium   |      | N              |                  |              |             |                  |             |               |      |          |      |
| Uranium    |      | N              | D 0.001          | 0            |             |                  |             |               |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range E
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit  $\mathbf{o}$
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1311B14 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10596

Prep Date: 12/2/2013

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID:

PBW

Batch ID: 10596 Analysis Date: 12/4/2013 RunNo: 15236 SeqNo: 439897

Units: mg/L

HighLimit

%RPD

**RPDLimit** Qual

Qual

Analyte Mercury

PQL ND 0.00020

Sample ID LCS-10596

12/2/2013

SampType: LCS

TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 10596

Analysis Date: 12/4/2013

RunNo: 15236 SeqNo: 439898

Units: mg/L

Analyte

Prep Date:

**PQL** SPK value SPK Ref Val

LowLimit

%RPD **RPDLimit** 

Mercury

SPK value SPK Ref Val %REC LowLimit

105

120

%REC 0.0052 0.00020 0.005000

HighLimit

### Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

RPD outside accepted recovery limits R

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded Η

Not Detected at the Reporting Limit ND

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID A5                     | SampT      | ype: CC        | V_5       | Tes         | tCode: <b>E</b> f | •         |               |          |          |      |
|----------------------------------|------------|----------------|-----------|-------------|-------------------|-----------|---------------|----------|----------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b>  | 5112      | F           | 5112              |           |               |          |          |      |
| Prep Date:                       | Analysis D | ate: 11        | /26/2013  | S           | SeqNo: 4          | 36040     | Units: mg/L   |          |          |      |
| Analyte                          | Result     | PQL            | SPK value | SPK Ref Val | %REC              | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |
| Fluoride                         | 1.5        | 0.10           | 1.600     | 0           | 95.8              | 90        | 110           |          |          |      |
| Chloride                         | 7.7        | 0.50           | 8.000     | 0           | 96.6              | 90        | 110           |          |          |      |
| 3romide                          | 8.0        | 0.10           | 8.000     | 0           | 99.5              | 90        | 110           |          |          |      |
| Nitrogen, Nitrate (As N)         | 4.9        | 0.10           | 4.800     | 0           | 102               | 90        | 110           |          |          |      |
| Phosphorus, Orthophosphate (As P | 7.5        | 0.50           | 8.000     | 0           | 94.3              | 90        | 110           |          |          |      |
| Sulfate                          | 20         | 0.50           | 20.00     | 0           | 98.4              | 90        | 110           |          |          |      |
| Sample ID MB                     | SampT      | ype: <b>ME</b> | BLK       | Tes         | tCode: El         | PA Method | 300.0: Anions | <u> </u> |          |      |
| Client ID: PBW                   | Batch      | ID: <b>R1</b>  | 5112      | F           | RunNo: 1          | 5112      |               |          |          |      |
| Prep Date:                       | Analysis D | ate: 11        | /26/2013  | S           | SeqNo: 4          | 36042     | Units: mg/L   |          |          |      |
| Analyte                          | Result     | PQL            | SPK value | SPK Ref Val | %REC              | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |

| Fluoride                         | ND | 0.10 |
|----------------------------------|----|------|
| Chloride                         | ND | 0.50 |
| Bromide                          | ND | 0.10 |
| Nitrogen, Nitrate (As N)         | ND | 0.10 |
| Phosphorus, Orthophosphate (As P | ND | 0.50 |
| Sulfate                          | ND | 0.50 |

| Sample ID LCS                    | SampType: LCS TestCode: EPA Method 300.0: Anions |               |           |             |          |          |              | 5    |          |      |
|----------------------------------|--|---------------|-----------|-------------|----------|----------|--------------|------|----------|------|
| Client ID: LCSW                  | Batch  | ID: <b>R1</b> | 5112      | F           | RunNo: 1 | 5112     |              |      |          |      |
| Prep Date:                       | Analysis D                                       | ate: 11       | /26/2013  | S           | SeqNo: 4 | 36043    | Units: rng/L |      |          |      |
| Analyte                          | Result   | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.49   | 0.10          | 0.5000    | 0           | 97.9     | 90       | 110          |      |          |      |
| Chloride                         | 4.9  | 0.50          | 5.000     | 0           | 97.5     | 90       | 110          |      |          |      |
| Bromide                          | 2.6  | 0.10          | 2.500     | 0           | 102      | 90       | 110          |      |          |      |
| Nitrogen, Nitrate (As N)         | 2.6  | 0.10          | 2.500     | 0           | 103      | 90       | 110          |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.9  | 0.50          | 5.000     | 0           | 97.3     | 90       | 110          |      |          |      |
| Sulfate                          | 10   | 0.50          | 10.00     | 0           | 99.9     | 90       | 110          |      |          |      |

| Sample ID A6             | SampT      | ype: CC       | CV_6      | Tes         | tCode: El | PA Method | 300.0: Anion | s    |          |      |
|--------------------------|------------|---------------|-----------|-------------|-----------|-----------|--------------|------|----------|------|
| Client ID: BatchQC       | Batch      | 1D: <b>R1</b> | 5112      | F           | RunNo: 1  | 5112      |              |      |          |      |
| Prep Date:               | Analysis D | ate: 11       | 1/26/2013 | S           | SeqNo: 4  | 36054     | Units: mg/L  |      |          |      |
| Analyte                  | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Fluoride                 | 2.3        | 0.10          | 2.400     | 0           | 97.7      | 90        | 110          |      |          |      |
| Chloride                 | 12         | 0.50          | 12.00     | 0           | 101       | 90        | 110          |      |          |      |
| Bromide                  | 12         | 0.10          | 12.00     | 0           | 101       | 90        | 110          |      |          |      |
| Nitrogen, Nitrate (As N) | 7.7        | 0.10          | 7.200     | 0           | 107       | 90        | 110          |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## 'all Environmental Analysis Laboratory, Inc.

WO#:

1311B14

16-Dec-13

Client: AMEC

**Project:** Lightning Dock Geothermal Water Quality Moni

| Sample ID A6                     | SampT      | ype: CC       | V_6       | Test        | tCode: El | PA Method | 300.0: Anions | \$   |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b> | 5112      | R           | RunNo: 1  | 5112      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 11       | /26/2013  | S           | SeqNo: 4  | 36054     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Phosphorus, Orthophosphate (As P | 12         | 0.50          | 12.00     | 0           | 98.5      | 90        | 110           |      |          |      |
| Sulfate                          | 30         | 0.50          | 30.00     | 0           | 102       | 90        | 110           |      |          |      |

| Sample ID A4                     | SampType: CCV_4 TestCode: EPA Method 300.0: Anions |               |           |             |          |          |             |      |          |      |
|----------------------------------|--|---------------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: BatchQC               | Batch  | 1D: <b>R1</b> | 5112      | F           | RunNo: 1 | 5112     |             |      |          |      |
| Prep Date:                       | Analysis D   | ate: 11       | /26/2013  | S           | SeqNo: 4 | 36066    | Units: mg/L |      |          |      |
| Analyte                          | Result   | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.97   | 0.10          | 1.000     | 0           | 97.2     | 90       | 110         |      |          |      |
| Chloride                         | 4.6  | 0.50          | 5.000     | 0           | 92.8     | 90       | 110         |      |          |      |
| Bromide                          | 4.8  | 0.10          | 5.000     | 0           | 96.7     | 90       | 110         |      |          |      |
| Nitrogen, Nitrate (As N)         | 2.9  | 0.10          | 3.000     | 0           | 97.3     | 90       | 110         |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.6  | 0.50          | 5.000     | 0           | 92.9     | 90       | 110         |      |          |      |
| Sulfate                          | 12   | 0.50          | 12.50     | 0           | 94.4     | 90       | 110         |      |          |      |

| Sample ID A5                     | SampT      | ype: CC       | CV_5      | Tes         | Code: El | PA Method | 300.0: Anions | ;    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|----------|-----------|---------------|------|----------|------|
| lient ID: BatchQC                | Batch      | ID: <b>R1</b> | 5112      | R           | RunNo: 1 | 5112      |               |      |          |      |
| rep Date:                        | Analysis D | ate: 11       | 1/26/2013 | S           | SeqNo: 4 | 36078     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.5        | 0.10          | 1.600     | 0           | 96.3     | 90        | 110           |      |          |      |
| Chloride                         | 7.8        | 0.50          | 8.000     | 0           | 96.9     | 90        | 110           |      |          |      |
| Bromide                          | 8.0        | 0.10          | 8.000     | 0           | 99.6     | 90        | 110           |      |          |      |
| Nitrogen, Nitrate (As N)         | 4.9        | 0.10          | 4.800     | 0           | 103      | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 7.7        | 0.50          | 8.000     | 0           | 96.3     | 90        | 110           |      |          |      |
| Sulfate                          | 20         | 0.50          | 20.00     | 0           | 98.6     | 90        | 110           |      |          |      |

| Sample ID A4                     | SampT      | ype: CC       | V_4       | Tes         | tCode: El | 5        |             |      |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|----------|-------------|------|----------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b> | 5112      | F           | RunNo: 1  | 5112     |             |      |          |      |
| Prep Date:                       | Analysis D | ate: 11       | /26/2013  | S           | SeqNo: 4  | 36090    | Units: mg/L |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.95       | 0.10          | 1.000     | 0           | 94.6      | 90       | 110         |      |          |      |
| Chloride                         | 4.6        | 0.50          | 5.000     | 0           | 92.7      | 90       | 110         |      |          |      |
| Bromide                          | 4.8        | 0.10          | 5.000     | 0           | 96.9      | 90       | 110         |      |          |      |
| Nitrogen, Nitrate (As N)         | 2.9        | 0.10          | 3.000     | 0           | 97.5      | 90       | 110         |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.6        | 0.50          | 5.000     | 0           | 92.8      | 90       | 110         |      |          |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0           | 94.1      | 90       | 110         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

| Sample iD A6                     | SampT      | ype: CC          | :V_6      | Test        | Code: El        | PA Method  | 300.0: Anions | ;    |          |      |
|----------------------------------|------------|------------------|-----------|-------------|-----------------|------------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b>    | 5112      | R           | lunNo: 1        | 5112       |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 11          | /27/2013  | S           | eqNo: 4         | 36102      | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL              | SPK value | SPK Ref Val | %REC            | LowLimit   | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 2.3        | 0.10             | 2.400     | 0           | 97.2            | 90         | 110           |      |          |      |
| Chloride                         | 12         | 0.50             | 12.00     | 0           | 100             | 90         | 110           |      |          |      |
| Bromide                          | 12         | 0.10             | 12.00     | 0           | 100             | 90         | 110           |      |          |      |
| Nitrogen, Nitrate (As N)         | 7.7        | 0.10             | 7.200     | 0           | 107             | 90         | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 12         | 0.50             | 12.00     | 0           | 98.8            | 90         | 110           |      |          |      |
| Sulfate                          | 30         | 0.50             | 30.00     | 0           | 101             | 90         | 110           |      |          |      |
| Sample ID A4                     | SampT      | ype: CC          | CV_4      | Test        | tCode: El       | PA Method  | 300.0: Anions | ;    |          |      |
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b>    | 5112      | F           | RunNo: 1        | 5112       |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 1           | 1/27/2013 | S           | SeqNo: 4        | 36114      | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL              | SPK value | SPK Ref Val | %REC            | LowLimit   | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.96       | 0.10             | 1.000     | 0           | 96.1            | 90         | 110           |      |          |      |
| Chloride                         | 4.6        | 0.50             | 5.000     | 0           | 93.0            | 90         | 110           |      |          |      |
| Bromide                          | 4.9        | 0.10             | 5.000     | 0           | 97.6            | 90         | 110           |      |          |      |
| Nitrogen, Nitrate (As N)         | 2.9        | 0.10             | 3.000     | 0           | 97.9            | 90         | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50             | 5.000     | 0           | 93.6            | 90         | 110           |      |          |      |
| Sulfate                          | 12         | 0.50             | 12.50     | 0           | 95.0            | 90         | 110           |      |          |      |
| Sample ID A5                     | SampT      | ype: CC          | V_5       | Tes         | tCode: E        | PA Method  | 300.0: Anions | 3    |          |      |
| Client ID: BatchQC               | Batch      | 1 ID: <b>R1</b>  | 5178      | F           | RunNo: 1        | 5178       |               |      |          |      |
| Prep Date:                       | Analysis D | Date: 1          | 1/27/2013 | 8           | SeqNo: 4        | 37559      | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL              | SPK value | SPK Ref Val | %REC            | LowLimit   | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride                         | 7.8        | 0.50             | 8.000     | 0           | 98.0            | 90         | 110           |      |          |      |
| Sulfate                          | 20         | 0.50             | 20.00     | 0           | 101             | 90         | 110           |      |          |      |
| Sample ID MB                     | SampT      | ype: Mi          | BLK       | Tes         | tCode: E        | PA Method  | 300.0: Anions | 5    |          |      |
| Client ID: PBW                   | Batch      | h ID: <b>R</b> 1 | 5178      | F           | RunNo: 1        | 5178       |               |      |          |      |
| Prep Date:                       | Analysis D | Date: 1          | 1/27/2013 | 5           | SeqNo: 4        | 37561      | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL              | SPK value | SPK Ref Val | %REC            | LowLimit   | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride                         | ND         | 0.50             |           |             |                 |            |               |      |          |      |
| Sulfate                          | ND         | 0.50             |           |             |                 |            |               |      |          |      |
|                                  |            | I C              |           | Tes         | tCode: <b>F</b> | PA Method  | 300.0: Anions |      |          |      |
| Sample ID LCS                    | SampT      | ype: LC          | ,5        | 163         |                 | i A method |               | •    |          |      |
| Sample ID LCS Client ID: LCSW    |            | h ID: R1         |           |             | RunNo: 1        |            |               |      |          |      |
| -                                |            | h ID: <b>R</b> 1 | 15178     | F           |                 | 5178       | Units: mg/L   |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# 'all Environmental Analysis Laboratory, Inc.

WO#: **1311B14** *16-Dec-13* 

Client:

AMEC

| Client:<br>Project: | AMEC<br>Lightnir | ig Dock Geo | therma          | ıl Water Qu | ality Moni  |                  |           |               |      |          |      |
|---------------------|------------------|-------------|-----------------|-------------|-------------|------------------|-----------|---------------|------|----------|------|
| Sample ID           | LCS              | SampT       | ype: LC         | S           | Tes         | tCode: EF        | PA Method | 300.0: Anions | 3    |          |      |
| Client ID:          | LCSW             | Batch       | ID: <b>R1</b>   | 5178        | F           | RunNo: 1         | 5178      |               |      |          |      |
| Prep Date:          |                  | Analysis D  | ate: <b>1</b> 1 | 1/27/2013   | 5           | SeqNo: 43        | 37562     | Units: mg/L   |      |          |      |
| Analyte             |                  | Result      | PQL             | SPK value   | SPK Ref Val | %REC             | LowLimit  | HighLimit     | %RPD | RPDLimit | Quai |
| Chloride            |                  | 4.7         | 0.50            | 5.000       | 0           | 94.4             | 90        | 110           |      |          |      |
| Sulfate             |                  | 9.8         | 0.50            | 10.00       | 0           | 97.7             | 90        | 110           |      |          |      |
| Sample ID           | A6               | SampT       | ype: CC         | CV_6        | Tes         | tCode: El        | PA Method | 300.0: Anion  | S    |          |      |
| Client ID:          | BatchQC          | Batch       | ID: <b>R1</b>   | 5178        | F           | RunNo: 1         | 5178      |               |      |          |      |
| Prep Date:          |                  | Analysis D  | ate: <b>1</b> 1 | 1/27/2013   | 5           | SeqNo: 4         | 37571     | Units: mg/L   |      |          |      |
| Analyte             |                  | Result      | PQL             | SPK value   | SPK Ref Val | %REC             | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride            |                  | 12          | 0.50            | 12.00       | 0           | 102              | 90        | 110           |      |          |      |
| Sulfate             |                  | 31          | 0.50            | 30.00       | 0           | 105              | 90        | 110           |      |          |      |
| Sample ID           | A4               | SampT       | ype: CC         | CV_4        | Tes         | tCode: El        | PA Method | 300.0: Anion  | S    |          |      |
| Client ID:          | BatchQC          | Batch       | ID: <b>R1</b>   | 5178        | F           | RunNo: 1         | 5178      |               |      |          |      |
| Prep Date:          |                  | Analysis D  | ate: 11         | 1/27/2013   | ;           | SeqNo: 4         | 37583     | Units: mg/L   |      |          |      |
| Analyte             |                  | Result      | PQL             | SPK value   | SPK Ref Val | %REC             | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| loride              |                  | 4.7         | 0.50            | 5.000       | 0           | 94.5             | 90        | 110           |      |          |      |
| fate                |                  | 12          | 0.50            | 12.50       | 0           | 96.7             | 90        | 110           |      |          |      |
| Sample ID           | A5               | SampT       | ype: CC         | CV_5        | Tes         | stCode: El       | PA Method | 300.0: Anion  | s    |          |      |
| Client ID:          | BatchQC          | Batch       | ID: <b>R1</b>   | 5178        | F           | RunNo: 1         | 5178      |               |      |          |      |
| Prep Date:          |                  | Analysis D  | ate: 1          | 1/27/2013   | :           | SeqNo: 4         | 37595     | Units: mg/L   |      |          |      |
| Analyte             |                  | Result      | PQL             | SPK value   | SPK Ref Val | %REC             | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride            |                  | 7.8         | 0.50            | 8.000       | 0           | 97.7             | 90        | 110           |      |          |      |
| Sulfate             |                  | 20          | 0.50            | 20.00       | 0           | 100              | 90        | 110           |      |          |      |
| Sample ID           | A4               | SampT       | ype: CO         | CV_4        | Tes         | stCode: E        | PA Method | 300.0: Anion  | s    |          |      |
| Client ID:          | BatchQC          | Batch       | ID: <b>R1</b>   | 5178        | ı           | RunNo: 1         | 5178      |               |      |          |      |
| Prep Date:          |                  | Analysis D  | ate: 1          | 1/27/2013   | ;           | SeqNo: 4         | 37611     | Units: mg/L   |      |          |      |
| Analyte             |                  | Result      | PQL             | SPK value   | SPK Ref Val | %REC             | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride            |                  | 4.7         | 0.50            | 5.000       | 0           | 94.4             | 90        | 110           |      |          |      |
| Sulfate             |                  | 12          | 0.50            | 12.50       | 0           | 96.5             | 90        | 110           |      |          |      |
| Sample ID           | A6               | SampT       | ype: C0         | CV_6        | Tes         | stCode: <b>E</b> | PA Method | 300.0: Anion  | s    |          |      |
| Client ID:          | BatchQC          | Batch       | 1D: <b>R</b> 1  | 15178       |             | RunNo: 1         | 5178      |               |      |          |      |
| Prep Date:          |                  | Analysis D  | ate: 1          | 1/28/2013   |             | SeqNo: 4         | 37623     | Units: mg/L   |      |          |      |
| Analyte             |                  | Result      | PQL             | SPK value   | SPK Ref Val | %REC             | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client: **AMEC** 

|                              | Ligitim       | ng Dock Geo | Jenel III               | water Qu  | ality Moni  |           |                   |               |         |             |               |
|------------------------------|---------------|-------------|-------------------------|-----------|-------------|-----------|-------------------|---------------|---------|-------------|---------------|
| Sample ID                    | A6            | SampT       | ype: CC                 |           | Tes         | tCode: El | PA Method         | 300.0: Anion: | s       |             |               |
| Client ID:                   | BatchQC       | Batch       | ID: <b>R1</b>           | 5178      | F           | RunNo: 1  | 5178              |               |         |             |               |
| Prep Date:                   |               | Analysis D  | ate: 1                  | 1/28/2013 | \$          | SeqNo: 4  | 37623             | Units: mg/L   |         |             |               |
| Analyte                      |               | Result      | PQL                     | SPK value | SPK Ref Val | %REC      | LowLimit          | HighLimit     | %RPD    | RPDLimit    | Qual          |
| Chloride                     |               | 12          | 0.50                    | 12.00     | 0           | 102       | 90                | 110           |         |             |               |
| Sulfate                      |               | 31          | 0.50                    | 30.00     | 0           | 105       | 90                | 110           |         |             |               |
| Sample ID                    | A4            | SampT       | ype: CC                 | CV_4      | Tes         | tCode: El | PA Method         | 300.0: Anion  | s       |             |               |
| Client ID:                   | BatchQC       | Batch       | 1D: <b>R1</b>           | 5178      | F           | RunNo: 1  | 5178              |               |         |             |               |
| Prep Date:                   |               | Analysis D  | ate: 1                  | 1/28/2013 | 5           | SeqNo: 4  | 37635             | Units: mg/L   |         |             |               |
| Analyte                      |               | Result      | PQL                     | SPK value | SPK Ref Val | %REC      | LowLimit          | HighLimit     | %RPD    | RPDLimit    | Qual          |
| Chloride                     |               | 4.7         | 0.50                    | 5.000     | 0           | 94.6      | 90                | 110           |         |             |               |
| Sulfate                      |               | 12          | 0.50                    | 12.50     | 0           | 97.0      | 90                | 110           | <u></u> |             |               |
| Sample ID                    | A5            | SampT       | ype: CC                 | CV_5      | Tes         | tCode: El | PA Method         | 300.0: Anion  | s       |             | ·             |
| Client ID:                   | BatchQC       | Batch       | 1D: <b>R1</b>           | 5178      | F           | RunNo: 1  | 5178              |               |         |             |               |
| Prep Date:                   |               | Analysis D  | ate: 1                  | 1/28/2013 | 5           | SeqNo: 4  | 37647             | Units: mg/L   |         |             |               |
| Analyte                      |               | Result      | PQL                     | SPK value | SPK Ref Val | %REC      | LowLimit          | HighLimit     | %RPD    | RPDLimit    | Qual          |
| Chloride                     |               | 7.8         | 0.50                    | 8.000     | 0           | 98.0      | 90                | 110           |         |             |               |
| Sulfate                      |               | 20          | 0.50                    | 20.00     | 0           | 100       | 90                | 110           |         |             |               |
| Sample ID                    | A4            | SampT       | ype: CC                 | CV_4      | Tes         | tCode: El | PA Method         | 300.0: Anion  | s       |             |               |
| Client ID:                   | BatchQC       | Batch       | 1D: <b>R1</b>           | 5178      | F           | RunNo: 1  | 5178              |               |         |             |               |
| Prep Date:                   |               | Analysis D  | ate: 1                  | 1/28/2013 | 5           | SeqNo: 4  | 37653             | Units: mg/L   |         |             |               |
| Analyte                      |               | Result      | PQL                     | SPK value | SPK Ref Val | %REC      | LowLimit          | HighLimit     | %RPD    | RPDLimit    | Qual          |
| Chloride                     |               | 4.7         | 0.50                    | 5.000     | 0           | 94.8      | 90                | 110           |         |             |               |
| Sulfate                      |               | 12<br>      | 0.50                    | 12.50     | 0           | 97.2      | 90                | 110           |         |             |               |
| Sample ID                    | A5            | SampT       | ype: CC                 | CV_5      | Tes         | tCode: El | PA Method         | 300.0: Anion  | s       |             | - <del></del> |
| Client ID:                   | BatchQC       | Batch       | 1D: <b>R1</b>           | 5322      | F           | RunNo: 1  | 5322              |               |         |             |               |
| Prep Date:                   |               | Analysis D  | ate: 12                 | 2/6/2013  | 5           | SeqNo: 4  | 41502             | Units: mg/L   |         |             |               |
| Analyte                      |               | Result      | PQL                     | SPK value | SPK Ref Val | %REC      | LowLimit          | HighLimit     | %RPD    | RPDLimit    | Qual          |
|                              |               | 8.2         | 0.10                    | 8.000     | 0           | 102       | 90                | 110           |         | <u> </u>    |               |
| Bromide                      |               |             |                         |           | 0           | 102       | 90                | 110           |         |             |               |
| Bromide<br>Nitrate+Nitrite   | as N          | 8.1         | 0.20                    | 8.000     |             | 102       |                   |               |         |             |               |
|                              |               |             | 0.20<br>ype: <b>C</b> 0 |           |             |           |                   | 300.0: Anion  | s       |             |               |
| Nitrate+Nitrite              |               | SampT       |                         | CV_6      | Tes         |           | PA Method         |               | s       | <del></del> |               |
| Nitrate+Nitrite<br>Sample ID | A6<br>BatchQC | SampT       | ype: CC                 | 5322      | Tes         | tCode: El | PA Method<br>5322 |               |         | <del></del> |               |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### 'all Environmental Analysis Laboratory, Inc.

WO#: 1311B14 16-Dec-13

Qual

Client: **AMEC Project:** Lightning Dock Geothermal Water Quality Moni Sample ID A6 SampType: CCV\_6

TestCode: EPA Method 300.0: Anions

Batch ID: R15322 Client ID: BatchQC Prep Date: Analysis Date: 12/6/2013 RunNo: 15322 SeqNo: 441514 Units: ma/L

%RPD

**RPDLimit** 

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit Bromide 13 0.10 12.00 0 104 90 110 Nitrate+Nitrite as N 13 0.20 12.00 0 105 90 110

TestCode: EPA Method 300.0: Anions Sample ID A4 SampType: CCV\_4 Batch ID: R15322 RunNo: 15322 Client ID: **BatchQC** Prep Date: Analysis Date: 12/6/2013 SeqNo: 441526 Units: mg/L SPK value SPK Ref Val %REC %RPD Analyte Result **PQL** LowLimit HighLimit **RPDLimit** Qual 5.000 0 99.7 90 110 **Bromide** 5.0 0.10 Nitrate+Nitrite as N 4.8 0.20 5.000 0 96.5 90 110

TestCode: EPA Method 300.0: Anions Sample ID MB SampType: MBLK Client ID: PBW Batch ID: R15322 RunNo: 15322 Prep Date: Analysis Date: 12/6/2013 SeqNo: 441530 Units: mg/L %RPD Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit **RPDLimit** Qual Analyte ND 0.10 omide ND 0.20 ate+Nitrite as N

TestCode: EPA Method 300.0: Anions Sample ID LCS SampType: LCS Batch ID: R15322 RunNo: 15322 Client ID: LCSW Prep Date Analysis Date: 12/6/2013 SeqNo: 441531 Units: mg/L SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Analyte Result POL LowLimit 110 Bromide 2.3 0.10 2.500 93.8 90 3.4 0.20 3.500 97.8 110 Nitrate+Nitrite as N

Sample ID A5 SampType: CCV\_5 TestCode: EPA Method 300.0: Anions Client ID: **BatchQC** Batch ID: R15322 RunNo: 15322 Prep Date: Analysis Date: 12/6/2013 SeqNo: 441538 Units: mg/L Result %REC %RPD **RPDLimit** Analyte POL SPK value SPK Ref Val LowLimit HighLimit Quai Bromide 8.1 0.10 8.000 0 102 90 110 Nitrate+Nitrite as N 8.0 0.20 8.000 100 90 110

Sample ID A6 SampType: CCV\_6 TestCode: EPA Method 300.0: Anions **BatchQC** Batch ID: R15322 RunNo: 15322 Client ID: Prep Date: Analysis Date: 12/7/2013 SeqNo: 441550 Units: mg/L **RPDLimit** Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Qual

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

딕 Value above quantitation range

Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded Н

Not Detected at the Reporting Limit ND

Sample pH greater than 2 for VOA and TOC only. Р

RLReporting Detection Limit Page 56 of 71

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1311B14** *16-Dec-13* 

Client:

**AMEC** 

| Project: AMEC Lightnin           | ig Dock Ge        | otherma         | l Water Qu | ality Moni  |           |           |              |         |          |      |
|----------------------------------|-------------------|-----------------|------------|-------------|-----------|-----------|--------------|---------|----------|------|
| Sample ID A6                     | SampT             | уре: СС         | V_6        | Tes         | tCode: El | PA Method | 300.0: Anion | <u></u> |          |      |
| Client ID: BatchQC               | Batcl             | n ID: <b>R1</b> | 5322       | F           | RunNo: 1  | 5322      |              |         |          |      |
| Prep Date:                       | Analysis D        | Date: 12        | 2/7/2013   | S           | SeqNo: 4  | 41550     | Units: mg/L  |         |          |      |
| Analyte                          | Result            | PQL             | SPK value  | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD    | RPDLimit | Qual |
| Bromide                          | 12                | 0.10            | 12.00      | 0           | 104       | 90        | 110          |         | •        |      |
| Nitrate+Nitrite as N             | 13                | 0.20            | 12.00      | 0           | 104       | 90        | 110          |         |          |      |
| Sample ID A4                     | Samp              | Гуре: СС        | :V_4       | Tes         | tCode: El | PA Method | 300.0: Anion | S       |          |      |
| Client ID: BatchQC               | Batcl             | h ID: <b>R1</b> | 5322       | F           | RunNo: 1  | 5322      |              |         |          |      |
| Prep Date:                       | Analysis D        | Date: 12        | 2/7/2013   | S           | SeqNo: 4  | 41562     | Units: mg/L  |         |          |      |
| Analyte                          | Result            | PQL             | SPK value  | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD    | RPDLimit | Qual |
| Bromide                          | 5.0               | 0.10            | 5.000      | 0           | 99.7      | 90        | 110          |         |          |      |
| Nitrate+Nitrite as N             | 4.8               | 0.20            | 5.000      | 0           | 96.6      | 90        | 110          |         |          |      |
| Sample ID A5                     | Samp              | ype: CC         | :V_5       | Tes         | tCode: El | PA Method | 300.0: Anion | s       |          |      |
| Client ID: BatchQC               | Batcl             | h ID: <b>R1</b> | 5322       | F           | RunNo: 1  | 5322      |              |         |          |      |
| Prep Date:                       | Analysis [        | Date: 12        | 2/7/2013   | S           | SeqNo: 4  | 41568     | Units: mg/L  |         |          |      |
| Analyte                          | Result            | PQL             | SPK value  | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD    | RPDLimit | Qual |
| Bromide                          | 8.2               | 0.10            | 8.000      | 0           | 102       | 90        | 110          |         |          |      |
| Nitrate+Nitrite as N             | 8.0               | 0.20            | 8.000      | 0           | 101       | 90        | 110          |         |          |      |
| Sample ID A4                     | Samp <sup>1</sup> | Гуре: СС        | :V_4       | Tes         | tCode: El | PA Method | 300.0: Anion | s       |          |      |
| Client ID: BatchQC               | Batc              | h ID: <b>R1</b> | 5376       | F           | RunNo: 1  | 5376      |              |         |          |      |
| Prep Date:                       | Analysis [        | Date: 12        | 2/9/2013   | S           | SeqNo: 4  | 43035     | Units: mg/L  |         |          |      |
| Analyte                          | Result            | PQL             | SPK value  | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD    | RPDLimit | Qual |
| Phosphorus, Orthophosphate (As P | 4.6               | 0.50            | 5.000      | 0           | 92.7      | 90        | 110          |         |          |      |
| Sample ID A5                     | Samp              | Type: CC        | V_5        | Tes         | tCode: El | PA Method | 300.0: Anion | s       |          |      |
| Client ID: BatchQC               | Batc              | h ID: <b>R1</b> | 5376       | F           | RunNo: 1  | 5376      |              |         |          |      |
| Prep Date:                       | Analysis [        | Date: 12        | 2/9/2013   | 5           | SeqNo: 4  | 43047     | Units: mg/L  |         |          |      |
| Analyte                          | Result            | PQL             | SPK value  | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD    | RPDLimit | Qual |
| Phosphorus, Orthophosphate (As P | 7.7               | 0.50            | 8.000      | 0           | 96.5      | 90        | 110          |         | -        |      |
| Sample ID A6                     | Samp              | Гуре: СС        |            | Tes         | tCode: E  | PA Method | 300.0: Anion | s       |          |      |
| Client ID: BatchQC               | Batc              | h ID: <b>R1</b> | 5376       | F           | RunNo: 1  | 5376      |              |         |          |      |
| Prep Date:                       | Analysis [        | Date: 12        | 2/9/2013   | 5           | SeqNo: 4  | 43059     | Units: mg/L  |         |          |      |
| Analyte                          | Result            | PQL             | SPK value  | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD    | RPDLimit | Qual |
| Phosphorus, Orthophosphate (As P | 12                | 0.50            | 12.00      | 0           | 99.7      | 90        | 110          |         |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: **1311B14 16-Dec-13** 

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: PBW Batch ID: R15376 RunNo: 15376

Prep Date: Analysis Date: 12/9/2013 SeqNo: 443069 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Phosphorus, Orthophosphate (As P ND 0.50

Sample ID LCS SampType: LCS TestCode: EPA Method 300.0: Anions Client ID: Batch ID: R15376 RunNo: 15376 LCSW Prep Date: Analysis Date: 12/9/2013 SeqNo: 443070 Units: mg/L %REC HighLimit %RPD **RPDLimit** Analyte Result **PQL** SPK value SPK Ref Val LowLimit Qual

Phosphorus, Orthophosphate (As P 4.8 0.50 5.000 0 95.5 90 110

Sample ID A4 SampType: CCV\_4 TestCode: EPA Method 300.0: Anions

Client ID: BatchQC Batch ID: R15376 RunNo: 15376

Prep Date: Analysis Date: 12/9/2013 SeqNo: 443071 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Phosphorus, Orthophosphate (As P 4.7 0.50 5.000 0 94.5 90 110

#### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Analyte

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10569

SampType: MBLK

TestCode: EPA Method 418.1: TPH

LowLimit

LowLimit

Client ID:

**PBW** 

Batch ID: 10569

RunNo: 15129

Prep Date:

11/27/2013

Analysis Date: 11/27/2013

SeqNo: 436536

%REC

Units: mg/L

HighLimit

%RPD

**RPDLimit** 

Qual

Petroleum Hydrocarbons, TR

ND

Result

SampType: LCS Batch ID: 10569

Analysis Date: 11/27/2013

**PQL** 

**PQL** 

1.0

TestCode: EPA Method 418.1: TPH

Sample ID LCS-10569 Client ID: LCSW

RunNo: 15129

%REC

SeqNo: 436537

Units: mg/L

Petroleum Hydrocarbons, TR

Prep Date: 11/27/2013

4.6

1.0 5.000 91.4

80

%RPD **RPDLimit** 

Qual

0

HighLimit 120

Sample ID LCSD-10569

Client ID: LCSS02 Prep Date: 11/27/2013

Result

SampType: LCSD Batch ID: 10569

TestCode: EPA Method 418.1: TPH RunNo: 15129

SeqNo: 436538

Units: mg/L

**RPDLimit** Qual 20

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Analyte Petroleum Hydrocarbons, TR

Result

Analysis Date: 11/27/2013

4.6

**PQL** 1.0

SPK value SPK Re<sup>2</sup> Val %REC 5.000

SPK value SPK Ref Val

SPK value SPK Ref Val

91.4

80

LowLimit

HighLimit 120 %RPD

0

Qualifiers:

Value exceeds Maximum Contaminant Level.

J Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

R RPD outside accepted recovery limits

Analyte detected in the associated Method Blank  $\mathbf{R}$ 

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

Holding times for preparation or analysis exceeded

RL Reporting Detection Limit

Н

Е Value above quantitation range

Spike Recovery outside accepted recovery limits S

## all Environmental Analysis Laboratory, Inc.

WO#: 1311B14 16-Dec-13

Client:

**AMEC** 

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb               | SampT      | ype: MI       | BLK       | Tes         | Code: El | PA Method | 8260B: VOL  | ATILES |          |      |
|--------------------------------|------------|---------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: PBW                 | Batch      | ID: <b>R1</b> | 5104      | F           | tunNo: 1 | 5104      |             |        |          |      |
| Prep Date:                     | Analysis D | ate: 1        | 1/26/2013 | S           | SeqNo: 4 | 35717     | Units: µg/L |        |          |      |
| Analyte                        | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Toluene                        | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Ethylbenzene                   | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Naphthalene                    | ND         | 2.0           |           |             |          |           |             |        |          |      |
| 1-Methylnaphthalene            | ND         | 4.0           |           |             |          |           |             |        |          |      |
| 2-Methylnaphthalene            | ND         | 4.0           |           |             |          |           |             |        |          |      |
| Acetone                        | ND         | 10            |           |             |          |           |             |        |          |      |
| Bromobenzene                   | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Bromodichloromethane           | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Bromoform                      | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Promomethane                   | ND         | 3.0           |           |             |          |           |             |        |          |      |
| lutanone                       | ND         | 10            |           |             |          |           |             |        |          |      |
| ⊿rbon disulfide                | ND         | 10            |           |             |          |           |             |        |          |      |
| Carbon Tetrachloride           | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Chlorobenzene                  | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Chloroethane                   | ND         | 2.0           |           |             |          |           |             |        |          |      |
| Chloroform                     | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Chloromethane                  | ND         | 3.0           |           |             |          |           |             |        |          |      |
| 2-Chlorotoluene                | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 4-Chlorotoluene                | ND         | 1.0           |           |             |          |           |             |        |          |      |
| cis-1,2-DCE                    | ND         | 1.0           |           |             |          |           |             |        |          |      |
| cis-1,3-Dichloropropene        | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,2-Dibromo-3-chloropropane    | ND         | 2.0           |           |             |          |           |             |        |          |      |
| Dibromochloromethane           | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Dibromomethane                 | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,2-Dichlorobenzene            | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,3-Dichlorobenzene            | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,4-Dichlorobenzene            | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Dichlorodifluoromethane        | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,1-Dichloroethane             | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,1-Dichloroethene             | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,2-Dichloropropane            | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,3-Dichloropropane            | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 2,2-Dichloropropane            | ND         | 2.0           |           |             |          |           |             |        |          |      |
| _,                             |            |               |           |             |          |           |             |        |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- 9 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb            | SampT      | ype: MB       | LK        | Test        | Code: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|---------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch      | 1D: <b>R1</b> | 5104      | R           | tunNo: 1 | 5104      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 11       | /26/2013  | S           | eqNo: 4  | 35717     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,1-Dichloropropene         | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Hexachlorobutadiene         | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 2-Hexanone                  | ND         | 10            |           |             |          |           |             |        |          |      |
| Isopropylbenzene            | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 4-Isopropyltoluene          | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 4-Methyl-2-pentanone        | ND         | 10            |           |             |          |           |             |        |          |      |
| Methylene Chloride          | ND         | 3.0           |           |             |          |           |             |        |          |      |
| n-Butylbenzene              | ND         | 3.0           |           |             |          |           |             |        |          |      |
| n-Propylbenzene             | ND         | 1.0           |           |             |          |           |             |        |          |      |
| sec-Butylbenzene            | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Styrene                     | ND         | 1.0           |           |             |          |           |             |        |          |      |
| tert-Butylbenzene           | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND         | 2.0           |           |             |          |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND         | 1.0           |           |             |          |           |             |        |          |      |
| trans-1,2-DCE               | ND         | 1.0           |           |             |          |           |             |        |          |      |
| trans-1,3-Dichloropropene   | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,2,3-Trichlorobenzene      | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,1,2-Trichloroethane       | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Trichloroethene (TCE)       | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Trichlorofluoromethane      | ND         | 1.0           |           |             |          |           |             |        |          |      |
| 1,2,3-Trichloropropane      | ND         | 2.0           |           |             |          |           |             |        |          |      |
| Vinyl chloride              | ND         | 1.0           |           |             |          |           |             |        |          |      |
| Xylenes, Total              | ND         | 1.5           |           |             |          |           |             |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.8        |               | 10.00     |             | 97.9     | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 10         |               | 10.00     |             | 104      | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 10         |               | 10.00     |             | 103      | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 9.7        |               | 10.00     |             | 97.4     | 70        | 130         |        |          |      |

| Sample ID 100ng Ics | SampT      | ype: LC         | s         | Tes         | tCode: El |          |             |      |          |      |
|---------------------|------------|-----------------|-----------|-------------|-----------|----------|-------------|------|----------|------|
| Client ID: LCSW     | Batch      | 1 ID: <b>R1</b> | 5104      | R           | RunNo: 1  | 5104     |             |      |          |      |
| Prep Date:          | Analysis D | ate: 11         | /26/2013  | S           | SeqNo: 4  | 35719    | Units: µg/L |      |          |      |
| Analyte             | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene             | 20         | 1.0             | 20.00     | 0           | 98.6      | 70       | 130         |      |          | _    |
| Toluene             | 18         | 1.0             | 20.00     | 0           | 90.9      | 82.2     | 124         |      |          |      |
| Chlorobenzene       | 17         | 1.0             | 20.00     | 0           | 87.5      | 70       | 130         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. P
- RLReporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 100ng lcs         | SampTy      | pe: LC                    | s         | Tes         | tCode: El     | ATILES   |           |      |          |      |
|-----------------------------|-------------|---------------------------|-----------|-------------|---------------|----------|-----------|------|----------|------|
| Client ID: LCSW             | Batch       | Batch ID: R15104          |           |             | RunNo: 1      | 5104     |           |      |          |      |
| Prep Date:                  | Analysis Da | Analysis Date: 11/26/2013 |           |             | SeqNo: 435719 |          |           |      |          |      |
| Analyte                     | Result      | PQL                       | SPK value | SPK Ref Val | %REC          | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| 1,1-Dichloroethene          | 21          | 1.0                       | 20.00     | 0           | 106           | 83.5     | 155       |      |          |      |
| Trichloroethene (TCE)       | 17          | 1.0                       | 20.00     | 0           | 85.1          | 70       | 130       |      |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.8         |                           | 10.00     |             | 98.3          | 70       | 130       |      |          |      |
| Surr: 4-Bromofluorobenzene  | 11          |                           | 10.00     |             | 110           | 70       | 130       |      |          |      |
| Surr: Dibromofluoromethane  | 9.9         |                           | 10.00     |             | 99.1          | 70       | 130       |      |          |      |
| Surr: Toluene-d8            | 9.8         |                           | 10.00     |             | 98.2          | 70       | 130       |      |          |      |

| Sample ID 1311b14-001a ms   | SampT      | ype: MS       | 6         | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|---------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: MW-1             | Batch      | 1D: <b>R1</b> | 5104      | F           | RunNo: 1  | 5104      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 11       | 1/26/2013 | S           | SeqNo: 4  | 35726     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                     | 19         | 1.0           | 20.00     | 0           | 96.9      | 67.9      | 137         |        |          |      |
| Toluene                     | 19         | 1.0           | 20.00     | 0           | 95.4      | 77        | 127         |        |          |      |
| Chlorobenzene               | 17         | 1.0           | 20.00     | 0           | 87.2      | 70        | 130         |        |          |      |
| 1,1-Dichloroethene          | 20         | 1.0           | 20.00     | 0           | 99.0      | 66.5      | 131         |        |          |      |
| :hloroethene (TCE)          | 17         | 1.0           | 20.00     | 0           | 87.2      | 66.3      | 134         |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.9        |               | 10.00     |             | 98.6      | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 10         |               | 10.00     |             | 102       | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 10         |               | 10.00     |             | 102       | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 9.9        |               | 10.00     |             | 99.4      | 70        | 130         |        |          |      |

| Sample ID 1311b14-001a msc  | <b>J</b> SampT | ype: MS       | SD        | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|----------------|---------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: MW-1             | Batch          | ID: <b>R1</b> | 5104      | R           | tunNo: 1  | 5104      |             |        |          |      |
| Prep Date:                  | Analysis D     | ate: 11       | /26/2013  | S           | SeqNo: 4  | 35727     | Units: µg/L |        |          |      |
| Analyte                     | Result         | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                     | 18             | 1.0           | 20.00     | 0           | 91.6      | 67.9      | 137         | 5.59   | 20       |      |
| Toluene                     | 18             | 1.0           | 20.00     | 0           | 88.5      | 77        | 127         | 7.44   | 20       |      |
| Chlorobenzene               | 17             | 1.0           | 20.00     | 0           | 82.6      | 70        | 130         | 5.41   | 20       |      |
| 1,1-Dichloroethene          | 19             | 1.0           | 20.00     | 0           | 94.9      | 66.5      | 131         | 4.19   | 20       |      |
| Trichloroethene (TCE)       | 17             | 1.0           | 20.00     | 0           | 83.1      | 66.3      | 134         | 4.90   | 20       |      |
| Surr: 1,2-Dichloroethane-d4 | 10             |               | 10.00     |             | 102       | 70        | 130         | 0      | 0        |      |
| Surr: 4-Bromofluorobenzene  | 10             |               | 10.00     |             | 104       | 70        | 130         | 0      | 0        |      |
| Surr: Dibromofluoromethane  | 10             |               | 10.00     |             | 99.7      | 70        | 130         | 0      | 0        |      |
| Surr: Toluene-d8            | 9.7            |               | 10.00     |             | 97.0      | 70        | 130         | 0      | 0        |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID mb-10570          | SampT      | ype: <b>MBL</b> | K        | Tes         | tCode: El | PA Method | 8270C: Semi | volatiles |          |      |
|-----------------------------|------------|-----------------|----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: PBW              | Batch      | ID: <b>1057</b> | 0        | F           | RunNo: 1  | 5177      |             |           |          |      |
| Prep Date: 11/27/2013       | Analysis D | ate: 12/2       | /2013    |             | SeqNo: 4  |           | Units: µg/L |           |          |      |
| Analyte                     | Result     | PQL S           | PK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene                | ND         | 10              |          |             |           |           |             |           |          |      |
| Acenaphthylene              | ND         | 10              |          |             |           |           |             |           |          |      |
| Aniline                     | ND         | 10              |          |             |           |           |             |           |          |      |
| Anthracene                  | ND         | 10              |          |             |           |           |             |           |          |      |
| Azobenzene                  | ND         | 10              |          |             |           |           |             |           |          |      |
| Benz(a)anthracene           | ND         | 10              |          |             |           |           |             |           |          |      |
| Benzo(a)pyrene              | ND         | 10              |          |             |           |           |             |           |          |      |
| Benzo(b)fluoranthene        | ND         | 10              |          |             |           |           |             |           |          |      |
| Benzo(g,h,i)perylene        | ND         | 10              |          |             |           |           |             |           |          |      |
| Benzo(k)fluoranthene        | ND         | 10              |          |             |           |           |             |           |          |      |
| Benzoic acid                | ND         | 40              |          |             |           |           |             |           |          |      |
| Benzyl alcohol              | ND         | 10              |          |             |           |           |             |           |          |      |
| Bis(2-chloroethoxy)methane  | ND         | 10              |          |             |           |           |             |           |          |      |
| Bis(2-chloroethyl)ether     | ND         | 10              |          |             |           |           |             |           |          |      |
| Bis(2-chloroisopropyl)ether | ND         | 10              |          |             |           |           |             |           |          |      |
| Bis(2-ethylhexyl)phthalate  | ND         | 10              |          |             |           |           |             |           |          |      |
| 4-Bromophenyl phenyl ether  | ND         | 10              |          |             |           |           |             |           |          |      |
| Butyl benzyl phthalate      | ND         | 10              |          |             |           |           |             |           |          |      |
| Carbazole                   | ND         | 10              |          |             |           |           |             |           |          |      |
| 4-Chloro-3-methylphenol     | ND         | 10              |          |             |           |           |             |           |          |      |
| 4-Chloroaniline             | ND         | 10              |          |             |           |           |             |           |          |      |
| 2-Chloronaphthalene         | ND         | 10              |          |             |           |           |             |           |          |      |
| 2-Chlorophenol              | ND         | 10              |          |             |           |           |             |           |          |      |
| 4-Chlorophenyl phenyl ether | ND         | 10              |          |             |           |           |             |           |          |      |
| Chrysene                    | ND         | 10              |          |             |           |           |             |           |          |      |
| Di-n-butyl phthalate        | ND         | 10              |          |             |           |           |             |           |          |      |
| Di-n-octyl phthalate        | ND         | 10              |          |             |           |           |             |           |          |      |
| Dibenz(a,h)anthracene       | ND         | 10              |          |             |           |           |             |           |          |      |
| Dibenzofuran                | ND         | 10              |          |             |           |           |             |           |          |      |
| 1,2-Dichlorobenzene         | ND         | 10              |          |             |           |           |             |           |          |      |
| 1,3-Dichlorobenzene         | ND         | 10              |          |             |           |           |             |           |          |      |
| 1,4-Dichlorobenzene         | ND         | 10              |          |             |           |           |             |           |          |      |
| 3,3'-Dichlorobenzidine      | ND         | 10              |          |             |           |           |             |           |          |      |
| Diethyl phthalate           | ND         | 10              |          |             |           |           |             |           |          |      |
| Dimethyl phthalate          | ND         | 10              |          |             |           |           |             |           |          |      |
| 2,4-Dichlorophenol          | ND         | 20              |          |             |           |           |             |           |          |      |
| 2,4-Dimethylphenol          | ND         | 10              |          |             |           |           |             |           |          |      |
| 4,6-Dinitro-2-methylphenol  | ND         | 20              |          |             |           |           |             |           |          |      |
| 2,4-Dinitrophenol           | ND         | 20              |          |             |           |           |             |           |          |      |
| •                           |            |                 |          |             |           |           |             |           |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#:

1311B14 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID mb-10570         | SampT      | ype: <b>MBLK</b> | Tes            | tCode: EPA        | A Method | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|------------------|----------------|-------------------|----------|-------------|-----------|----------|------|
| Client ID: PBW             | Batch      | ID: <b>10570</b> | F              | RunNo: <b>151</b> | 177      |             |           |          |      |
| Prep Date: 11/27/2013      | Analysis D | ate: 12/2/2013   | ;              | SeqNo: <b>437</b> | 7548     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL SPK val      | ue SPK Ref Val | %REC I            | LowLimit | HighLimit   | %RPD      | RPDLimit | Qual |
| 2,4-Dinitrotoluene         | ND         | 10               |                |                   |          |             |           |          |      |
| 2,6-Dinitrotoluene         | ND         | 10               |                |                   |          |             |           |          |      |
| Fluoranthene               | ND         | 10               |                |                   |          |             |           |          |      |
| Fluorene                   | ND         | 10               |                |                   |          |             |           |          |      |
| Hexachlorobenzene          | ND         | 10               |                |                   |          |             |           |          |      |
| Hexachlorobutadiene        | ND         | 10               |                |                   |          |             |           |          |      |
| Hexachlorocyclopentadiene  | ND         | 10               |                |                   |          |             |           |          |      |
| Hexachloroethane           | ND         | 10               |                |                   |          |             |           |          |      |
| Indeno(1,2,3-cd)pyrene     | ND         | 10               |                |                   |          |             |           |          |      |
| Isophorone                 | ND         | 10               |                |                   |          |             |           |          |      |
| 1-Methylnaphthalene        | ND         | 10               |                |                   |          |             |           |          |      |
| 2-Methylnaphthalene        | ND         | 10               |                |                   |          |             |           |          |      |
| 2-Methylphenol             | ND         | 10               |                |                   |          |             |           |          |      |
| 3+4-Methylphenol           | ND         | 10               |                |                   |          |             |           |          |      |
| N-Nitrosodi-n-propylamine  | ND         | 10               |                |                   |          |             |           |          |      |
| N-Nitrosodimethylamine     | ND         | 10               |                |                   |          |             |           |          |      |
| litrosodiphenylamine       | ND         | 10               |                |                   |          |             |           |          |      |
| .phthalene                 | ND         | 10               |                |                   |          |             |           |          |      |
| 2-Nitroaniline             | ND         | 10               |                |                   |          |             |           |          |      |
| 3-Nitroaniline             | ND         | 10               |                |                   |          |             |           |          |      |
| 4-Nitroaniline             | ND         | 10               |                |                   |          |             |           | •        |      |
| Nitrobenzene               | ND         | 10               |                |                   |          |             |           |          |      |
| 2-Nitrophenol              | ND         | 10               |                |                   |          |             |           |          |      |
| 4-Nitrophenol              | ND         | 10               |                |                   |          |             |           |          |      |
| Pentachlorophenol          | ND         | 20               |                |                   |          |             |           |          |      |
| Phenanthrene               | ND         | 10               |                |                   |          |             |           |          |      |
| Phenol                     | ND         | 10               |                |                   |          |             |           |          |      |
| Pyrene                     | ND         | 10               |                |                   |          |             |           |          |      |
| Pyridine                   | ND         | 10               |                |                   |          |             |           |          |      |
| 1,2,4-Trichlorobenzene     | ND         | 10               |                |                   |          |             |           |          |      |
| 2,4,5-Trichlorophenol      | ND         | 10               |                |                   |          |             |           |          |      |
| 2,4,6-Trichlorophenol      | ND         | 10               |                |                   |          |             |           |          |      |
| Surr: 2-Fluorophenol       | 110        | 200              | 0.0            | 53.3              | 22.7     | 98          |           |          |      |
| Surr: Phenol-d5            | 87         | 20               | 0.0            | 43.3              | 23.4     | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 140        | 200              | 0.0            | 71.3              | 23.3     | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 66         | 10               | 0.0            | 65.8              | 36.8     | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 61         | 10               | 0.0            | 61.2              | 38.3     | 110         |           |          |      |
| Surr: 4-Terphenyl-d14      | 76         | 10               | 0.0            | 75.9              | 52.1     | 116         |           |          |      |
|                            |            |                  |                |                   |          |             |           |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#:

1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID Ics-10570        | SampT      | ype: LC  | s         | Tes         | tCode: El | volatiles     |             |      |          |      |
|----------------------------|------------|----------|-----------|-------------|-----------|---------------|-------------|------|----------|------|
| Client ID: LCSW            | Batch      | n ID: 10 | 570       | F           | RunNo: 1  | 5177          |             |      |          |      |
| Prep Date: 11/27/2013      | Analysis D | ate: 12  | /2/2013   | S           | SeqNo: 4  | 37549         | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL      | SPK value | SPK Ref Val | %REC      | LowLimit      | HighLimit   | %RPD | RPDLimit | Qual |
| Acenaphthene               | 72         | 10       | 100.0     | 0           | 72.0      | 48            | 101         |      |          |      |
| 4-Chloro-3-methylphenol    | 150        | 10       | 200.0     | 0           | 76.0      | 4 <b>7</b> .9 | 109         |      |          |      |
| 2-Chlorophenol             | 140        | 10       | 200.0     | 0           | 67.7      | 40            | 105         |      |          |      |
| 1,4-Dichlorobenzene        | 63         | 10       | 100.0     | 0           | 62.8      | 40.8          | 94.3        |      |          |      |
| 2,4-Dinitrotoluene         | 69         | 10       | 100.0     | 0           | 69.2      | 28.3          | 131         |      |          |      |
| N-Nitrosodi-n-propylamine  | <b>7</b> 6 | 10       | 100.0     | 0           | 76.1      | 46.2          | 119         |      |          |      |
| 4-Nitrophenol              | 70         | 10       | 200.0     | 0           | 35.0      | 10.5          | 67.9        |      |          |      |
| Pentachlorophenol          | 100        | 20       | 200.0     | 0           | 52.5      | 22.4          | 81.1        |      |          |      |
| Phenol                     | 83         | 10       | 200.0     | 0           | 41.5      | 21.4          | 72.9        |      |          |      |
| Pyrene                     | 74         | 10       | 100.0     | 0           | 74.4      | 46.9          | 109         |      |          |      |
| 1,2,4-Trichlorobenzene     | 65         | 10       | 100.0     | 0           | 64.8      | 43.1          | 98.4        |      |          |      |
| Surr: 2-Fluorophenol       | 100        |          | 200.0     |             | 51.1      | 22.7          | 98          |      |          |      |
| Surr: Phenol-d5            | 80         |          | 200.0     |             | 40.1      | 23.4          | 74.9        |      |          |      |
| Surr: 2,4,6-Tribromophenol | 150        |          | 200.0     |             | 75.6      | 23.3          | 111         |      |          |      |
| Surr: Nitrobenzene-d5      | 68         |          | 100.0     |             | 67.8      | 36.8          | 111         |      |          |      |
| Surr: 2-Fluorobiphenyl     | 69         |          | 100.0     |             | 68.9      | 38.3          | 110         |      |          |      |
| Surr: 4-Terphenyl-d14      | 83         |          | 100.0     |             | 82.7      | 52.1          | 116         |      |          |      |

| Sample ID 1311b14-005dms   | SampT      | ype: MS | ;         | Tes         | tCode: El | PA Method | 8270C: Semi | olatiles/ |          |      |
|----------------------------|------------|---------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: MW-4            | Batch      | ID: 10  | 570       | F           | RunNo: 1  | 5177      |             |           |          |      |
| Prep Date: 11/27/2013      | Analysis D | ate: 12 | 2/2/2013  | 8           | SeqNo: 4  | 37557     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 80         | 10      | 100.0     | 0           | 79.7      | 52.5      | 94.5        |           |          |      |
| 4-Chloro-3-methylphenol    | 140        | 10      | 200.0     | 0           | 70.3      | 45        | 103         |           |          |      |
| 2-Chlorophenol             | 140        | 10      | 200.0     | 0           | 67.7      | 32.3      | 101         |           |          |      |
| 1,4-Dichlorobenzene        | 65         | 10      | 100.0     | 0           | 65.3      | 34.5      | 97.5        |           |          |      |
| 2,4-Dinitrotoluene         | 75         | 10      | 100.0     | 0           | 75.3      | 20.1      | 123         |           |          |      |
| N-Nitrosodi-n-propylamine  | 70         | 10      | 100.0     | 0           | 70.1      | 26.9      | 131         |           |          |      |
| 4-Nitrophenol              | 90         | 10      | 200.0     | 0           | 44.9      | 11.6      | 55.4        |           |          |      |
| Pentachlorophenol          | 130        | 20      | 200.0     | 0           | 65.9      | 17.6      | 88.9        |           |          |      |
| Phenoi                     | 79         | 10      | 200.0     | 0           | 39.4      | 18.4      | 66.5        |           |          |      |
| Pyrene                     | 76         | 10      | 100.0     | 0           | 76.2      | 43.1      | 111         |           |          |      |
| 1,2,4-Trichlorobenzene     | 71         | 10      | 100.0     | 0           | 70.8      | 38.8      | 95.6        |           |          |      |
| Surr: 2-Fluorophenol       | 110        |         | 200.0     |             | 53.8      | 22.7      | 98          |           |          |      |
| Surr: Phenol-d5            | 83         |         | 200.0     |             | 41.6      | 23.4      | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 170        |         | 200.0     |             | 86.7      | 23.3      | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 76         |         | 100.0     |             | 75.9      | 36.8      | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 83         |         | 100.0     |             | 83.0      | 38.3      | 110         |           |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Iall Environmental Analysis Laboratory, Inc.

WO#:

1311B14 16-Dec-13

Client:

**AMEC** 

**Project:** 

Lightning Dock Geothermal Water Quality Moni

Sample ID 1311b14-005dms

SampType: MS

TestCode: EPA Method 8270C: Semivolatiles

Client ID: MW-4

Client ID:

Batch ID: 10570

PQL

RunNo: 15177

SPK value SPK Ref Val

Prep Date: 11/27/2013 Analysis Date: 12/2/2013

SeqNo: 437557

%REC

Units: µg/L HighLimit

%RPD

%RPD

23.9

**RPDLimit** 

Qual

Analyte Surr: 4-Terphenyl-d14

78

Result

100.0

78.4

LowLimit

52.1

116

**RPDLimit** 

20

0

Qual

R

R

R

Prep Date: 11/27/2013

Surr: 2-Fluorobiphenyl

Surr: 4-Terphenyl-d14

Sample ID 1311b14-005dmsd

MW-4

SampType: MSD

65

67

Batch ID: 10570

RunNo: 15177

TestCode: EPA Method 8270C: Semivolatiles

52.5

38.3

52.1

SeqNo: 437558

Units: µg/L HighLimit

94.5

110

116

0

| Analyte                 | Result | PQL | SPK value | SPK Ref Val | %REC | Lowl |
|-------------------------|--------|-----|-----------|-------------|------|------|
| Acenaphthene            | 63     | 10  | 100.0     | 0           | 62.7 |      |
| 4-Chloro-3-methylphenol | 130    | 10  | 200.0     | 0           | 66.1 |      |
| 2-Chlorophenol          | 120    | 10  | 200.0     | 0           | 61.7 |      |

Analysis Date: 12/2/2013

4-0 45 103 6.14 20 32.3 101 9.40 20 2-0 56.6 34.5 97.5 20 57 10 100.0 14.3 1,4-Dichlorobenzene 100.0 64.7 20.1 20 65 10 0 123 15.1 2,4-Dinitrotoluene 100.0 70.0 26.9 131 0.200 20 70 0 N-Nitrosodi-n-propylamine 10 72 10 200.0 0 35.9 11.6 55.4 22.3 20 4-Nitrophenol 20 200.0 0 64.0 17.6 88.9 2.80 20 Pentachlorophenol 130 Phenol 75 10 200.0 O 37.4 18.4 66.5 5.34 20 69 10 100.0 0 69.3 43.1 111 9.54 20 ene 56.2 38.8 95.6 23.1 20 ,4-Trichlorobenzene 56 10 100.0 89 200.0 44.3 22.7 98 0 0 Surr: 2-Fluorophenol 35.9 23.4 74.9 0 0 72 200.0 Surr: Phenol-d5 0 Surr: 2,4,6-Tribromophenol 150 200.0 75.6 23.3 111 0 0 65 100.0 65.1 36.8 111 0 Surr: Nitrobenzene-d5 0 0

100.0

100.0

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits J
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit ND

65.4

67.5

- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-10572     | SampT      | Гуре: МЕ        | BLK       | Tes         | tCode: E | PA Method | 8310: PAHs  |      |          |      |
|------------------------|------------|-----------------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: PBW         | Batch      | h ID: <b>10</b> | 572       | F           | RunNo: 1 | 5191      |             |      |          |      |
| Prep Date: 11/27/2013  | Analysis D | Date: 12        | 2/3/2013  | 5           | SeqNo: 4 | 38044     | Units: μg/L |      |          |      |
| Analyte                | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene            | ND         | 2.0             |           |             |          |           |             | ,    |          |      |
| 1-Methylnaphthalene    | ND         | 2.0             |           |             |          |           |             |      |          |      |
| 2-Methylnaphthalene    | ND         | 2.0             |           |             |          |           |             |      |          |      |
| Acenaphthylene         | ND         | 2.5             |           |             |          |           |             |      |          |      |
| Acenaphthene           | ND         | 5.0             |           |             |          |           |             |      |          |      |
| Fluorene               | ND         | 0.80            |           |             |          |           |             |      |          |      |
| Phenanthrene           | ND         | 0.60            |           |             |          |           |             |      |          |      |
| Anthracene             | ND         | 0.60            |           |             |          |           |             |      |          |      |
| Fluoranthene           | ND         | 0.30            |           |             |          |           |             |      |          |      |
| Pyrene                 | ND         | 0.30            |           |             |          |           |             |      |          |      |
| Benz(a)anthracene      | ND         | 0.070           |           |             |          |           |             |      |          |      |
| Chrysene               | ND         | 0.20            |           |             |          |           |             |      |          |      |
| Benzo(b)fluoranthene   | ND         | 0.10            |           |             |          |           |             |      |          |      |
| Benzo(k)fluoranthene   | ND         | 0.070           |           |             |          |           |             |      |          |      |
| Benzo(a)pyrene         | ND         | 0.070           |           |             |          |           |             |      |          |      |
| Dibenz(a,h)anthracene  | ND         | 0.12            |           |             |          |           |             |      |          |      |
| Benzo(g,h,i)perylene   | ND         | 0.12            |           |             |          |           |             |      |          |      |
| Indeno(1,2,3-cd)pyrene | ND         | 0.25            |           |             |          |           |             |      |          |      |
| Surr: Benzo(e)pyrene   | 29         |                 | 20.00     |             | 144      | 24.5      | 139         |      |          | S    |

| Sample ID LCS-10572   | SampT      | ype: <b>LC</b> | s         | Tes         | tCode: El | PA Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|----------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: LCSW       | Batch      | 1D: <b>10</b>  | 572       | F           | RunNo: 1  | 5191      |             |      |          |      |
| Prep Date: 11/27/2013 | Analysis D | oate: 12       | 2/3/2013  | S           | SeqNo: 4  | 38046     | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 49         | 2.0            | 80.00     | 0           | 60.8      | 43.8      | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 44         | 2.0            | 80.20     | 0           | 55.1      | 41.3      | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 42         | 2.0            | 80.00     | 0           | 52.0      | 36.6      | 89.6        |      |          |      |
| Acenaphthylene        | 52         | 2.5            | 80.20     | 0           | 64.8      | 43.6      | 103         |      |          |      |
| Acenaphthene          | 44         | 5.0            | 80.00     | 0           | 54.6      | 42.4      | 87.6        |      |          |      |
| Fluorene              | 4.5        | 0.80           | 8.020     | 0           | 56.2      | 40.5      | 93.6        |      |          |      |
| Phenanthrene          | 2.6        | 0.60           | 4.020     | 0           | 63.7      | 43.9      | 111         |      |          |      |
| Anthracene            | 2.5        | 0.60           | 4.020     | 0           | 62.9      | 44.3      | 103         |      |          |      |
| Fluoranthene          | 4.7        | 0.30           | 8.020     | 0           | 58.4      | 43.5      | 109         |      |          |      |
| Pyrene                | 5.0        | 0.30           | 8.020     | 0           | 62.6      | 32.6      | 103         |      |          |      |
| Benz(a)anthracene     | 0.50       | 0.070          | 0.8020    | 0           | 62.3      | 43        | 114         |      |          |      |
| Chrysene              | 2.4        | 0.20           | 4.020     | 0           | 59.5      | 40.2      | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.64       | 0.10           | 1.002     | 0           | 63.9      | 44.4      | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.32       | 0.070          | 0.5000    | 0           | 64.0      | 41.5      | 120         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## 'all Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID LCS-10572    | SampT           | ype: LC  | s                            | Tes         | tCode: El | PA Method |             |      |          |      |
|------------------------|-----------------|----------|------------------------------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: LCSW        | Batch ID: 10572 |          |                              | F           | RunNo: 1  | 5191      |             |      |          |      |
| Prep Date: 11/27/2013  | Analysis D      | )ate: 12 | 12/3/2013 SeqNo: 438046 Unit |             |           |           | Units: µg/L |      |          |      |
| Analyte                | Result          | PQL      | SPK value                    | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Benzo(a)pyrene         | 0.33            | 0.070    | 0.5020                       | 0           | 65.7      | 34.5      | 118         |      |          |      |
| Dibenz(a,h)anthracene  | 0.66            | 0.12     | 1.002                        | 0           | 65.9      | 38.3      | 107         |      |          |      |
| Benzo(g,h,i)perylene   | 0.64            | 0.12     | 1.000                        | 0           | 64.0      | 38.4      | 110         |      |          |      |
| Indeno(1,2,3-cd)pyrene | 1.5             | 0.25     | 2.004                        | 0           | 73.4      | 42.4      | 113         |      |          |      |
| Surr: Benzo(e)pyrene   | 26              |          | 20.00                        |             | 132       | 24.5      | 139         |      |          |      |

| Sample ID 1311B14-005CMS | SampT      | ype: MS       | ;         | Tes         | tCode: El | PA Method | 8310: PAHs  |      |          |      |
|--------------------------|------------|---------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: MW-4          | Batch      | 1D: <b>10</b> | 572       | F           | RunNo: 1  | 5191      |             |      |          |      |
| Prep Date: 11/27/2013    | Analysis D | ate: 12       | 2/3/2013  | S           | SeqNo: 4  | 38531     | Units: µg/L |      |          |      |
| Analyte                  | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene              | 40         | 2.0           | 80.00     | 0           | 50.3      | 70        | 130         |      |          | S    |
| 1-Methylnaphthalene      | 33         | 2.0           | 80.20     | 0           | 41.0      | 70        | 130         |      |          | S    |
| 2-Methylnaphthalene      | 29         | 2.0           | 80.00     | 0           | 36.1      | 70        | 130         |      |          | S    |
| Acenaphthylene           | 46         | 2.5           | 80.20     | 0           | 57.6      | 70        | 130         |      |          | S    |
| Acenaphthene             | 34         | 5.0           | 80.00     | 0           | 42.1      | 70        | 130         |      |          | S    |
| orene                    | 3.4        | 0.80          | 8.020     | 0           | 42.3      | 70        | 130         |      |          | S    |
| enanthrene               | 2.2        | 0.60          | 4.020     | 0           | 54.2      | 70        | 130         |      |          | S    |
| Anthracene               | 2.1        | 0.60          | 4.020     | 0           | 52.5      | 70        | 130         |      |          | S    |
| Fluoranthene             | 5.8        | 0.30          | 8.020     | 0           | 71.8      | 70        | 130         |      |          |      |
| Pyrene                   | 4.2        | 0.30          | 8.020     | 0           | 53.0      | 70        | 130         |      |          | S    |
| Benz(a)anthracene        | 0.43       | 0.070         | 0.8020    | 0           | 53.6      | 70        | 130         |      |          | S    |
| Chrysene                 | 2.1        | 0.20          | 4.020     | 0.1100      | 50.5      | 70        | 130         |      |          | S    |
| Benzo(b)fluoranthene     | 0.61       | 0.10          | 1.002     | 0           | 60.9      | 70        | 130         |      |          | S    |
| Benzo(k)fluoranthene     | 0.33       | 0.070         | 0.5000    | 0           | 66.0      | 70        | 130         |      |          | S    |
| Benzo(a)pyrene           | 0.26       | 0.070         | 0.5020    | 0           | 51.8      | 70        | 130         |      |          | S    |
| Dibenz(a,h)anthracene    | 0.57       | 0.12          | 1.002     | 0           | 56.9      | 70        | 130         |      |          | S    |
| Benzo(g,h,i)perylene     | 0.51       | 0.12          | 1.000     | 0           | 51.0      | 70        | 130         |      |          | S    |
| Indeno(1,2,3-cd)pyrene   | 1.3        | 0.25          | 2.004     | 0           | 65.9      | 70        | 130         |      |          | S    |
| Surr: Benzo(e)pyrene     | 12         |               | 20.00     |             | 58.2      | 24.5      | 139         |      |          |      |

| Sample ID 1311B14-005CMS | D SampT    | ype: MS | SD        | Test        | tCode: El | PA Method | 8310: PAHs  |       |          |      |
|--------------------------|------------|---------|-----------|-------------|-----------|-----------|-------------|-------|----------|------|
| Client ID: MW-4          | Batch      | ID: 10  | 572       | F           | RunNo: 1  | 5191      |             |       |          |      |
| Prep Date: 11/27/2013    | Analysis D | ate: 12 | 2/3/2013  | S           | eqNo: 4   | 38532     | Units: µg/L |       |          |      |
| Analyte                  | Result     | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD  | RPDLimit | Qual |
| Naphthalene              | 40         | 2.0     | 80.00     | 0           | 50.2      | 70        | 130         | 0.199 | 20       | S    |
| 1-Methylnaphthalene      | 34         | 2.0     | 80.20     | 0           | 41.9      | 70        | 130         | 2.32  | 20       | S    |
| 2-Methylnaphthalene      | 31         | 2.0     | 80.00     | 0           | 38.4      | 70        | 130         | 6.14  | 20       | S    |
| Acenaphthylene           | 47         | 2.5     | 80.20     | 0           | 59.2      | 70        | 130         | 2.78  | 20       | S    |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

|                          |                |                 |           |             |          |           | 2012 241    |       |          |      |
|--------------------------|----------------|-----------------|-----------|-------------|----------|-----------|-------------|-------|----------|------|
| Sample ID 1311B14-005CMS | <b>D</b> SampT | ype: MS         | SD .      | les         | Code: El | PA Method | 8310: PAHs  |       |          |      |
| Client ID: MW-4          | Batch          | 1D: <b>10</b> : | 572       | F           | RunNo: 1 | 5191      |             |       |          |      |
| Prep Date: 11/27/2013    | Analysis D     | ate: 12         | 2/3/2013  | S           | SeqNo: 4 | 38532     | Units: µg/L |       |          |      |
| Analyte                  | Result         | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD  | RPDLimit | Qual |
| Acenaphthene             | 35             | 5.0             | 80.00     | 0           | 43.3     | 70        | 130         | 2.81  | 20       | S    |
| Fluorene                 | 3.4            | 0.80            | 8.020     | 0           | 42.0     | 70        | 130         | 0.592 | 20       | S    |
| Phenanthrene             | 2.1            | 0.60            | 4.020     | 0           | 51.5     | 70        | 130         | 5.18  | 20       | S    |
| Anthracene               | 2.1            | 0.60            | 4.020     | 0           | 52.7     | 70        | 130         | 0.473 | 20       | S    |
| Fluoranthene             | 5.3            | 0.30            | 8.020     | 0           | 66.5     | 70        | 130         | 7.75  | 20       | S    |
| Pyrene                   | 4.2            | 0.30            | 8.020     | 0           | 52.6     | 70        | 130         | 0.708 | 20       | S    |
| Benz(a)anthracene        | 0.43           | 0.070           | 0.8020    | 0           | 53.6     | 70        | 130         | 0     | 20       | S    |
| Chrysene                 | 2.2            | 0.20            | 4.020     | 0.1100      | 50.7     | 70        | 130         | 0.466 | 20       | S    |
| Benzo(b)fluoranthene     | 0.60           | 0.10            | 1.002     | 0           | 59.9     | 70        | 130         | 1.65  | 20       | S    |
| Benzo(k)fluoranthene     | 0.33           | 0.070           | 0.5000    | 0           | 66.0     | 70        | 130         | 0     | 20       | S    |
| Benzo(a)pyrene           | 0.26           | 0.070           | 0.5020    | 0           | 51.8     | 70        | 130         | 0     | 20       | S    |
| Dibenz(a,h)anthracene    | 0.57           | 0.12            | 1.002     | 0           | 56.9     | 70        | 130         | 0     | 20       | S    |
| Benzo(g,h,i)perylene     | 0.51           | 0.12            | 1.000     | 0           | 51.0     | 70        | 130         | 0     | 20       | S    |
| Indeno(1,2,3-cd)pyrene   | 1.3            | 0.25            | 2.004     | 0           | 65.9     | 70        | 130         | 0     | 20       | S    |
| Surr: Benzo(e)pyrene     | 12             |                 | 20.00     |             | 58.2     | 24.5      | 139         | 0     |          |      |

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### 'all Environmental Analysis Laboratory, Inc.

WO#: 1311B14 16-Dec-13

Client:

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID mb-1

SampType: mblk

TestCode: SM2320B; Alkalinity

Client ID: PBW

Batch ID: R15156

RunNo: 15156

Prep Date:

Analysis Date: 11/27/2013

20

SeqNo: 436999

Units: mg/L CaCO3

Analyte

PQL SPK value SPK Ref Val Result

%REC LowLimit

%RPD **RPDLimit** 

Qual

Total Alkalinity (as CaCO3)

ND

SampType: Ics

TestCode: SM2320B: Alkalinity

Sample ID Ics-1

RunNo: 15156

Client ID:

LCSW

Batch ID: R15156

Units: mg/L CaCO3

Analyte

Analysis Date: 11/27/2013

Result

SeqNo: 437000 LowLimit SPK value SPK Ref Val %REC

HighLimit

HighLimit

%RPD

Total Alkalinity (as CaCO3)

Prep Date:

**PQL** 80 20

Batch ID: R15156

100

110

**RPDLimit** 

Qual

Client ID: PBW

Sample ID mb-2

SampType: mblk

TestCode: SM2320B: Alkalinity

90

RunNo: 15156

Units: mg/L CaCO3

Analyte

Prep Date:

Result **PQL** 

Analysis Date: 11/27/2013

80.00

SeqNo: 437020

SPK value SPK Ref Val %REC LowLimit

HighLimit %RPD **RPDLimit** 

Total Alkalinity (as CaCO3)

ND 20

TestCode: SM2320B: Alkalinity

Qual

Rample ID Ics-2 'ient ID:

LCSW

SampType: Ics

RunNo: 15156

Prep Date:

Batch ID: R15156

Analysis Date: 11/27/2013

SeqNo: 437021

Units: mg/L CaCO3

Analyte

SPK value SPK Ref Val

%REC

Lowl imit

HighLimit

%RPD

**RPDLimit** 

Qual

Total Alkalinity (as CaCO3)

Result

80

**PQL** 20

80.00

99.6

90

110

# Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Ţ Analyte detected below quantitation limits 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R

Value above quantitation range

- Spike Recovery outside accepted recovery limits
- Η Holding times for preparation or analysis exceeded
- Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

ND

В Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#:

1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10567

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID:

PBW

Batch ID: 10567

PQL

20.0

RunNo: 15143

Prep Date: 11/27/2013

Analysis Date: 11/29/2013

SeqNo: 436797

Units: mg/L HighLimit

%RPD **RPDLimit** 

Qual

Analyte Total Dissolved Solids Result ND

Result

TestCode: SM2540C MOD: Total Dissolved Solids

SPK value SPK Ref Val %REC LowLimit

%RPD

Sample ID LCS-10567

SampType: LCS

Client ID:

LCSW

Batch ID: 10567

RunNo: 15143

Prep Date: 11/27/2013

Analysis Date: 11/29/2013

SeqNo: 436798

Units: mg/L

**RPDLimit** 

Qual

Analyte

PQL

SPK value SPK Ref Val

101

Total Dissolved Solids

1010 20.0

0

80

HighLimit

1000

%REC LowLimit

120

Qualifiers:

Ε

S

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

Analyte detected below quantitation limits RSD is greater than RSDlimit Ο

Value above quantitation range

RPD outside accepted recovery limits R

Analyte detected in the associated Method Blank В

Helding times for preparation or analysis exceeded Η

Not Detected at the Reporting Limit ND

Sample pH greater than 2 for VOA and TOC only. RLReporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

# Sample Log-In Check List

| Client Name:         | AMEC  | Work O                     | rder Number: 1 | 1311B14       |                          | RcptNo:                              | 1                   |      |
|----------------------|---|----------------------------|----------------|---------------|--------------------------|--------------------------------------|---------------------|------|
| Received by/da       | ite: M                                      | 6 11/24/13                 |                |               |                          |                                      |                     |      |
| Logged By:           | Anne Thorne                                 | 11/26/201                  | 3 9:15:00 AM   |               | anne Am                  | _                                    |                     |      |
| Completed By:        | Anne Thorne                                 | 11/26/201                  | 3              |               | Anne Show<br>Anne Show   | _                                    |                     |      |
| Reviewed By:         | To  | 11/26/13                   |                |               |                          |                                      |                     |      |
| Chain of Cus         | stody                                       |                            |                |               |                          |                                      |                     |      |
| 1. Custody se        | als intact on samp                          | le bottles?                |                | Yes 🗌         | No 🗆                     | Not Present                          |                     |      |
| 2. Is Chain of       | Custody complete                            | ?                          |                | Yes 🗹         | No 🗌                     | Not Present                          |                     |      |
| 3. How was th        | ie sample delivere                          | d?                         |                | <u>FedEx</u>  |                          |                                      |                     |      |
| <u>Log In</u>        |   |                            |                |               |                          |                                      |                     |      |
| 4. Was an att        | tempt made to coo                           | I the samples?             |                | Yes 🗹         | No 🗆                     | na 🗆                                 |                     |      |
| 5. Were all sa       | amples received at                          | a temperature of >0° C to  | o 6.0°C        | Yes 🗹         | No 🗌                     | NA 🗆                                 |                     |      |
| 6. Sample(s)         | in proper containe                          | r(s)?                      |                | Yes 🗹         | No 🗆                     |                                      |                     |      |
| 7. Sufficient s      | ample volume for i                          | indicated test(s)?         |                | Yes $\square$ | No 🗸                     |                                      |                     |      |
| 8. Are sample        | es (except VOA and                          | d ONG) properly preserve   | d?             | Yes 🗌         | No 🗹                     |                                      |                     |      |
| 9. Was prese         | rvative added to be                         | ottles?                    |                | Yes 🗹         | No 🗆                     | NA 🗆                                 |                     |      |
| 10.VOA vials h       | have zero headspa                           | ice?                       |                | Yes 🗹         | No 🗆                     | HNO3<br>No VOA Vials                 |                     |      |
| 11. Were any         | sample containers                           | received broken?           |                | Yes 🔽         | No 🗆                     | # of preserved                       |                     |      |
|                      | rwork match bottle<br>epancies on chain     |                            |                | Yes 🔽         | No 🗀                     | bottles checked for pH:              | r >12 unless noted) |      |
| 13. Are matrice      | es correctly identific                      | ed on Chain of Custody?    |                | Yes 🗹         | No 🗀                     | Adjusted?                            | Serbelan            |      |
| 14. Is it clear w    | vhat analyses were                          | requested?                 |                | Yes 🗹         | No 🗆                     |                                      |                     |      |
|                      | olding times able to<br>y customer for auti |                            |                | Yes 🗹         | No L                     | Checked by:                          |                     |      |
| Special Han          | dling (if applic                            | able)                      |                |               |                          |                                      |                     |      |
| 16. Was client       | notified of all discr                       | repancies with this order? |                | Yes 🗹         | No □                     | na 🗆                                 |                     |      |
| Ву W                 | /hom:                                       | VID JANNEY                 | Date Via:      | ] eMail 💽     | 11/26/2013<br>Phone  Fax | ☐ In Person                          |                     |      |
| 1                    | it Instructions:                            |                            |                |               |                          | CAMPACES SEE PERSONNEL COMMUNICATION |                     |      |
| L                    |   | Hed I'ML AN                | 1/12 to .      | Ha h          | Hes for                  | acceptable                           | pH ) A-111          | 26/1 |
|                      |   | TLES ARRIVED BROKE         |                |               | ME FOR RADIUM            | 226/228-/at 11/26/13                 | e124                | 15   |
| 18. <u>Cooler In</u> | formation                                   |                            |                | -1            |                          | l                                    |                     |      |
| Cooler<br>4          |   | ood Yes                    | DERI (NU DE    | eal Date      | Signed By                |                                      |                     |      |
| Page 1               | of2/ / /                                    | 1/26/13                    |                | <del></del>   |                          |                                      |                     |      |

| Chain-of-Custody Record |                  |             | Turn-Around                 | Time:                   |                      | HALL ENVIRONMENTAL |   |            |              |             |   |               |                    |                        |             |                 |          |               |                       |                |
|-------------------------|------------------|-------------|-----------------------------|-------------------------|----------------------|--------------------|---|------------|--------------|-------------|---|---------------|--------------------|------------------------|-------------|-----------------|----------|---------------|-----------------------|----------------|
| Client:                 | AMEC             | En          | wonment &                   | Standard                | □ Rush               |                    |   |            |              |             | NAI                                     |               |                    |                        |             |                 |          |               |                       |                |
| I                       | n fras           | truta       | re the                      | Project Name            | 9:<br>Deele (        |                    |   |            |              |             | ww.ha                                   |               |                    |                        |             |                 |          |               |                       |                |
| Mailing                 | Address          | 85/9        | re, Inc.<br>Tefferson Stay  | nater o                 | luality Mo           | natoring           | 4901 Hawkins NE - Albuquerque, NM 87109 |            |              |             |   |               |                    |                        |             |                 |          |               |                       |                |
| Af                      | 30 .             | VM          | 87113                       | [F10] <del>C</del> CL#. |                      |                    |   | Te         | 1. 505       | 5-345       | -3975                                   | Į             | Fax                | 505-                   | 345-        | 4107            | ,        |               |                       |                |
| Phone i                 | #: 1505          | 821-        | 1801                        | 1                       | 7-00102              |                    |   |            |              |             |   | Anal          | ysis               | Req                    | uest        |                 |          |               |                       |                |
| email o                 | r Fax#: <i>e</i> | lavid.      | Januer Bamec.com            | Project Mana            | ger:                 |                    | <u>-</u>                                | (ye        | (Gas/Diesel) |             |   | CH)Z/I        | ( <sup>7</sup> 05) | S                      |             |                 | 3        |               | 1 34                  | 4              |
| QA/QC I                 | Package:         |             | ·                           | David                   | Janne                | · ····             | (8021)                                  | (Gas only) | Ö            |             |   | 1             | 数                  | PCB                    |             | -               | -5       |               | 1                     | 3              |
| <b>X</b> Stan           |                  |             | ☐ Level 4 (Full Validation) |                         | ·                    |                    | l or l                                  | 9          | Gas          |             |   | F             |                    | 12                     |             |                 | EX.      | $\rightarrow$ | 82                    | §              |
| Accredi                 |                  | □ Othe      | r                           | Sampler:                | Fric Koe             | nig<br>□No Nami    | TMB                                     | T H        | 8015B (      | 418.1)      | <u> </u>                                |               | Anions (FACINO) NE | 3081 Pesticides / 8082 |             |                 | 3.3      | (60108/1020   | 820/027               | Nor N)         |
| EDD EDD                 |                  | EX          |                             | Sample Tem              |                      | 3.8                | H<br>H                                  | H          | 80,          | 441         | EDB (Method 504.1)<br>8310 (PNA or PAH) | tals          | 2                  | ides                   | 7           | 8270 (Semi-VOA) | हैं र    | A             | 1                     | اڅ             |
|                         |                  |             |                             |                         |                      | AND CHARGE STATES  | + MTBE                                  | MTBE       | rPH Method   | TPH (Method | ğ ğ                                     | RCRA 8 Metals | (E)                | estic                  | 3260B (VOA) | em              | P        | 27.           | 0                     | Air Bubbles (Y |
| Date                    | Time             | Matrix      | Sample Request ID           | Container Type and #    | Preservative<br>Type | HEALNO             | X                                       | *          | ¥            | <u>₹</u>    | B G                                     | ₽¥.           | ons (              | 7.<br>P.               | 90B (       | 8) 0,           | 類        |               | \$z                   | B   %          |
|                         |                  |             |                             |                         |                      | 內僧叫                | этех                                    | ЗТЕХ       |              |             | 3<br>3<br>3<br>3                        | 22            | Ànį                | 808                    | 826         | 827             | \$       | 2 ,           | Z 1                   | Ϋ́             |
| his/13                  | 11:45            | Water       | MW-I                        | 13                      | HC1, HM03            | -01                |   |            |              | ×           | ×                                       |               | ×                  |                        | X           |                 | 8        | R             | X                     |                |
| 125/13                  | 9:00             | 1           | MW-Z                        | 1                       |                      | -02                |   |            |              | 1           | )                                       |               | X                  |                        | ×           | X               | ×        | 7             | Y                     |                |
| 25/13                   | 9:20             |             | MW-ZB                       |                         |                      | -013               |   |            |              | 2           |   |               | ×                  | <i>i</i>               | X           | X               | $\times$ | X             | $\mathbb{Z}_{\times}$ |                |
| 1241B                   | 17.5             | •           | MW-3                        |                         |                      | -704               |   |            |              | <b>X</b>    | 7                                       |               | ×                  |                        | X           | X               | X        | ×>            | ZX                    |                |
| 124/13                  | 14:35            |             | MW-4                        | DC 8314827              | b l                  | -05                |   |            |              | X           | 7                                       | =             | ×                  |                        | X           | X               | ×,       | A,            | <b>K</b> >            | 4              |
| 124/12                  | 12:15            | -           | MW-5                        |                         | 1/                   | -celo              |   |            | )            | X           | ×                                       |               | X                  |                        | ×           | ×               | X        | ×/            | <b>k</b> 1>           | गा             |
| 1/23/13                 | 12:00            | V           | MW-6                        | V                       | V                    | -007               |   |            | )            | ×           | X                                       |               | X                  |                        |             | x               | X        | ×,            | XX                    | $\Box$         |
| •                       |                  |             | Trip Blank                  |                         |                      | -008               |   |            | ;            | 2           | - X                                     | -             | X                  |                        | ×           | ×               | X        |               | 2                     |                |
|                         |                  |             | A .112610                   |                         |                      |                    |   |            |              |             |   |               |                    |                        |             |                 |          |               |                       |                |
|                         |                  |             | AL THE                      |                         |                      |                    |   |            |              |             |   |               |                    |                        |             |                 |          | $\Box$        |                       |                |
|                         |                  |             |                             |                         |                      |                    |   |            |              |             |   |               |                    |                        |             |                 |          |               |                       |                |
|                         |                  |             |                             |                         |                      |                    |   | 1          |              |             |   |               |                    |                        |             |                 |          | 1             |                       |                |
| Date:                   |                  | Relinquishe | d by:                       | Received by:            | $\triangle$          | Date Time          | Rem                                     | arks       | Zi           | ive         | 1106                                    | 7 5           | -4.                | 19                     | 6           | 10              | 19       | 7/            |                       | 4              |
|                         | 15.00            | gri         | D. Frenig                   | 1) Jul                  | uls ( BC             | 1 1/20/13 UAIS     | -6                                      | ee         | 4            | ttu (       | hed<br>US                               | \$            | ov.                | tu                     | H           | and             | XX       | #€,           | NS                    | 10             |
| Date:                   | Time:            | Kelinguishe | a by:                       | Received by:            | $\mathcal{I}$        | D∤ate / Time       | A                                       | 10         | -4,          | MI          | ŲΣ                                      | 41            | 8 D                | HL                     | 'S 1        | UDV             | ek       | ndl           | 1                     |                |
|                         |                  |             |                             |                         | ,                    |                    | u                                       | (POV       | ιRe          | cerē        | t lan                                   | -10           | 201                | 13                     |             |                 |          |               |                       |                |



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 22, 2014

David Janney
Cyrq Energy Inc
PO Box 86
Animas, NM 88020

TEL: (505) 796-7276

**FAX** 

RE: Lightning Dock CYRQ ENERGY OrderNo.: 1312659

#### Dear David Janney:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/16/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andel

4901 Hawkins NE

Albuquerque, NM 87109

### **Analytical Report**

### Lab Order 1312659

Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: MW-1B

Project: Lightning Dock CYRQ ENERGY Collection Date: 12/11/2013 10:45:00 AM

Lab ID: 1312659-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

RL Qual Units **Analyses** Result **DF** Date Analyzed Batch EPA METHOD 8011/504.1: EDB Analyst: LRW 1.2-Dibromoethane ND 0.010 μg/L 12/16/2013 9:45:56 PM 10822 **EPA METHOD 8082: PCB'S** Analyst: SCC ND Aroclor 1016 1.0 μg/L 12/18/2013 4:15:08 AM 10796 ND Aroclor 1221 1.0 μg/L 12/18/2013 4:15:08 AM 10796 Aroclor 1232 ND 1.0 μg/L 1 12/18/2013 4:15:08 AM 10796 Aroclor 1242 ND 1.0 μg/L 12/18/2013 4:15:08 AM 10796 Aroclor 1248 ND 1.0 μg/L 12/18/2013 4:15:08 AM 10796 ND Aroclor 1254 1.0 μg/L 12/18/2013 4:15:08 AM 10796 ND Aroclor 1260 1.0 μg/L 12/18/2013 4:15:08 AM 10796 78.8 17-123 %REC Surr: Decachlorobiphenyl 12/18/2013 4:15:08 AM 10796 Surr: Tetrachloro-m-xylene 55.2 22.6-113 %REC 12/18/2013 4:15:08 AM 10796 **EPA METHOD 8310: PAHS** Analyst: SCC Naphthalene ND 2.0 µg/L 12/17/2013 10:00:05 PM 10797 ND 2.0 1-Methylnaphthalene μg/L 12/17/2013 10:00:05 PM 10797 1 ND 2.0 2-Methylnaphthalene μg/L 12/17/2013 10:00:05 PM 10797 ND 2.5 Acenaphthylene μg/L 12/17/2013 10:00:05 PM 10797 Acenaphthene ND 5.0 µg/L 12/17/2013 10:00:05 PM 10797 Fluorene ND 0.80 12/17/2013 10:00:05 PM 10797 μg/L 1 ND 0.60 Phenanthrene μg/L 12/17/2013 10:00:05 PM 10797 Anthracene ND 0.60 μg/L 12/17/2013 10:00:05 PM 10797 Fluoranthene ND 0.30 12/17/2013 10:00:05 PM 10797 µg/L ND 0.30 Pyrene μg/L 12/17/2013 10:00:05 PM 10797 0.070 ND Benz(a)anthracene μg/L 1 12/17/2013 10:00:05 PM 10797 Chrysene ND 0.20 μg/L 12/17/2013 10:00:05 PM 10797 Benzo(b)fluoranthene ND 0.10 μg/L 12/17/2013 10:00:05 PM 10797 0.070 Benzo(k)fluoranthene ND µg/L 12/17/2013 10:00:05 PM 10797 Benzo(a)pyrene ND 0.070 12/17/2013 10:00:05 PM 10797 µg/L ND 0.12 Dibenz(a,h)anthracene μg/L 1 12/17/2013 10:00:05 PM 10797 Benzo(g,h,i)perylene ND 0.12 µg/L 12/17/2013 10:00:05 PM 10797 indeno(1,2,3-cd)pyrene ND 0.25 μg/L 12/17/2013 10:00:05 PM 10797 Surr: Benzo(e)pyrene 46.0 24.5-139 %REC 1 12/17/2013 10:00:05 PM 10797 **EPA METHOD 300.0: ANIONS** Analyst: JRR 9.3 2.0 Fluoride mg/L 12/16/2013 9:57:25 PM R15551 20 120 Chloride 10 mg/L 12/16/2013 9:57:25 PM R15551 ND 0.50 Phosphorus, Orthophosphate (As P) Н mg/L 1 12/16/2013 9:45:00 PM R15551 540 10 mg/L 20 12/16/2013 9:57:25 PM R15551 Nitrate+Nitrite as N 15 1.0 mg/L 5 12/17/2013 4:47:07 AM R15551

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 1 of 28

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### Lab Order 1312659

Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: MW-1B

**Project:** Lightning Dock CYRQ ENERGY **Collection Date:** 12/11/2013 10:45:00 AM

Lab ID: 1312659-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                      | Result | RL Q    | ual Units | DF | Date Analyzed         | Batch  |
|-------------------------------|--------|---------|-----------|----|-----------------------|--------|
| EPA METHOD 200.7: DISSOLVED I | METALS |         |           |    | Analyst:              | JLF    |
| Aluminum                      | 25     | 1.0     | * mg/L    | 50 | 12/23/2013 5:48:42 PM | R15707 |
| Barium                        | 0.14   | 0.0020  | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Boron                         | 0.45   | 0.040   | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Cadmium                       | ND     | 0.0020  | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Calcium                       | 53     | 1.0     | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Chromium                      | ND     | 0.0060  | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Cobalt                        | ND     | 0.0060  | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Copper                        | ND     | 0.0060  | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| fron                          | 8.5    | 1.0     | * mg/L    | 50 | 12/23/2013 5:48:42 PM | R15707 |
| Magnesium                     | 4.6    | 1.0     | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Manganese                     | 0.27   | 0.0020  | * mg/L    | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Molybdenum                    | 0.029  | 0.0080  | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Nickel                        | ND     | 0.010   | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Potassium                     | 21     | 1.0     | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Silver                        | ND     | 0.0050  | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| Sodium                        | 320    | 5.0     | mg/L      | 5  | 12/19/2013 5:38:52 PM | R15612 |
| Zinc                          | 0.015  | 0.010   | mg/L      | 1  | 12/19/2013 5:37:06 PM | R15612 |
| EPA 200.8: DISSOLVED METALS   |        |         |           |    | Analyst:              | DBD    |
| Arsenic                       | 0.011  | 0.0010  | * mg/L    | 1  | 1/6/2014 5:07:15 PM   | R15909 |
| Lead                          | 0.0044 | 0.0010  | mg/L      | 1  | 1/6/2014 5:07:15 PM   | R15909 |
| Uranium                       | 0.0037 | 0.0010  | mg/L      | 1  | 1/7/2014 6:04:39 PM   | R15934 |
| EPA METHOD 245.1: MERCURY     |        |         |           |    | Analyst:              | IDC    |
| Mercury                       | 0.0016 | 0.00020 | mg/L      | 1  | 1/3/2014 3:50:20 PM   | 11064  |
| EPA METHOD 8270C: SEMIVOLAT   | ILES   |         |           |    | Analyst               | DAM    |
| Acenaphthene                  | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Acenaphthylene                | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Aniline                       | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Anthracene                    | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Azobenzene                    | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Benz(a)anthracene             | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Benzo(a)pyrene                | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Benzo(b)fluoranthene          | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Benzo(g,h,i)perylene          | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Benzo(k)fluoranthene          | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Benzoic acid                  | ND     | 40      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Benzyl alcohol                | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Bis(2-chloroethoxy)methane    | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |
| Bis(2-chloroethyl)ether       | ND     | 10      | μg/L      | 1  | 12/18/2013 9:34:48 AM | 10800  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2 of 28
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### **Analytical Report**

#### Lab Order 1312659

Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: MW-1B

Project:Lightning Dock CYRQ ENERGYCollection Date: 12/11/2013 10:45:00 AMLab ID:1312659-001Matrix: AQUEOUSReceived Date: 12/16/2013 9:05:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed         | Batch          |
|-----------------------------|--------|-------|----------|----|-----------------------|----------------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  |       |          |    | Analys                | t: DAM         |
| Bis(2-chloroisopropyl)ether | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>l</i> 10800 |
| Bis(2-ethylhexyl)phthalate  | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | / 10800        |
| 4-Bromophenyl phenyl ether  | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>l</i> 10800 |
| Butyl benzyl phthalate      | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>l</i> 10800 |
| Carbazole                   | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| 4-Chloro-3-methylphenol     | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| 4-Chloroaniline             | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| 2-Chloronaphthalene         | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| 2-Chlorophenol              | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| 4-Chlorophenyl phenyl ether | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| Chrysene                    | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| Di-n-butyl phthalate        | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| Di-n-octyl phthalate        | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | / 10800        |
| Dibenz(a,h)anthracene       | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| Dibenzofuran                | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | / 10800        |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | / 10800        |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | M 10800        |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| 3,3'-Dichlorobenzidine      | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| Diethyl phthalate           | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | <i>I</i> 10800 |
| Dimethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | √ 10800        |
| 2,4-Dichlorophenol          | ND     | 20    | μg/L     | 1  | 12/18/2013 9:34:48 AM | √ 10800        |
| 2,4-Dimethylphenol          | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AM | M 10800        |
| 4,6-Dinitro-2-methylphenol  | ND     | 20    | μg/L     | 1  | 12/18/2013 9:34:48 AM | M 10800        |
| 2,4-Dinitrophenol           | ND     | 20    | μg/L     | 1  | 12/18/2013 9:34:48 Af | √ 10800        |
| 2,4-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 Af | M 10800        |
| 2,6-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 Af | M 10800        |
| Fluoranthene                | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 A  | v 10800        |
| Fluorene                    | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| Hexachlorobenzene           | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 A  | vi 10800       |
| Hexachlorobutadiene         | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| Hexachlorocyclopentadiene   | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| Hexachloroethane            | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 AI | d 10800        |
| Indeno(1,2,3-cd)pyrene      | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| Isophorone                  | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| 1-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| 2-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 Al | √ 10800        |
| 2-Methylphenol              | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| 3+4-Methylphenol            | ND     | 10    | μg/L     | 1  | 12/18/2013 9:34:48 Al | <b>d</b> 10800 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 3 of 28
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1312659

Hall Environmental Analysis Laboratory, Inc. Date Reported: 1/22/2014

CLIENT: Cyrq Energy Inc Client Sample ID: MW-1B

Project: Lightning Dock CYRQ ENERGY Collection Date: 12/11/2013 10:45:00 AM Lab ID: 1312659-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL        | Qual Units | DF | Date Analyzed         | Batch          |
|--------------------------------|--------|-----------|------------|----|-----------------------|----------------|
| EPA METHOD 8270C: SEMIVOLATIL  | ES     |           |            |    | Analys                | t: DAM         |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 Af | M 10800        |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 A  | M 10800        |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 A  |                |
| Naphthalene                    | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 A  |                |
| 2-Nitroaniline                 | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 AI | vi 10800       |
| 3-Nitroaniline                 | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| 4-Nitroaniline                 | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 AI | M 10800        |
| Nitrobenzene                   | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 AI | vi 10800       |
| 2-Nitrophenol                  | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 AI | vi 10800       |
| 4-Nitrophenol                  | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| Pentachlorophenol              | ND     | 20        | μg/L       | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| Phenanthrene                   | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 AI | M 10800        |
| Phenol                         | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 AI | M 10800        |
| Pyrene                         | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 AI | M 10800        |
| Pyridine                       | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 AI | M 10800        |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 AI | M 10800        |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 AI | M 10800        |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L       | 1  | 12/18/2013 9:34:48 AI | M 10800        |
| Surr: 2-Fluorophenol           | 47.0   | 22.7-98   | %REC       | 1  | 12/18/2013 9:34:48 AI | M 10800        |
| Surr: Phenol-d5                | 35.9   | 23.4-74.9 | %REC       | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| Surr: 2,4,6-Tribromophenol     | 74.6   | 23.3-111  | %REC       | 1  | 12/18/2013 9:34:48 AI | M 10800        |
| Surr: Nitrobenzene-d5          | 69.6   | 36.8-111  | %REC       | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| Surr: 2-Fluorobiphenyl         | 70.7   | 38.3-110  | %REC       | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| Surr: 4-Terphenyl-d14          | 73.1   | 52.1-116  | %REC       | 1  | 12/18/2013 9:34:48 Al | M 10800        |
| EPA METHOD 8260B: VOLATILES    |        |           |            |    | Analys                | st: <b>JMP</b> |
| Benzene                        | ND     | 2.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| Toluene                        | ND     | 2.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| Ethylbenzene                   | ND     | 2.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| Methyl tert-butyl ether (MTBE) | ND     | 2.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| 1,2,4-Trimethylbenzene         | ND     | 2.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| 1,3,5-Trimethylbenzene         | ND     | 2.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| 1,2-Dichloroethane (EDC)       | ND     | 2.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| 1,2-Dibromoethane (EDB)        | ND     | 2.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| Naphthalene                    | ND     | 4.0       | µg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| 1-Methyinaphthalene            | ND     | 8.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| 2-Methylnaphthalene            | ND     | 8.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| Acetone                        | ND     | 20        | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| Bromobenzene                   | ND     | 2.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |
| Bromodichloromethane           | ND     | 2.0       | μg/L       | 2  | 12/17/2013 12:59:26   | AM R15529      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- Page 4 of 28 Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

#### **Analytical Report**

#### Lab Order 1312659

Date Reported: 1/22/2014

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: MW-1B

Project: Lightning Dock CYRQ ENERGY Collection Date: 12/11/2013 10:45:00 AM

Lab ID: 1312659-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed       | Batch     |
|-----------------------------|--------|-------|----------|----|---------------------|-----------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Analy               | /st: JMP  |
| Bromoform                   | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Bromomethane                | ND     | 6.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 2-Butanone                  | ND     | 20    | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Carbon disulfide            | ND     | 20    | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Carbon Tetrachloride        | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Chlorobenzene               | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Chloroethane                | ND     | 4.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Chloroform                  | 33     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Chloromethane               | ND     | 6.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 2-Chlorotoluene             | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 4-Chlorotoluene             | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| cis-1,2-DCE                 | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| cis-1,3-Dichloropropene     | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 1,2-Dibromo-3-chloropropane | ND     | 4.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Dibromochloromethane        | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Dibromomethane              | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 1,2-Dichlorobenzene         | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 1,3-Dichlorobenzene         | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 1,4-Dichlorobenzene         | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Dichlorodifluoromethane     | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 1,1-Dichloroethane          | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 1,1-Dichloroethene          | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 1,2-Dichloropropane         | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 1,3-Dichloropropane         | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 2,2-Dichloropropane         | ND     | 4.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 1,1-Dichloropropene         | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Hexachlorobutadiene         | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 2-Hexanone                  | ND     | 20    | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Isopropylbenzene            | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 4-Isopropyitoluene          | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 4-Methyl-2-pentanone        | ND     | 20    | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Methylene Chloride          | ND     | 6.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| n-Butylbenzene              | ND     | 6.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| n-Propylbenzene             | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| sec-Butylbenzene            | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| Styrene                     | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| tert-Butylbenzene           | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 1,1,1,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |
| 1,1,2,2-Tetrachloroethane   | ND     | 4.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 5 of 28

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### Lab Order 1312659

Date Reported: 1/22/2014

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: MW-1B

Project:Lightning Dock CYRQ ENERGYCollection Date: 12/11/2013 10:45:00 AM

Lab ID: 1312659-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed Bat          | ch   |
|--------------------------------|--------|--------|------|------------|----|----------------------------|------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analyst: <b>JM</b> I       | P    |
| Tetrachloroethene (PCE)        | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| trans-1,2-DCE                  | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| trans-1,3-Dichloropropene      | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| 1,2,3-Trichlorobenzene         | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| 1,2,4-Trichlorobenzene         | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| 1,1,1-Trichloroethane          | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| 1,1,2-Trichloroethane          | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| Trichloroethene (TCE)          | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| Trichlorofluoromethane         | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| 1,2,3-Trichloropropane         | ND     | 4.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| Vinyl chloride                 | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| Xylenes, Total                 | ND     | 3.0    |      | μg/L       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| Surr: 1,2-Dichloroethane-d4    | 86.9   | 70-130 |      | %REC       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| Surr: 4-Bromofluorobenzene     | 91.5   | 70-130 |      | %REC       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| Surr: Dibromofluoromethane     | 93.1   | 70-130 |      | %REC       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| Surr: Toluene-d8               | 92.6   | 70-130 |      | %REC       | 2  | 12/17/2013 12:59:26 AM R15 | 5529 |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analyst: BC                | N    |
| Petroleum Hydrocarbons, TR     | 1.3    | 1.0    |      | mg/L       | 1  | 12/17/2013 108             | 320  |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |            |    | Analyst: SC                | С    |
| Phenolics, Total Recoverable   | ND     | 2.5    |      | μg/L       | 1  | 12/19/2013 108             | 91   |
| SM4500-H+B: PH                 |        |        |      |            |    | Analyst: <b>SR</b> I       | М    |
| рН                             | 7.66   | 1.68   | Н    | pH units   | 1  | 12/16/2013 5:58:17 PM R15  | 5528 |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analyst: SR                | M    |
| Bicarbonate (As CaCO3)         | 86     | 20     |      | mg/L CaCO3 | 1  | 12/16/2013 5:58:17 PM R15  | 5528 |
| Carbonate (As CaCO3)           | ND     | 2.0    |      | mg/L CaCO3 | 1  | 12/16/2013 5:58:17 PM R15  | 5528 |
| Total Alkalinity (as CaCO3)    | 86     | 20     |      | mg/L CaCO3 | 1  | 12/16/2013 5:58:17 PM R15  | 5528 |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      | -          |    | Analyst: <b>KS</b>         |      |
| Total Dissolved Solids         | 1520   | 200    | *    | mg/L       | 1  | 12/19/2013 11:19:00 AM 108 |      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 6 of 28
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131218049

Address:

4901 HAWKINS NE SUITE D

**Project Name:** 

1312659

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

#### **Analytical Results Report**

Sample Number

131218049-001

Sampling Date

12/11/2013

Client Sample ID

1312659-001K / MW-1B

Sampling Time 10:45 AM Date/Time Received 12/17/2013 12:36 PM

Matrix

Comments

Metals samples received unfiltered and preserved with HNO3.

| Parameter          | Result | Units | PQL   | Analysis Date | Analyst | Method    | Qualifier |
|--------------------|--------|-------|-------|---------------|---------|-----------|-----------|
| Dissolved Lithium  | 0.533  | mg/L  | 0.001 | 1/21/2014     | ETL     | EPA 200.8 |           |
| Dissolved Rubidium | 0.189  | mg/L  | 0.001 | 1/21/2014     | ETL     | EPA 200.8 |           |
| Dissolved Tungsten | 0.0386 | mg/L  | 0.01  | 1/21/2014     | ETL     | EPA 200.8 |           |

Sample Number Client Sample ID 131218049-002

1312659-001L / MW-1B

Sampling Date 12/11/2013 Sampling Time 10:45 AM

Date/Time Received 12/17/2013 12:36 PM

Matrix

Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 12/18/2013    | CRW     | EPA 335.4 |           |

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:99142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095

Tuesday, January 21, 2014 Page 1 of 2

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131218049

Address:

4901 HAWKINS NE SUITE D

**Project Name:** 

1312659

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

### **Analytical Results Report**

Sample Number

131218049-003

1312659-001M / MW-1B

Sampling Date Sampling Time

12/11/2013 10:45 AM

Date/Time Received 12/17/2013 12:36 PM

Client Sample ID Matrix

Water

Comments

| Parameter | Result | Units | PQL | Analysis Date | Analyst | Method   | Qualifier |
|-----------|--------|-------|-----|---------------|---------|----------|-----------|
| Total P   | 3.25   | mg/L  | 0.1 | 1/7/2014      | CRW     | SM4500PF |           |

**Authorized Signature** 

MCL

EPA's Maximum Contaminant Level

Not Detected ND PQL

Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory. The results reported relate only to the samples indicated.

Soil/solid results are reported on a dry-weight basis unless otherwise noted.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13120620-001

Client Sample ID: 1312659-001O MW-1B

Report Date: 12/23/13

Collection Date: 12/11/13 10:45

DateReceived: 12/18/13

Matrix: Aqueous

| Analysės                | Result Units | Qualifiers | RL | MCL/<br>QCL Method | Analysis Date / By   |
|-------------------------|--------------|------------|----|--------------------|----------------------|
| RADIONUCLIDES - TOTAL   |              |            |    |                    |                      |
| Radon 222               | 676 pCi/L    |            |    | D5072-92           | 12/18/13 18:01 / dpb |
| Radon 222 precision (±) | 122 pCi/L    |            |    | D5072-92           | 12/18/13 18:01 / dpb |
| Radon 222 MDC           | 195 pCi/L    |            |    | D5072-92           | 12/18/13 18:01 / dpb |



Helene, MT 977-472-0711 • Billings, MT 800-735-4488 • Casper, WY 988-235-0915 Gillette, WY 966-986-7175 • Repid City, SD 988-672-1225 • College Station, TX 988-988-2216

## **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 12/23/13

Work Order: C13120620

| Analyte  | Count        | Result       | Units             | RL  | %REC | Low Limit | High Limit   | RPD    | RPDLimit | Qual      |
|--|--------------|--------------|-------------------|-----|------|-----------|--------------|--------|----------|-----------|
| Method: D5072-92                                     |              |              |                   |     |      |           |              |        | Batch:   | R181914   |
| Sample ID: C13120621-001ADU                          | P 3 Sa       | mple Duplica | ite               |     |      | Run: PACK | ARD 3100TR_1 | 31218A | 12/18    | /13 18:01 |
| Radon 222  |              | 1.6          | pCi/L             |     |      |           |              | 210    | 20       | UR        |
| Radon 222 precision (±)                              |              | 75.1         | p <b>Ci/L</b>     |     |      |           |              |        |          |           |
| Radon 222 MDC  |              | 130          | pCi/L             |     |      |           |              |        |          |           |
| <ul> <li>The Sample and the Duplicate are</li> </ul> | both below t | he MDC. The  | RPD is acceptable | le. |      |           |              |        |          |           |
| Sample ID: MB-R181914                                | 3 Me         | thod Blank   |                   |     |      | Run: PACK | ARD 3100TR_1 | 31218A | 12/18    | /13 18:01 |
| Radon 222  |              | 7            | pCi/L             |     |      |           |              |        |          | U         |
| Radon 222 precision (±)                              |              | 30           | pCi/L             |     |      |           |              |        |          |           |
| Radon 222 MDC  |              | 50           | pCi/L             |     |      |           |              |        |          |           |
| Sample ID: LCS-R181914                               | Lat          | oratory Con  | trol Sample       |     |      | Run: PACK | ARD 3100TR_1 | 31218A | 12/18    | /13 18:01 |
| Radon 222  |              | 552          | pCi/L             |     | 96   | 08        | 120          |        |          |           |



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

#### **ANALYTICAL RESULTS**

Project:

1312659

Pace Project No.:

30109787

Sample: 1312659-001 MW-1B

Lab ID: 30109787001

Collected: 12/11/13 10:45 Received: 12/17/13 11:00 Matrix: Water

PWS:

Site ID:

Method

Sample Type: Act ± Unc (MDC)

Units

Analyzed

CAS No. Qual

Parameters Radium-226 Radium-228

EPA 903.1 EPA 904.0 2.00 ± 0.722 (0.566) 0.711 ± 0.402 (0.727) pCi/L pCi/L 12/27/13 12:46 13982-63-3 12/31/13 09:22 15262-20-1

#### REPORT OF LABORATORY ANALYSIS

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#### **QUALITY CONTROL DATA**

Project:

1312659

Pace Project No.:

30109787

QC Batch:

RADC/18095

Analysis Method:

EPA 903.1

QC Batch Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples:

METHOD BLANK: 671140

Matrix: Water

Associated Lab Samples:

30109787001

30109787001

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-226

-0.291 ± 0.271 (0.728)

pCi/L

12/27/13 11:20

REPORT OF LABORATORY ANALYSIS

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#### **QUALITY CONTROL DATA**

Project:

1312659

Pace Project No.: 30109787

QC Batch:

RADC/18094

Analysis Method:

EPA 904.0

QC Batch Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples:

30109787001

Matrix: Water

METHOD BLANK: 671139 Associated Lab Samples:

30109787001

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-228

 $0.177 \pm 0.225$  (0.479)

pCi/L

12/31/13 09:21

#### **REPORT OF LABORATORY ANALYSIS**

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## 'all Environmental Analysis Laboratory, Inc.

WO#:

1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB   | Samp       | Туре: МЕ        | BLK       | Tes         | tCode: E      | PA Method | 200.7: Dissol | ved Meta    | ls       |      |  |
|----------------|------------|-----------------|-----------|-------------|---------------|-----------|---------------|-------------|----------|------|--|
| Client ID: PBW | Bato       | h ID: <b>R1</b> | 5612      | F           | RunNo: 1      | 5612      |               |             |          |      |  |
| Prep Date:     | Analysis I | Date: 12        | 2/19/2013 | S           | SeqNo: 449740 |           |               | Units: mg/L |          |      |  |
| Analyte        | Result     | PQL             | SPK value | SPK Ref Val | %REC          | LowLimit  | HighLimit     | %RPD        | RPDLimit | Qual |  |
| Barium         | ND         | 0.0020          |           |             |               |           |               |             |          |      |  |
| Boron          | ND         | 0.040           |           |             |               |           |               |             |          |      |  |
| Cadmium        | ND         | 0.0020          |           |             |               |           |               |             |          |      |  |
| Calcium        | ND         | 1.0             |           |             |               |           |               |             |          |      |  |
| Chromium       | ND         | 0.0060          |           |             |               |           |               |             |          |      |  |
| Cobalt         | ND         | 0.0060          |           |             |               |           |               |             |          |      |  |
| Copper         | ND         | 0.0060          |           |             |               |           |               |             |          |      |  |
| Magnesium      | ND         | 1.0             |           |             |               |           |               |             |          |      |  |
| Manganese      | ND         | 0.0020          |           |             |               |           |               |             |          |      |  |
| Molybdenum     | ND         | 0.0080          |           |             |               |           |               |             |          |      |  |
| Nickel         | ND         | 0.010           |           |             |               |           |               |             |          |      |  |
| Potassium      | ND         | 1.0             |           |             |               |           |               |             |          |      |  |
| Silver         | ND         | 0.0050          |           |             |               |           |               |             |          |      |  |
| Sodium         | ND         | 1.0             |           |             |               |           |               |             |          |      |  |
| Zinc           | ND         | 0.010           |           |             |               |           |               |             |          |      |  |

| ample ID LCS    | Samp          | Type: LC  | S         | Tes         | tCode: <b>Ef</b> | PA Method | 200.7: Dissol | ved Meta | ls       |      |
|-----------------|---------------|-----------|-----------|-------------|------------------|-----------|---------------|----------|----------|------|
| _lient ID: LCS\ | <b>N</b> Bate | ch ID: R1 | 5612      | F           | RunNo: 1         | 5612      |               |          |          |      |
| Prep Date:      | Analysis      | Date: 12  | 2/19/2013 | 8           | SeqNo: 4         | 49741     | Units: mg/L   |          |          |      |
| Analyte         | Result        | PQL       | SPK value | SPK Ref Val | %REC             | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |
| Barium          | 0.49          | 0.0020    | 0.5000    | 0           | 98.4             | 85        | 115           |          |          |      |
| Boron           | 0.52          | 0.040     | 0.5000    | 0           | 104              | 85        | 115           |          |          |      |
| Cadmium         | 0.51          | 0.0020    | 0.5000    | 0           | 101              | 85        | 115           |          |          |      |
| Calcium         | 49            | 1.0       | 50.00     | 0           | 97.2             | 85        | 115           |          |          |      |
| Chromium        | 0.52          | 0.0060    | 0.5000    | 0           | 104              | 85        | 115           |          |          |      |
| Cobalt          | 0.49          | 0.0060    | 0.5000    | 0           | 98.4             | 85        | 115           |          |          |      |
| Copper          | 0.48          | 0.0060    | 0.5000    | 0           | 96.7             | 85        | 115           |          |          |      |
| Magnesium       | 49            | 1.0       | 50.00     | 0           | 98.0             | 85        | 115           |          |          |      |
| Manganese       | 0.50          | 0.0020    | 0.5000    | 0           | 100              | 85        | 115           |          |          |      |
| Molybdenum      | 0.51          | 0.0080    | 0.5000    | 0           | 102              | 85        | 115           |          |          |      |
| Nickel          | 0.51          | 0.010     | 0.5000    | 0           | 102              | 85        | 115           |          |          |      |
| Potassium       | 48            | 1.0       | 50.00     | 0           | 95.1             | 85        | 115           |          |          |      |
| Silver          | 0.10          | 0.0050    | 0.1000    | 0           | 103              | 85        | 115           |          |          |      |
| Sodium          | 48            | 1.0       | 50.00     | 0           | 95.2             | 85        | 115           |          |          |      |
| Zinc            | 0.50          | 0.010     | 0.5000    | 0           | 99.2             | 85        | 115           |          |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1312659** 

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB   | SampT      | ype: MB       | sLK       | Test        | TestCode: EPA Method 200.7: Dissolved Metals |          |             |      |          |      |  |
|----------------|------------|---------------|-----------|-------------|--|----------|-------------|------|----------|------|--|
| Client ID: PBW | Batch      | ID: <b>R1</b> | 5707      | R           | tunNo: 1                                     | 5707     |             |      |          |      |  |
| Prep Date:     | Analysis D | ate: 12       | 2/23/2013 | S           | eqNo: 4                                      | 53037    | Units: mg/L |      |          |      |  |
| Analyte        | Result     | PQL           | SPK value | SPK Ref Val | %REC   | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |  |
| Aluminum       | ND         | 0.020         |           |             |  |          |             |      |          |      |  |
| ron            | ND         | 0.020         |           |             |  |          |             |      |          |      |  |

| Sample ID LCS   | SampT      | ype: <b>LC</b> | s         | Tes          | Code: El | PA Method | 200.7: Disso | ved Meta | ls       |      |
|-----------------|------------|----------------|-----------|--------------|----------|-----------|--------------|----------|----------|------|
| Client ID: LCSW | Batch      | ID: <b>R1</b>  | 5707      | RunNo: 15707 |          |           |              |          |          |      |
| Prep Date:      | Analysis D | ate: 12        | 2/23/2013 | S            | eqNo: 4  | 53038     | Units: mg/L  |          |          |      |
| Analyte         | Result     | PQL            | SPK value | SPK Ref Val  | %REC     | LowLimit  | HighLimit    | %RPD     | RPDLimit | Qual |
| Aluminum        | 0.54       | 0.020          | 0.5000    | 0            | 107      | 85        | 115          |          | _        |      |
| Iron            | 0.49       | 0.020          | 0.5000    | 0            | 98.4     | 85        | 115          |          |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

O#: 1312659 22-Jan-14

WO#:

Client: Cyrq Energy Inc

| Project:   |      | Lightning Dock CYRQ ENERGY   |    |
|------------|------|--|----|
| Sample ID  | LCS  | SampType: LCS TestCode: EPA 200.8: Dissolved Metals                        |    |
| Client ID: | LCSW | Batch ID: <b>R15909</b> RunNo: <b>15909</b>                                |    |
| Prep Date: |      | Analysis Date: 1/6/2014 SeqNo: 458860 Units: mg/L                          |    |
| Analyte    |      | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qua | ıt |
| Arsenic    |      | 0.026 0.0010 0.02500 0 103 85 115  |    |
| Lead       |      | 0.027  |    |
| Sample ID  | LCS  | SampType: LCS TestCode: EPA 200.8: Dissolved Metals                        |    |
| Client ID: | LCSW | Batch ID: <b>R15909</b> RunNo: <b>15909</b>                                |    |
| Prep Date: |      | Analysis Date: 1/6/2014 SeqNo: 458861 Units: mg/L                          |    |
| Analyte    |      | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qua | ıl |
| Arsenic    |      | 0.025 0.0010 0.02500 0 99.4 85 115   |    |
| Lead       |      | 0.026 0.0010 0.02500 0 105 85 115  |    |
| Sample ID  | МВ   | SampType: MBLK TestCode: EPA 200.8: Dissolved Metals                       |    |
| Client ID: | PBW  | Batch ID: <b>R15909</b> RunNo: <b>15909</b>                                |    |
| Prep Date: |      | Analysis Date: 1/6/2014 SeqNo: 458863 Units: mg/L                          |    |
| Analyte    |      | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qua | 1  |
| senic      |      | ND 0.0010  |    |
| bi         |      | ND 0.0010  |    |
| Sample ID  | МВ   | SampType: MBLK TestCode: EPA 200.8: Dissolved Metals                       |    |
| Client ID: | PBW  | Batch ID: <b>R15909</b> RunNo: <b>15909</b>                                |    |
| Prep Date: |      | Analysis Date: 1/6/2014 SeqNo: 458864 Units: mg/L                          |    |
| Analyte    |      | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qua | al |
| Arsenic    |      | ND 0.0010  |    |
| Lead       |      | ND 0.0010  |    |
| Sample ID  | LCS  | SampType: LCS TestCode: EPA 200.8: Dissolved Metals                        |    |
| Client ID: | LCSW | Batch ID: <b>R15934</b> RunNo: <b>15934</b>                                |    |
| Prep Date: |      | Analysis Date: 1/7/2014 SeqNo: 459484 Units: mg/L                          |    |
| Analyte    |      | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qua | al |
| Uranium    |      | 0.028 0.0010 0.02500 0 111 85 115  |    |
| Sample ID  | LCS  | SampType: LCS TestCode: EPA 200.8: Dissolved Metals                        |    |
| Client ID: | LCSW | Batch ID: R15934 RunNo: 15934  |    |
| Prep Date: |      | Analysis Date: 1/7/2014 SeqNo: 459485 Units: mg/L                          |    |
| Analyte    |      | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qua | al |
| Uranium    |      | 0.027 0.0010 0.02500 0 109 85 115  |    |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Client ID: **PBW** 

Batch ID: R15934

RunNo: 15934

Prep Date:

Analysis Date: 1/7/2014

SeqNo: 459486

Units: mg/L

Qual

Analyte Uranium

Result PQL SPK value SPK Ref Val

%REC LowLimit

HighLimit

**RPDLimit** %RPD

ND 0.0010

Sample ID MB Client ID: PBW SampType: MBLK

Analysis Date: 1/7/2014

Batch ID: R15934

PQL

TestCode: EPA 200.8: Dissolved Metals RunNo: 15934

SPK value SPK Ref Val %REC LowLimit

SeqNo: 459487

Units: mg/L

HighLimit

%RPD

**RPDLimit** 

Qual

Analyte Uranium

Prep Date:

0.0010 ND

Result

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range E
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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### 'all Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-11064

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 11064

RunNo: 15897

Prep Date: 1/3/2014 Analysis Date: 1/3/2014

**PQL** 

SeqNo: 458393

Units: mg/L HighLimit

**RPDLimit** Qual

Analyte Mercury

ND 0.00020

Sample ID LCS-11064

SampType: LCS

TestCode: EPA Method 245.1: Mercury

Client ID: LCSW

Batch ID: 11064

RunNo: 15897

Prep Date: 1/3/2014

Analysis Date: 1/3/2014

SeqNo: 458394

Units: mg/L

Analyte

**PQL** SPK value SPK Ref Val

%REC

HighLimit

%RPD

%RPD

**RPDLimit** Qual

Mercury

0.0049 0.00020 0.005000 97.9 120

SPK value SPK Ref Val %REC LowLimit

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

Е Value above quantitation range

Analyte detected below quantitation limits

0 RSD is greater than RSDlimit

RPD outside accepted recovery limits R

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659 22-Jan-14

Client: Cy

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB                     | SampTy      | уре: <b>МЕ</b> | BLK       | Tes         | tCode: E | PA Method | 300.0: Anions | :    |          |      |
|----------------------------------|-------------|----------------|-----------|-------------|----------|-----------|---------------|------|----------|------|
| Client ID: PBW                   | Batch       | ID: <b>R1</b>  | 5551      | F           | RunNo: 1 | 5551      |               |      |          |      |
| Prep Date:                       | Analysis Da | ate: 12        | 2/16/2013 | 5           | SeqNo: 4 | 47258     | Units: mg/L   |      |          |      |
| Analyte                          | Result      | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | ND          | 0.10           |           |             |          |           |               |      |          |      |
| Chloride                         | ND          | 0.50           |           |             |          |           |               |      |          |      |
| Phosphorus, Orthophosphate (As P | ND          | 0.50           |           |             |          |           |               |      |          |      |
| Sulfate                          | ND          | 0.50           |           |             |          |           |               |      |          |      |
| Nitrate+Nitrite as N             | ND          | 0.20           |           |             |          |           |               |      |          |      |

| Sample ID LCS                    | SampT      | ype: LC       | S         | Tes         | tCode: El | PA Method | 300.0: Anions | 5    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: LCSW                  | Batch      | ID: <b>R1</b> | 5551      | F           | RunNo: 1  | 5551      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/16/2013 | S           | SeqNo: 4  | 47259     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.49       | 0.10          | 0.5000    | 0           | 98.7      | 90        | 110           |      |          |      |
| Chloride                         | 4.7        | 0.50          | 5.000     | 0           | 93.2      | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50          | 5.000     | 0           | 94.4      | 90        | 110           |      |          |      |
| Sulfate                          | 9.5        | 0.50          | 10.00     | 0           | 95.4      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N             | 3.4        | 0.20          | 3.500     | 0           | 97.2      | 90        | 110           |      |          |      |

| Sample ID A4                     | SampT      | ype: CC       | :V_4      | Test        | tCode: El | PA Method | 300.0: Anions | 8    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5551      | R           | RunNo: 1  | 5551      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/16/2013 | S           | SeqNo: 4  | 47268     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.97       | 0.10          | 1.000     | 0           | 97.2      | 90        | 110           |      |          |      |
| Chloride                         | 4.6        | 0.50          | 5.000     | 0           | 92.6      | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50          | 5.000     | 0           | 93.4      | 90        | 110           |      |          |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0           | 93.9      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N             | 4.8        | 0.20          | 5.000     | 0           | 95.8      | 90        | 110           |      |          |      |

| Sample ID A5                     | SampT      | ype: CC       | V_5       | Tes         | tCode: El | PA Method | 300.0: Anions | ,    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b> | 5551      | F           | RunNo: 1  | 5551      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/16/2013 | S           | SeqNo: 4  | 47280     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.6        | 0.10          | 1.600     | 0           | 97.6      | 90        | 110           |      |          |      |
| Chloride                         | 7.7        | 0.50          | 8.000     | 0           | 96.8      | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 7.8        | 0.50          | 8.000     | 0           | 97.2      | 90        | 110           |      |          |      |
| Sulfate                          | 20         | 0:50          | 20.00     | 0           | 98.5      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N             | 8.0        | 0.20          | 8.000     | 0           | 101       | 90        | 110           |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## **Tall Environmental Analysis Laboratory, Inc.**

WO#: 1312659

22-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

| Sample ID A6                     | SampT      | ype: CC         | V_6       | Tes         | tCode: El | PA Method | 300.0: Anions | 3    |          |      |
|----------------------------------|------------|-----------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | n ID: <b>R1</b> | 5551      | F           | RunNo: 1  | 5551      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12         | 2/16/2013 | S           | SeqNo: 4  | 47292     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 2.4        | 0.10            | 2.400     | 0           | 98.4      | 90        | 110           |      |          |      |
| Chloride                         | 12         | 0.50            | 12.00     | 0           | 101       | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 12         | 0.50            | 12.00     | 0           | 100       | 90        | 110           |      |          |      |
| Sulfate                          | 31         | 0.50            | 30.00     | 0           | 102       | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N             | 13         | 0.20            | 12.00     | 0           | 105       | 90        | 110           |      |          |      |

| Sample ID A4                     | SampT      | ype: CC         | V_4       | Tes         | tCode: El | PA Method | s           |      |          |      |
|----------------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: BatchQC               | Batch      | ı ID: <b>R1</b> | 5551      | F           | RunNo: 1  | 5551      |             |      |          |      |
| Prep Date:                       | Analysis D | )ate: 12        | 2/17/2013 | S           | SeqNo: 4  | 47304     | Units: mg/L |      |          |      |
| Analyte                          | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.94       | 0.10            | 1.000     | 0           | 93.6      | 90        | 110         |      |          |      |
| Chloride                         | 4.6        | 0.50            | 5.000     | 0           | 92.5      | 90        | 110         |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50            | 5.000     | 0           | 93.2      | 90        | 110         |      |          |      |
| Sulfate                          | 12         | 0.50            | 12.50     | 0           | 94.1      | 90        | 110         |      |          |      |
| Nitrate+Nitrite as N             | 4.8        | 0.20            | 5.000     | 0           | 95.4      | 90        | 110         |      |          |      |

| ample ID A5                      | SampT      | ype: CC       | V_5       | Tes         | tCode: E | PA Method | 300.0: Anions | s    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5551      | F           | RunNo: 1 | 5551      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/17/2013 | 5           | SeqNo: 4 | 47316     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.6        | 0.10          | 1.600     | 0           | 96.9     | 90        | 110           |      |          |      |
| Chloride                         | 7.7        | 0.50          | 8.000     | 0           | 96.8     | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 7.8        | 0.50          | 8.000     | 0           | 97.3     | 90        | 110           |      |          |      |
| Sulfate                          | 20         | 0.50          | 20.00     | 0           | 98.1     | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N             | 8.0        | 0.20          | 8.000     | 0           | 100      | 90        | 110           |      |          |      |

| Sample ID A4                     | SampT      | уре: СС       | V_4       | Tes         | tCode: El | PA Method | 300.0: Anions | 3    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b> | 5551      | F           | RunNo: 1  | 5551      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/17/2013 | S           | SeqNo: 4  | 47327     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.95       | 0.10          | 1.000     | 0           | 95.2      | 90        | 110           |      |          |      |
| Chloride                         | 4.6        | 0.50          | 5.000     | 0           | 92.9      | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50          | 5.000     | 0           | 93.2      | 90        | 110           |      |          |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0           | 94.1      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N             | 4.8        | 0.20          | 5.000     | 0           | 95.7      | 90        | 110           |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-10820

SampType: MBLK

TestCode: EPA Method 418.1: TPH

Client ID: PBW

Batch ID: 10820

RunNo: 15560

Prep Date: 12/16/2013

Result

Analyte

Analysis Date: 12/17/2013

**PQL** 

SeqNo: 447701

Units: mg/L HighLimit

**RPDLimit** 

Qual

Petroleum Hydrocarbons, TR

ND 1.0

SPK value SPK Ref Val

TestCode: EPA Method 418.1: TPH

%RPD

Sample ID LCS-10820

Client ID: LCSW SampType: LCS

SPK value SPK Ref Val %REC LowLimit

RunNo: 15560

Analyte

Batch ID: 10820 Analysis Date: 12/17/2013

SeqNo: 447702

%REC LowLimit

Units: mg/L HighLimit

**RPDLimit** 

Petroleum Hydrocarbons, TR

5.0 1.0 5.000

0 99.8

80

%RPD

Qual

Prep Date: 12/16/2013

SampType: LCSD

Analysis Date: 12/17/2013

1.0

PQL

TestCode: EPA Method 418.1: TPH

120

Sample ID LCSD-10820 Client ID: LCSS02

Result

Batch ID: 10820

RunNo: 15560 SeqNo: 447704

Units: mg/L

HighLimit

Qual

**RPDLimit** 

Analyte Petroleum Hydrocarbons, TR

Prep Date: 12/16/2013

4.7

**PQL** 

SPK value SPK Ref Val %REC LowLimit

5.000

0

94.8

120

%RPD 5.14

20

### Qualifiers:

- E Value above quantitation range
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits R
- Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL
- В Analyte detected in the associated Method Blank
  - Page 14 of 28

## 'all Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB-10822    | SampT      | уре: <b>М</b> Е | BLK       | Tes         | tCode: E | PA Method | 8011/504.1: [ | EDB  |          |      |
|-----------------------|------------|-----------------|-----------|-------------|----------|-----------|---------------|------|----------|------|
| Client ID: PBW        | Batch      | n ID: 10        | 822       | F           | RunNo: 1 | 5527      |               |      |          |      |
| Prep Date: 12/16/2013 | Analysis D | ate: 12         | 2/16/2013 | 5           | SeqNo: 4 | 47079     | Units: µg/L   |      |          |      |
| Analyte               | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| 1.2-Dibromoethane     | ND         | 0.010           |           |             |          |           |               |      |          |      |

| Sample ID LCS-10822   | SampT      | ype: LC       | s         | Test        | Code: El | PA Method | 8011/504.1: E | DB   |          |      |
|-----------------------|------------|---------------|-----------|-------------|----------|-----------|---------------|------|----------|------|
| Client ID: LCSW       | Batch      | 1D: <b>10</b> | 822       | R           | tunNo: 1 | 5527      |               |      |          |      |
| Prep Date: 12/16/2013 | Analysis D | ate: 12       | 2/16/2013 | S           | eqNo: 4  | 47080     | Units: µg/L   |      |          |      |
| Analyte               | Result     | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| 1,2-Dibromoethane     | 0.11       | 0.010         | 0.1000    | 0           | 113      | 70        | 130           |      |          |      |

| Sample ID LCSD-10822  | SampT      | ype: LC  | SD        | Tes         | tCode: E | PA Method | 8011/504.1: E | DB   |          |      |
|-----------------------|------------|----------|-----------|-------------|----------|-----------|---------------|------|----------|------|
| Client ID: LCSS02     | Batch      | n ID: 10 | 822       | F           | RunNo: 1 | 5527      |               |      |          |      |
| Prep Date: 12/16/2013 | Analysis D | )ate: 12 | 2/16/2013 | S           | SeqNo: 4 | 47081     | Units: µg/L   |      |          |      |
| Analyte               | Result     | PQL      | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| 1,2-Dibromoethane     | 0.11       | 0.010    | 0.1000    | 0           | 108      | 70        | 130           | 4.52 | 20       |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1312659 22-Jan-14** 

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB-10796         | SampT      | ype: ME | BLK       | Tes         | tCode: EF | PA Method | 8082: PCB's |      |          |      |
|----------------------------|------------|---------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: PBW             | Batch      | ID: 10  | 796       | F           | RunNo: 1  | 5544      |             |      |          |      |
| Prep Date: 12/16/2013      | Analysis D | ate: 12 | 2/17/2013 | S           | SeqNo: 4  | 47133     | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | ND         | 1.0     |           |             |           |           |             |      |          |      |
| Aroclor 1221               | ND         | 1.0     |           |             |           |           |             |      |          |      |
| Arodor 1232                | ND         | 1.0     |           |             |           |           |             |      |          |      |
| Aroclor 1242               | ND         | 1.0     |           |             |           |           |             |      |          |      |
| Aroclor 1248               | ND         | 1.0     |           |             |           |           |             |      |          |      |
| Aroclor 1254               | ND         | 1.0     |           |             |           |           |             |      |          |      |
| Aroclor 1260               | ND         | 1.0     |           |             |           |           |             |      |          |      |
| Surr: Decachlorobiphenyl   | 1.8        |         | 2.500     |             | 73.2      | 17        | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 1.8        |         | 2.500     |             | 74.0      | 22.6      | 113         |      |          |      |

| Sample ID LCS-10796        | SampT      | ype: LC | s         | Tes         | tCode: El | PA Method | 8082: PCB's |      |          |      |
|----------------------------|------------|---------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: LCSW            | Batch      | 1D: 10  | 796       | F           | RunNo: 1  | 5544      |             |      |          |      |
| Prep Date: 12/16/2013      | Analysis D | ate: 12 | 2/17/2013 | 8           | SeqNo: 4  | 47135     | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | 3.2        | 1.0     | 5.000     | 0           | 63.8      | 18.6      | 134         |      |          |      |
| Aroclor 1260               | 3.8        | 1.0     | 5.000     | 0           | 75.7      | 35.7      | 137         |      |          |      |
| Surr: Decachlorobiphenyl   | 1.7        |         | 2.500     |             | 68.8      | 17        | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 16         |         | 2 500     |             | 64.4      | 22.6      | 113         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## 'all Environmental Analysis Laboratory, Inc.

WO#: **1312659** 

22-Jan-14

Client:

Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

| Sample ID 5mL rb               | SampT      | ype: MI        | BLK       | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          | -    |
|--------------------------------|------------|----------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: PBW                 | Batch      | ID: <b>R</b> 1 | 5529      | F           | RunNo: 1  | 5529      |             |        |          |      |
| Prep Date:                     | Analysis D | ate: 1         | 2/16/2013 | s           | SeqNo: 4  | 46644     | Units: µg/L |        |          |      |
| Analyte                        | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Toluene                        | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Ethylbenzene                   | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Naphthalene                    | ND         | 2.0            |           |             |           |           |             |        |          |      |
| 1-Methylnaphthalene            | ND         | 4.0            |           |             |           |           |             |        |          |      |
| 2-Methylnaphthalene            | ND         | 4.0            |           |             |           |           |             |        |          |      |
| Acetone                        | ND         | 10             |           |             |           |           |             |        |          |      |
| Bromobenzene                   | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Bromodichloromethane           | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Bromoform                      | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Bromomethane                   | ND         | 3.0            |           |             |           |           |             |        |          |      |
| utanone                        | ND         | 10             |           |             |           |           |             |        |          |      |
| ∡rbon disulfide                | ND         | 10             |           |             |           |           |             |        |          |      |
| Carbon Tetrachloride           | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Chlorobenzene                  | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Chloroethane                   | ND         | 2.0            |           |             |           |           |             |        |          |      |
| Chloroform                     | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Chloromethane                  | ND         | 3.0            |           |             |           |           |             |        |          |      |
| 2-Chlorotoluene                | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 4-Chlorotoluene                | ND         | 1.0            |           |             |           |           |             |        |          |      |
| cis-1,2-DCE                    | ND         | 1.0            |           |             |           |           |             |        |          |      |
| cis-1,3-Dichloropropene        | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,2-Dibromo-3-chloropropane    | ND         | 2.0            |           |             |           |           |             |        |          |      |
| Dibromochloromethane           | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Dibromomethane                 | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,2-Dichlorobenzene            | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,3-Dichlorobenzene            | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,4-Dichlorobenzene            | ND         | 1.0            |           |             |           |           |             |        |          |      |
| Dichlorodifluoromethane        | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethane             | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethene             | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,2-Dichloropropane            | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 1,3-Dichloropropane            | ND         | 1.0            |           |             |           |           |             |        |          |      |
| 2,2-Dichloropropane            | ND         | 2.0            |           |             |           |           |             |        |          |      |
|                                |            |                |           |             |           |           |             |        |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 7. Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659 22-Jan-14

Client:

Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

TestCode: EPA Method 8260B: VOLATILES Sample ID 5mL rb SampType: MBLK Client ID: **PBW** Batch ID: R15529 RunNo: 15529 Prep Date: Analysis Date: 12/16/2013 SeqNo: 446644 Units: µg/L PQL %REC LowLimit **RPDLimit** Result SPK value SPK Ref Val HighLirnit %RPD Qual Analyte ND 1,1-Dichloropropene 1.0 Hexachlorobutadiene ND 1.0 ND 10 2-Hexanone Isopropylbenzene ND 1.0 ND 1.0 4-Isopropyltoluene 4-Methyl-2-pentanone ND 10 3.0 ND Methylene Chloride ND 3.0 n-Butylbenzene n-Propylbenzene ND 1.0 ND sec-Butylbenzene 1.0 Styrene ND 1.0 ND 1.0 tert-Butylbenzene 1,1,1,2-Tetrachloroethane ND 1.0 ND 2.0 1,1,2,2-Tetrachloroethane ND 1.0 Tetrachloroethene (PCE) ND 1.0 trans-1.2-DCE ND 1.0 trans-1,3-Dichloropropene ND 1.0 1,2,3-Trichlorobenzene ND 1.0 1,2,4-Trichlorobenzene 1,1,1-Trichloroethane ND 1.0 ND 1.0 1,1,2-Trichloroethane 1.0 Trichloroethene (TCE) ND ND 1.0 Trichlorofluoromethane 2.0 1,2,3-Trichloropropane ND Vinyl chloride ND 1.0 ND Xylenes, Total 1.5 10.00 90.4 70 130 Surr: 1,2-Dichloroethane-d4 9.0 Surr: 4-Bromofluorobenzene 9.6 10.00 96.4 70 130 Surr: Dibromofluoromethane 10.00 93.8 70 130 9.4 70 Surr: Toluene-d8 9.7 10.00 96.9 130

| Sample ID 100n | g lcs200ng aca | SampType    | e: LC         | S         | Tes         | Code: El | PA Method | 8260B: VOL  | ATILES |          |      |
|----------------|----------------|-------------|---------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: LCS | N              | Batch ID    | ): <b>R</b> 1 | 5529      | R           | lunNo: 1 | 5529      |             |        |          |      |
| Prep Date:     | Ar             | alysis Date | : 12          | /16/2013  | S           | SeqNo: 4 | 46646     | Units: µg/L |        |          |      |
| Analyte        | F              | Result F    | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene        |                | 20          | 1.0           | 20.00     | 0           | 100      | 70        | 130         |        |          |      |
| Toluene        |                | 20          | 1.0           | 20.00     | 0           | 102      | 82.2      | 124         |        |          |      |
| Chlorobenzene  |                | 20          | 1.0           | 20.00     | 0           | 99.9     | 70        | 130         |        |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## 'all Environmental Analysis Laboratory, Inc.

WO#:

1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID 100ng lcs200ng    | aca SampT  | ype: <b>LC</b> | S         | TestCode: EPA Method 8260B: VOLATILES |          |             |           |      |          |      |
|-----------------------------|------------|----------------|-----------|---------------------------------------|----------|-------------|-----------|------|----------|------|
| Client ID: LCSW             | Batch      | ID: <b>R1</b>  | 5529      | F                                     | RunNo: 1 | 5529        |           |      |          |      |
| Prep Date:                  | Analysis D | 2/16/2013      | 8         | SeqNo: 4                              | 46646    | Units: µg/L |           |      |          |      |
| Analyte                     | Result     | PQL            | SPK value | SPK Ref Val                           | %REC     | LowLimit    | HighLimit | %RPD | RPDLimit | Qual |
| 1,1-Dichloroethene          | 21         | 1.0            | 20.00     | 0                                     | 107      | 83.5        | 155       |      |          |      |
| Trichloroethene (TCE)       | 19         | 1.0            | 20.00     | 0                                     | 95.6     | 70          | 130       |      |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.0        |                | 10.00     |                                       | 90.3     | 70          | 130       |      |          |      |
| Surr: 4-Bromofluorobenzene  | 9.7        |                | 10.00     |                                       | 97.4     | 70          | 130       |      |          |      |
| Surr: Dibromofluoromethane  | 9.0        |                | 10.00     |                                       | 90.3     | 70          | 130       |      |          |      |
| Surr: Toluene-d8            | 9.4        |                | 10.00     |                                       | 94.1     | 70          | 130       |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID mb-10800          | SampTy       | oe: MBLK       | Tes         | tCode: EPA Metho     | d 8270C: Semi | volatiles |          |      |
|-----------------------------|--------------|----------------|-------------|----------------------|---------------|-----------|----------|------|
| Client ID: PBW              | Batch I      | D: 10800       | F           | RunNo: 1 <b>5530</b> |               |           |          |      |
| Prep Date: 12/16/2013       | Analysis Dat | te: 12/16/2013 | ç           | SeqNo: <b>446854</b> | Units: µg/L   |           |          |      |
|                             |              |                |             |                      |               |           |          |      |
| Analyte                     |              |                | SPK Ref Val | %REC LowLimit        | HighLimit     | %RPD      | RPDLimit | Qual |
| Acenaphthene                | ND           | 10             |             |                      |               |           |          |      |
| Acenaphthylene              | ND           | 10             |             |                      |               |           |          |      |
| Aniline                     | ND           | 10             |             |                      |               |           |          |      |
| Anthracene                  | ND           | 10             |             |                      |               |           |          |      |
| Azobenzene                  | ND           | 10             |             |                      |               |           |          |      |
| Benz(a)anthracene           | ND           | 10             |             |                      |               |           |          |      |
| Benzo(a)pyrene              | ND           | 10             |             |                      |               |           |          |      |
| Benzo(b)fluoranthene        | ND           | 10             |             |                      |               |           |          |      |
| Benzo(g,h,i)perylene        | ND           | 10             |             |                      |               |           |          |      |
| Benzo(k)fluoranthene        | ND           | 10             |             |                      |               |           |          |      |
| Benzoic acid                | ND           | 40             |             |                      |               |           |          |      |
| Benzyl alcohol              | ND           | 10             |             |                      |               |           |          |      |
| Bis(2-chloroethoxy)methane  | ND           | 10             |             |                      |               |           |          |      |
| Bis(2-chloroethyl)ether     | ND           | 10             |             |                      |               |           |          |      |
| Bis(2-chloroisopropyl)ether | ND           | 10             |             |                      |               |           |          |      |
| Bis(2-ethylhexyl)phthalate  | ND           | 10             |             |                      |               |           |          |      |
| 4-Bromophenyl phenyl ether  | ND           | 10             |             |                      |               |           |          |      |
| Butyl benzyl phthalate      | ND           | 10             |             |                      |               |           |          |      |
| Carbazole                   | ND           | 10             |             |                      |               |           |          |      |
| 4-Chloro-3-methylphenol     | ND           | 10             |             |                      |               |           |          |      |
| 4-Chloroaniline             | ND           | 10             |             |                      |               |           |          |      |
| 2-Chloronaphthalene         | ND           | 10             |             |                      |               |           |          |      |
| 2-Chlorophenol              | ND           | 10             |             |                      |               |           |          |      |
| 4-Chlorophenyl phenyl ether | ND           | 10             |             |                      |               |           |          |      |
| Chrysene                    | ND           | 10             |             |                      |               |           |          |      |
| Di-n-butyl phthalate        | ND           | 10             |             |                      |               |           |          |      |
| Di-n-octyl phthalate        | ND           | 10             |             |                      |               |           |          |      |
| Dibenz(a,h)anthracene       | ND           | 10             |             |                      |               |           |          |      |
| Dibenzofuran                | ND           | 10             |             |                      |               |           |          |      |
| 1,2-Dichlorobenzene         | ND           | 10             |             |                      |               |           |          |      |
| 1,3-Dichlorobenzene         | ND           | 10             |             |                      |               |           |          |      |
| 1,4-Dichlorobenzene         | ND           | 10             |             |                      |               |           |          |      |
| 3,3'-Dichlorobenzidine      | ND           | 10             |             |                      |               |           |          |      |
| Diethyl phthalate           | ND           | 10             |             |                      |               |           |          |      |
| Dimethyl phthalate          | ND           | 10             |             |                      |               |           |          |      |
| 2,4-Dichlorophenol          | ND           | 20             |             |                      |               |           |          |      |
| 2,4-Dimethylphenol          | ND           | 10             |             |                      |               |           |          |      |
| 4,6-Dinitro-2-methylphenol  | ND           | 20             |             |                      |               |           |          |      |
| 2,4-Dinitrophenol           | ND           | 20             |             |                      |               |           |          |      |
|                             |              |                |             |                      |               |           |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#:

1312659 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID mb-10800         | Sampry      | pe: ME          | BLK       | Tes         | tCode: El | PA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|-------------|-----------------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: PBW             | Batch       | ID: <b>10</b> 8 | 800       | F           | RunNo: 1  | 5530      |             |           |          |      |
| Prep Date: 12/16/2013      | Analysis Da | ite: 12         | 2/16/2013 | 5           | SeqNo: 4  | 46854     | Units: µg/L |           |          |      |
| Analyte                    | Result      | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| 2,4-Dinitrotoluene         | ND          | 10              |           |             |           |           |             |           |          |      |
| 2,6-Dinitrotoluene         | ND          | 10              |           |             |           |           |             |           |          |      |
| Fluoranthene               | ND          | 10              |           |             |           |           |             |           |          |      |
| Fluorene                   | ND          | 10              |           |             |           |           |             |           |          |      |
| Hexachlorobenzene          | ND          | 10              |           |             |           |           |             |           |          |      |
| Hexachlorobutadiene        | ND          | 10              |           |             |           |           |             |           |          |      |
| Hexachlorocyclopentadiene  | ND          | 10              |           |             |           |           |             |           |          |      |
| Hexachloroethane           | ND          | 10              |           |             |           |           |             |           |          |      |
| Indeno(1,2,3-cd)pyrene     | ND          | 10              |           |             |           |           |             |           |          |      |
| Isophorone                 | ND          | 10              |           |             |           |           |             |           |          |      |
| 1-Methylnaphthalene        | ND          | 10              |           |             |           |           |             |           |          |      |
| 2-Methylnaphthalene        | ND          | 10              |           |             |           |           |             |           |          |      |
| 2-Methylphenol             | ND          | 10              |           |             |           |           |             |           |          |      |
| 3+4-Methylphenol           | ND          | 10              |           |             |           |           |             |           |          |      |
| N-Nitrosodi-n-propylamine  | ND          | 10              |           |             |           |           |             |           |          |      |
| N-Nitrosodimethylamine     | ND          | 10              |           |             |           |           |             |           |          |      |
| litrosodiphenylamine       | ND          | 10              |           |             |           |           |             |           |          |      |
| ₄phthalene                 | ND          | 10              |           |             |           |           |             |           |          |      |
| 2-Nitroaniline             | ND          | 10              |           |             |           |           |             |           |          |      |
| 3-Nitroaniline             | ND          | 10              |           |             |           |           |             |           |          |      |
| 4-Nitroaniline             | ND          | 10              |           |             |           |           |             |           |          |      |
| Nitrobenzene               | ND          | 10              |           |             |           |           |             |           |          |      |
| 2-Nitrophenol              | ND          | 10              |           |             |           |           |             |           |          |      |
| 4-Nitrophenol              | ND          | 10              |           |             |           |           |             |           |          |      |
| Pentachlorophenol          | ND          | 20              |           |             |           |           |             |           |          |      |
| Phenanthrene               | ND          | 10              |           |             |           |           |             |           |          |      |
| Phenol                     | ND          | 10              |           |             |           |           |             |           |          |      |
| Pyrene                     | ND          | 10              |           |             |           |           |             |           |          |      |
| Pyridine                   | ND          | 10              |           |             |           |           |             |           |          |      |
| 1,2,4-Trichlorobenzene     | ND          | 10              |           |             |           |           |             |           |          |      |
| 2,4,5-Trichlorophenol      | ND          | 10              |           |             |           |           |             |           |          |      |
| 2,4,6-Trichlorophenol      | ND          | 10              |           |             |           |           |             |           |          |      |
| Surr: 2-Fluorophenol       | 90          |                 | 200.0     |             | 45.2      | 22.7      | 98          |           |          |      |
| Surr: Phenol-d5            | 79          |                 | 200.0     |             | 39.3      | 23.4      | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 130         |                 | 200.0     |             | 63.8      | 23.3      | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 64          |                 | 100.0     |             | 64.0      | 36.8      | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 68          |                 | 100.0     |             | 68.2      | 38.3      | 110         |           |          |      |
| Surr: 4-Terphenyl-d14      | 75          |                 | 100.0     |             | 74.7      | 52.1      | 116         |           |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- 5 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

| Sample ID lcs-10800        | SampType: LCS TestCode: EPA Method 8270C: Semivolatiles |               |           |             |          |          |             |      |          |      |
|----------------------------|---|---------------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: LCSW            | Batch   | 1D: <b>10</b> | B00       | F           | RunNo: 1 | 5530     |             |      |          |      |
| Prep Date: 12/16/2013      | Analysis D  | )ate: 12      | 2/16/2013 | 5           | SeqNo: 4 | 46855    | Units: µg/L |      |          |      |
| Analyte                    | Result  | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit | HighLirnit  | %RPD | RPDLimit | Qual |
| Acenaphthene               | 89  | 10            | 100.0     | 0           | 89.4     | 48       | 101         |      |          |      |
| 4-Chloro-3-methylphenol    | 190   | 10            | 200.0     | 0           | 94.8     | 47.9     | 109         |      |          |      |
| 2-Chlorophenol             | 180   | 10            | 200.0     | 0           | 92.5     | 40       | 105         |      |          |      |
| 1,4-Dichlorobenzene        | 96  | 10            | 100.0     | 0           | 96.4     | 40.8     | 94.3        |      |          | S    |
| 2,4-Dinitrotoluene         | 87  | 10            | 100.0     | 0           | 86.8     | 28.3     | 131         |      |          |      |
| N-Nitrosodi-n-propylamine  | 100   | 10            | 100.0     | 0           | 101      | 46.2     | 119         |      |          |      |
| 4-Nitrophenol              | 88  | 10            | 200.0     | 0           | 43.8     | 10.5     | 67.9        |      |          |      |
| Pentachlorophenol          | 130   | 20            | 200.0     | 0           | 65.2     | 22.4     | 81.1        |      |          |      |
| Phenol                     | 110   | 10            | 200.0     | 0           | 54.2     | 21.4     | 72.9        |      |          |      |
| Pyrene                     | 83  | 10            | 100.0     | 0           | 83.0     | 46.9     | 109         |      |          |      |
| 1,2,4-Trichlorobenzene     | 93  | 10            | 100.0     | 0           | 93.3     | 43.1     | 98.4        |      |          |      |
| Surr: 2-Fluorophenol       | 120   |               | 200.0     |             | 59.7     | 22.7     | 98          |      |          |      |
| Surr: Phenol-d5            | 110   |               | 200.0     |             | 53.4     | 23.4     | 74.9        |      |          |      |
| Surr: 2,4,6-Tribromophenol | 180   |               | 200.0     |             | 91.9     | 23.3     | 111         |      |          |      |
| Surr: Nitrobenzene-d5      | 81  |               | 100.0     |             | 81.5     | 36.8     | 111         |      |          |      |
| Surr: 2-Fluorobiphenyl     | 85  |               | 100.0     |             | 84.8     | 38.3     | 110         |      |          |      |
| Surr: 4-Terphenyl-d14      | 88  |               | 100.0     |             | 87.8     | 52.1     | 116         |      |          |      |

| Sample ID Icsd-10800       | SampT      | ype: LC | SD        | Tes         | tCode: El | PA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|---------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: LCSS02          | Batch      | 1D: 10  | 800       | F           | RunNo: 1  | 5530      |             |           |          |      |
| Prep Date: 12/16/2013      | Analysis D | ate: 12 | 2/16/2013 | 5           | SeqNo: 4  | 46856     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 90         | 10      | 100.0     | 0           | 89.9      | 48        | 101         | 0.558     | 25       |      |
| 4-Chloro-3-methylphenol    | 180        | 10      | 200.0     | 0           | 92.1      | 47.9      | 109         | 2.84      | 32.7     |      |
| 2-Chlorophenol             | 170        | 10      | 200.0     | 0           | 83.9      | 40        | 105         | 9.78      | 20       |      |
| 1,4-Dichlorobenzene        | 83         | 10      | 100.0     | 0           | 82.6      | 40.8      | 94.3        | 15.4      | 20       |      |
| 2,4-Dinitrotoluene         | 81         | 10      | 100.0     | 0           | 80.8      | 28.3      | 131         | 7.11      | 29.9     |      |
| N-Nitrosodi-n-propylamine  | 90         | 10      | 100.0     | 0           | 90.4      | 46.2      | 119         | 10.9      | 23.1     |      |
| 4-Nitrophenol              | 78         | 10      | 200.0     | 0           | 39.0      | 10.5      | 67.9        | 11.6      | 40.5     |      |
| Pentachlorophenol          | 110        | 20      | 200.0     | 0           | 54.5      | 22.4      | 81.1        | 17.8      | 37.3     |      |
| Phenol                     | 92         | 10      | 200.0     | 0           | 46.2      | 21.4      | 72.9        | 15.9      | 20       |      |
| Pyrene                     | 83         | 10      | 100.0     | 0           | 83.1      | 46.9      | 109         | 0.193     | 26.5     |      |
| 1,2,4-Trichlorobenzene     | 84         | 10      | 100.0     | 0           | 83.8      | 43.1      | 98.4        | 10.7      | 27.2     |      |
| Surr: 2-Fluorophenol       | 110        |         | 200.0     |             | 55.0      | 22.7      | 98          | 0         | 0        |      |
| Surr: Phenol-d5            | 93         |         | 200.0     |             | 46.5      | 23.4      | 74.9        | 0         | 0        |      |
| Surr: 2,4,6-Tribromophenol | 160        |         | 200.0     |             | 79.0      | 23.3      | 111         | 0         | 0        |      |
| Surr: Nitrobenzene-d5      | 81         |         | 100.0     |             | 80.8      | 36.8      | 111         | 0         | 0        |      |
| Surr: 2-Fluorobiphenyl     | 83         |         | 100.0     |             | 82.9      | 38.3      | 110         | 0         | 0        |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## 'all Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID Icsd-10800

SampType: LCSD

TestCode: EPA Method 8270C: Semivolatiles

Client ID: LCSS02 Batch ID: 10800

RunNo: 15530

Prep Date: 12/16/2013 Analysis Date: 12/16/2013

SeqNo: 446856 Units: µg/L LowLimit

Analyte

Result **PQL** 

SPK value SPK Ref Val

%REC

HighLimit

**RPDLimit** 

Qual

Surr: 4-Terphenyl-d14

52.1

116

%RPD

83

100.0

82.9

Qualifiers:

Value exceeds Maximum Contaminant Level.

Е Value above quantitation range

Analyte detected below quantitation limits J

RSD is greater than RSDlimit 0

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded Η

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only. P

Reporting Detection Limit RL

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB-10797     | SampT      | ype: ME  | BLK       | Tes         | tCode: I | PA Method | 8310: PAHs  |      |          |      |
|------------------------|------------|----------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: PBW         | Batch      | n iD: 10 | 797       | F           | RunNo:   | 15541     |             |      |          |      |
| Prep Date: 12/16/2013  | Analysis D | )ate: 12 | 2/17/2013 | 9           | SeqNo:   | 447054    | Units: µg/L |      |          |      |
| Analyte                | Result     | PQL      | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene            | ND         | 2.0      |           |             |          |           |             |      |          |      |
| 1-Methylnaphthalene    | ND         | 2.0      |           |             |          |           |             |      |          |      |
| 2-Methylnaphthalene    | ND         | 2.0      |           |             |          |           |             |      |          |      |
| Acenaphthylene         | ND         | 2.5      |           |             |          |           |             |      |          |      |
| Acenaphthene           | ND         | 5.0      |           |             |          |           |             |      |          |      |
| Fluorene               | ND         | 0.80     |           |             |          |           |             |      |          |      |
| Phenanthrene           | ND         | 0.60     |           |             |          |           |             |      |          |      |
| Anthracene             | ND         | 0.60     |           |             |          |           |             |      |          |      |
| Fluoranthene           | ND         | 0.30     |           |             |          |           |             |      |          |      |
| Pyrene                 | ND         | 0.30     |           |             |          |           |             |      |          |      |
| Benz(a)anthracene      | ND         | 0.070    |           |             |          |           |             |      |          |      |
| Chrysene               | ND         | 0.20     |           |             |          |           |             |      |          |      |
| Benzo(b)fluoranthene   | ND         | 0.10     |           |             |          |           |             |      |          |      |
| Benzo(k)fluoranthene   | ND         | 0.070    |           |             |          |           |             |      |          |      |
| Benzo(a)pyrene         | ND         | 0.070    |           |             |          |           |             |      |          |      |
| Dibenz(a,h)anthracene  | ND         | 0.12     |           |             |          |           |             |      |          |      |
| Benzo(g,h,i)perylene   | ND         | 0.12     |           |             |          |           |             |      |          |      |
| Indeno(1,2,3-cd)pyrene | ND         | 0.25     |           |             |          |           |             |      |          |      |
| Surr: Benzo(e)pyrene   | 21         |          | 20.00     |             | 104      | 24.5      | 139         |      |          |      |

| Sample ID LCS-10797   | SampT      | ype: LC           | s         | Test        | Code: EF  | A Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|-------------------|-----------|-------------|-----------|----------|-------------|------|----------|------|
| Client ID: LCSW       | Batch      | n ID: <b>10</b> : | 797       | R           | tunNo: 1  | 5541     |             |      |          |      |
| Prep Date: 12/16/2013 | Analysis D | ate: 12           | 2/17/2013 | S           | SeqNo: 44 | 47058    | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL               | SPK value | SPK Ref Val | %REC      | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 41         | 2.0               | 80.00     | 0           | 51.6      | 43.8     | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 36         | 2.0               | 80.20     | 0           | 44.8      | 41.3     | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 34         | 2.0               | 80.00     | 0           | 42.0      | 36.6     | 89.6        |      |          |      |
| Acenaphthylene        | 46         | 2.5               | 80.20     | 0           | 57.7      | 43.6     | 103         |      |          |      |
| Acenaphthene          | 37         | 5.0               | 80.00     | 0           | 46.1      | 42.4     | 87.6        |      |          |      |
| Fluorene              | 3.9        | 0.80              | 8.020     | 0           | 48.1      | 40.5     | 93.6        |      |          |      |
| Phenanthrene          | 2.2        | 0.60              | 4.020     | 0           | 53.7      | 43.9     | 111         |      |          |      |
| Anthracene            | 2.2        | 0.60              | 4.020     | 0           | 56.0      | 44.3     | 103         |      |          |      |
| Fluoranthene          | 4.6        | 0.30              | 8.020     | 0           | 57.5      | 43.5     | 109         |      |          |      |
| Pyrene                | 4.8        | 0.30              | 8.020     | 0           | 59.7      | 32.6     | 103         |      |          |      |
| Benz(a)anthracene     | 0.46       | 0.070             | 0.8020    | 0           | 57.4      | 43       | 114         |      |          |      |
| Chrysene              | 2.2        | 0.20              | 4.020     | 0           | 54.0      | 40.2     | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.57       | 0.10              | 1.002     | 0           | 56.9      | 44.4     | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.29       | 0.070             | 0.5000    | 0           | 58.0      | 41.5     | 120         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## 'all Environmental Analysis Laboratory, Inc.

WO#:

1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID LCS-10797    | SampT      | SampType: LCS   |           |             | tCode: E | PA Method | 8310: PAHs  |      |          |      |
|------------------------|------------|-----------------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSW        | Batch      | Batch ID: 10797 |           |             | RunNo: 1 | 5541      |             |      |          |      |
| Prep Date: 12/16/2013  | Analysis D | ate: 12         | 2/17/2013 | 8           | SeqNo: 4 | 47058     | Units: µg/L |      |          |      |
| Analyte                | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Benzo(a)pyrene         | 0.28       | 0.070           | 0.5020    | 0           | 55.8     | 34.5      | 118         |      |          |      |
| Dibenz(a,h)anthracene  | 0.59       | 0.12            | 1.002     | 0           | 58.9     | 38.3      | 107         |      |          |      |
| Benzo(g,h,i)perylene   | 0.55       | 0.12            | 1.000     | 0           | 55.0     | 38.4      | 110         |      |          |      |
| Indeno(1,2,3-cd)pyrene | 1.3        | 0.25            | 2.004     | 0           | 64.4     | 42.4      | 113         |      |          |      |
| Surr: Benzo(e)pyrene   | 15         |                 | 20.00     |             | 74.8     | 24.5      | 139         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-10891

SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

Client ID: PBW

12/19/2013

Batch ID: 10891 Analysis Date: 12/19/2013 RunNo: 15597

SeqNo: 449210

Units: µg/L

**RPDLimit** 

Qual

Analyte

Client ID:

Prep Date:

Result ND PQL

SPK value SPK Ref Val %REC LowLimit

HighLirnit

%RPD

Phenolics, Total Recoverable

TestCode: Total Phenolics by SW-846 9067

Sample ID LCS-10891

Prep Date: 12/19/2013

LCSW

SampType: LCS

Batch ID: 10891 Analysis Date: 12/19/2013

PQL

2.5

RunNo: 15597

SeqNo: 449211

Units: µg/L

Phenolics, Total Recoverable

20.00

SPK value SPK Ref Val

103

%REC LowLimit

73.7

%RPD

**RPDLimit** 

Result 21

2.5

HighLimit 135

Qual

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range E

Analyte detected below quantitation limits

RSD is greater than RSDlimit O

R RPD outside accepted recovery limits Spike Recovery outside accepted recovery limits В Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

Sample pH greater than 2 for VOA and TOC only.

RLReporting Detection Limit

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### 'all Environmental Analysis Laboratory, Inc.

WO#: 1312659 22-Jan-14

**Client:** 

Cyrq Energy Inc

Lightning Dock CYRQ ENERGY

Project: Sample ID mb-1 SampType: MBLK TestCode: SM2320B: Alkalinity Client ID: PBW Batch ID: R15528 RunNo: 15528 Prep Date: Analysis Date: 12/16/2013 SeqNo: 446604 Units: mg/L CaCO3 SPK value SPK Ref Val %REC LowLimit **RPDLimit** Analyte Result **PQL** HighLimit %RPD Qual Total Alkalinity (as CaCO3) ND 20 Sample ID Ics-1 SampType: LCS TestCode: SM2320B: Alkalinity Client ID: LCSW Batch ID: R15528 RunNo: 15528 Prep Date: Analysis Date: 12/16/2013 SeqNo: 446605 Units: mg/L CaCO3 SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Result PQL Qual Total Alkalinity (as CaCO3) 80 20 80.00 99.4 110 Sample ID mb-2 SampType: MBLK TestCode: SM2320B: Alkalinity Client ID: PBW Batch ID: R15528 RunNo: 15528 Prep Date: Analysis Date: 12/16/2013 SeqNo: 446624 Units: mg/L CaCO3 PQL SPK value SPK Ref Val %REC LowLimit **RPDLimit** Analyte Result HighLimit %RPD Qual Total Alkalinity (as CaCO3) ND 20

| ' Sample ID      | lcs-2      | SampTyp      | e: LC        | S         | Tes         | tCode: S | SM2320B: AI | kalinity    |       |          |      |
|------------------|------------|--------------|--------------|-----------|-------------|----------|-------------|-------------|-------|----------|------|
| lient ID:        | LCSW       | Batch II     | ): <b>R1</b> | 5528      | F           | RunNo: 1 | 15528       |             |       |          |      |
| Prep Date:       |            | Analysis Dat | e: 12        | 2/16/2013 | S           | SeqNo: 4 | 446625      | Units: mg/L | CaCO3 |          |      |
| Analyte          |            | Result       | PQL          | SPK value | SPK Ref Val | %REC     | LowLimit    | HighLimit   | %RPD  | RPDLimit | Qual |
| Total Alkalinity | (as CaCO3) | 81           | 20           | 80.00     | 0           | 101      | 90          | 110         |       |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 9 Value above quantitation range
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1312659** 

22-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

Sample ID MB-10843 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: **PBW** Batch ID: **10843** RunNo: **15605** 

Prep Date: 12/17/2013 Analysis Date: 12/19/2013 SeqNo: 449401 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids ND 20.0

Sample ID LCS-10843 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 10843 RunNo: 15605

Prep Date: 12/17/2013 Analysis Date: 12/19/2013 SeqNo: 449402 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids 1050 20.0 1000 0 105 80 120

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

## Sample Log-In Check List

| Client Name: AMEC  | Work Order Numbe                              | r: <b>1312659</b> |           | RcptNo:                    | 1               |
|--|---|-------------------|-----------|----------------------------|-----------------|
| Received by/date: KS   | 12/16/13                                      | <del></del>       |           |                            |                 |
| Logged By: Anne Thorne   | 12/16/2013 9:05:00 A                          | М                 | ame Show  | ,                          |                 |
| Completed By: Anne Thorne  | 12/16/2013                                    |                   | ame Il    |                            |                 |
| Reviewed By:   | - 12/16/13                                    |                   | J         |                            |                 |
| Chain of Custody   | 1   |                   |           |                            |                 |
| 1. Custody seals intact on sample                                      | e bottles?                                    | Yes 🗌             | No 🗆      | Not Present 🗹              |                 |
| 2. Is Chain of Custody complete  | ?   | Yes 🗹             | No 🗌      | Not Present                |                 |
| 3. How was the sample delivered  | 1?  | <u>Client</u>     |           |                            |                 |
| Log In   |   |                   |           |                            |                 |
| 4. Was an attempt made to cool   | the samples?                                  | Yes 🗹             | No 🗌      | na 🗆                       |                 |
| 5. Were all samples received at  | a temperature of >0° C to 6.0°C               | Yes 🗹             | No 🗌      | NA 🗆                       |                 |
| 6. Sample(s) in proper container                                       | r(s)?   | Yes 🗹             | No 🗌      |                            | •               |
| 7. Sufficient sample volume for i                                      | ndicated test(s)?                             | Yes 🗹             | No 🗌      |                            |                 |
| 8. Are samples (except VOA and   | ONG) properly preserved?                      | Yes 🗹             | No 🗌      |                            |                 |
| 9. Was preservative added to bo  | ittles?                                       | Yes 🗌             | No 🗹      | na $\square$               |                 |
| 10.VOA vials have zero headspa   | ce?   | Yes 🗹             | No 🗌      | No VOA Viais               |                 |
| 11. Were any sample containers   | received broken?                              | Yes               | No 🗹      | # of preserved             |                 |
| 12. Does paperwork match bottle  |   | Yes 🗹             | No 🗀      | bottles checked<br>for pH: | Sunless noted)  |
| (Note discrepancies on chain<br>13. Are matrices correctly identified  |   | Yes 🔽             | No 🗆      | Adjusted?                  | 3 unicos notou) |
| 14. Is it clear what analyses were                                     |   | Yes 🗹             | No 🗆      |                            |                 |
| 15. Were all holding times able to<br>(If no, notify customer for auth | be met?                                       | Yes 🗹             | No 🗆      | Checked by:                | A 12/16/17      |
| Special Handling (if applic  | able)   |                   |           |                            |                 |
| 16. Was client notified of all discre                                  | epancies with this order?                     | Yes 🗀             | No 🗆      | NA 🗹                       | _               |
| Person Notified:  By Whom:  Regarding:  Client Instructions:           | Date<br>Via:                                  | eMail             | Phone Fax | in Person                  |                 |
| 17. Additional remarks:  |   |                   |           |                            | _               |
| 25.31.32.33.4 (2.7.4.1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2             | Condition Seal Intact Seal No ood Not Present | Seál Date         | Signed By |                            |                 |

| Chain-of-Custody Record  |               | Turn-Around Time: |                   | HALL ENVIRONMENTAL ANALYSIS LABORATORY |                         |                      |   |  |                |                             |                    |                    |  |   |                        |             |                 |               |          |               |                      |
|--|---------------|-------------------|-------------------|--|-------------------------|----------------------|---|--|----------------|-----------------------------|--------------------|--------------------|--|---|------------------------|-------------|-----------------|---------------|----------|---------------|----------------------|
| Client: AMEC E & I, Inc.   |               |                   | ☐ Standard ☐ Rush |  |                         |                      |   |  |                |                             |                    |                    |  |   |                        |             |                 |               |          |               |                      |
|  | 1-1-          |                   |                   | ,                                      | Project Name            | = (Light             | Thing DOCK)   |  |                |                             |                    |                    |  |   |                        |             |                 |               |          |               |                      |
| Mailing Address: 8519 JeFerson  ALRUQUERQUE, NM 87113  Phone #: 505-821-1801  email or Fax#: Davi D. Janney @ AMECICAN |               |                   |                   | al Farran                              | CYPO ENDOLD             |                      | www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 |  |                |                             |                    |                    |  |   |                        |             |                 |               |          |               |                      |
|  | Λ             | Dilm              | IEDA E            | ENIN STILL                             | Project #:              | - Q C/               | VERO!   |  |                |                             |                    |                    |  | -   | -                      |             |                 |               |          |               |                      |
| Phone  | #             | -BUCK             | 15/2011           | PAL                                    | 1/2 517-00/02           |                      |   | Tel. 505-345-3975 Fax 505-345-4107  Analysis Request |                |                             |                    |                    |  |   |                        |             |                 |               |          |               |                      |
| email o  | r Fav#·       | Dom: 0            | 325 1             | P@ AMECICON                            | Project Manager:        |                      |   |  | 3              | 0                           |                    |                    |  | _   |                        |             |                 | ,             |          |               |                      |
|  | Package:      | Davis             | Cytor             | 1 BANDECION                            | i rojoot mane           | igor.                |   | )21)   | no s           | MA.                         |                    |                    |  | S,  | B's                    |             | 1               | 5             |          |               |                      |
| t⊽ Stan  | _             |                   | □ Level 4         | (Full Validation)                      | DIAVED Januer           |                      |   | TMB's (8021)   | TPH (Gas only) | į<br>Q                      |                    |                    | <u> </u>                                   | PO  | PCB's                  |             | İ               | 7             |          |               |                      |
| Accred   |               |                   |                   |  | Sampler:                |                      |   | MB.  | Ŧ              |                             |                    | =                  | ől   | Š.  | 085                    |             |                 | 8             | ~        |               | 3                    |
| □ NEL  | AP            | ☐ Othe            | r                 |  | On Ice: ✓ Ves □ No      |                      |   | +  | +              | 2                           | 18                 | 8                  | 87   | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\  | 8/8                    |             | (F)             | 13            | [6]      |               | 5                    |
|  | (Type)        |                   |                   |  | Sample Tem              | perature: 🚅          | .9  | 38.  | MTBE           | 9                           | bd 4               | 18 J               |  | Ž   | jde                    | [ a         | ۶Ţ              | 4             | 1/9//21  |               | اح                   |
| Date   | Time          | Matrix            | Sample            | e Request ID                           | Container<br>Type and # | Preservative<br>Type | heal no.<br>13/21659  | BTEX + MTBE  | BTEX + MT      | TPH 8015B (GRO / DRO / MRO) | TPH (Method 418.1) | EDB (Method 504.1) | PAH'S (8310 or 8270 SIMS)<br>RCRA 8 Metals | Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> ) | 8081 Pesticides / 8082 | 8260B (VOA) | 8270 (Semi-VOA) | Seet          | #        |               | Air Bubbles (Y or N) |
| 12-11-13   | 10:45         | Aoues             | MV                | 0-1B                                   |                         |                      | -04   |  |                |                             |                    |                    |  |   |                        |             |                 | X             | X        |               |                      |
|  |               | 4                 | J_*_*             | •                                      |                         |                      |   |  |                | $\neg$                      |                    |                    |  | 1   |                        |             |                 | T             |          | $\top$        | $\top$               |
|  |               |                   |                   |  |                         |                      |   |  |                | _                           | $\dashv$           |                    | +  | -   |                        |             |                 |               | -        | +             | ++                   |
|  |               |                   |                   |  |                         |                      |   | -  |                | -                           | -+                 | -                  | -  | +   |                        |             | -               | $\rightarrow$ | -        | -             | +                    |
| <del></del>  |               |                   |                   |  |                         |                      |   | $\vdash$   |                | -                           | $\dashv$           | +                  | -  | -   |                        |             |                 | $\dashv$      | $\dashv$ | +             | $\dashv$             |
|  |               |                   |                   | 70.0.                                  |                         |                      |   | $\vdash$   | _              | $\dashv$                    | _                  | _                  | +  | +   | _                      |             | _               | $\dashv$      | _        | $\dashv$      |                      |
|  |               |                   |                   |  |                         |                      |   |  |                |                             |                    |                    |  |   |                        |             |                 | $\rightarrow$ |          | $\rightarrow$ | $\perp \perp \mid$   |
|  |               |                   |                   |  |                         |                      |   |  |                |                             | _                  |                    |  |   |                        |             |                 |               |          |               |                      |
|  |               |                   |                   |  |                         |                      |   |  |                |                             |                    |                    |  |   |                        |             | İ               |               |          |               |                      |
|  |               |                   |                   |  |                         |                      |   |  |                |                             |                    |                    |  |   |                        |             |                 |               |          |               |                      |
|  |               |                   |                   |  |                         |                      | -   |  |                |                             |                    |                    |  |   |                        |             |                 |               |          |               |                      |
|  |               | 7                 |                   |  |                         |                      |   |  |                |                             | $\neg$             |                    | $\top$                                     |   |                        |             |                 |               | 7        |               | $\top$               |
|  |               |                   |                   |  |                         |                      |   |  |                |                             |                    |                    |  |   |                        |             |                 | $\Box$        |          | 1             |                      |
| Date: 12-12-12-12-12-12-12-12-12-12-12-12-12-1   |               | Relinquieri       | , ,,,             | otto                                   | Received by:            | L                    | Date Time   | 1  | narks          |                             | At°                | t Act              | tëp  | Li  | ` <b>S</b> †           | F           | ٠<br>ا          | L             | أجا      | eTn:          | ้า                   |
| Date:<br>2 <i>-16-</i> B   | Time:<br>0905 | Relinquishe       | ad by: C          | Catter                                 | Received by             | NSE                  | Date Time 090   | 5<br>P   | Do (           | ůK<br>V                     | G<br>M             | 20T                | her<br>Cy                                  | mo<br>Rĝ  | 1 l                    | ρr<br>-12   | OI              | ec-           | L.       |               |                      |

12/02/13/AT Use this list

#### YRQ ENERGY WQCC BOTTLES FOR 1 SAMPLE

TEST

8260

:DB-504.1

1082-PCB

1310-PAH

1270-SV0C

<sup>3</sup>henois

Inions, TDS, pH, + WOCC Anions

SOY, CI, PSOY, Carbonate, Bicarbonate, Total Alk

TPS, pH; + X102-N03

**Proury** 

AT12/16/13

**Dissolved Metals/Cations** 

41, As, As, B, B, B, Br, Cd, Cu, Co, Fr, F, /Ca, Na, K, P, 43, Li, Ma, Mg, Mo, Ni, Pb, So, Ry, W, Zn, U
18.1 TPH

Total Phosphorus

Radon

CYN

2adium 226/228

BOTTLE TYPE/PRESERVATIVE

3 x 40 ml HCl Voa's

2 x 40 ml voa's Na2S203

1 x itr unpreserved amber

1 x ltr unpreserved amber

1 x itr unpreserved amber

1 x ltr H2S04 amber

1 x 500 unpreserved plastic

1 x 125 H2804 plastic

1 x 500 HN03 plastic

2 x 125 HN03 plastic

1 x 500 HCl amber

Ask Hall

Note Li, Ro, Won COC



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

January 08, 2014

David Janney
AMEC
8519 Jefferson Street, NE
Albuquerque, NM 87113
TEL: (505) 796-7276

**FAX** 

RE: Lightning Dock Geothermal Groundwater Quality Mon OrderNo.: 1312725

Dear David Janney:

Hall Environmental Analysis Laboratory received 7 sample(s) on 12/16/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

### **Analytical Report**

Lab Order 1312725

Hall Environmental Analysis Laboratory, Inc. Date Reported: 1/8/2014

**CLIENT: AMEC** Client Sample ID: MW-1

Collection Date: 12/10/2013 4:30:00 PM Project: Lightning Dock Geothermal Groundwater

1312725-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM Lab ID:

| Analyses                       | Result RL Qual Units |       |      | DF | Date Analyzed      | Batch            |  |  |
|--------------------------------|----------------------|-------|------|----|--------------------|------------------|--|--|
| EPA METHOD 8011/504.1: EDB     |                      |       |      |    | Ana                | lyst: <b>LRW</b> |  |  |
| 1,2-Dibromoethane              | ND                   | 0.010 | μg/L | 1  | 12/18/2013 5:23:43 | PM 10868         |  |  |
| TOTAL PHENOLICS BY SW-846 9067 |                      |       |      |    | Ana                | lyst: SCC        |  |  |
| Phenolics, Total Recoverable   | ND                   | 2.5   | μg/L | 1  | 12/19/2013         | 10893            |  |  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### Lab Order 1312725

Date Reported: 1/8/2014

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-2

Collection Date: 12/10/2013 11:00:00 AM Project: Lightning Dock Geothermal Groundwater

Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM 1312725-002 Lab ID:

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed      | Batch           |
|--------------------------------|--------|-------|----------|----|--------------------|-----------------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Anal               | yst: <b>LRW</b> |
| 1,2-Dibromoethane              | ND     | 0.010 | μg/L     | 1  | 12/18/2013 5:37:27 | PM 10868        |
| TOTAL PHENOLICS BY SW-846 9067 |        |       |          |    | Anal               | yst: SCC        |
| Phenolics, Total Recoverable   | ND     | 2.5   | μg/L     | 1  | 12/19/2013         | 10893           |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range E
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Lab Order 1312725

Date Reported: 1/8/2014

#### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-2B

**Project:** Lightning Dock Geothermal Groundwater

Collection Date: 12/10/2013 11:30:00 AM

Lab ID: 1312725-003

**CLIENT: AMEC** 

Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qual Units |      | DF | Batch              |                 |
|--------------------------------|--------|---------------|------|----|--------------------|-----------------|
| EPA METHOD 8011/504.1: EDB     |        |               |      |    | Ana                | yst: <b>LRW</b> |
| 1,2-Dibromoethane              | ND     | 0.010         | μg/L | 1  | 12/18/2013 5:51:14 | PM 10868        |
| TOTAL PHENOLICS BY SW-846 9067 |        |               |      |    | Ana                | lyst: SCC       |
| Phenolics, Total Recoverable   | ND     | 2.5           | μg/L | 1  | 12/19/2013         | 10893           |

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### Lab Order 1312725

Date Reported: 1/8/2014

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-3 **CLIENT: AMEC** 

Collection Date: 12/10/2013 10:30:00 PM Project: Lightning Dock Geothermal Groundwater

Received Date: 12/16/2013 9:05:00 AM 1312725-004 Matrix: AQUEOUS Lab ID:

| Analyses                       | Result RL Qual Units |       | al Units | DF | Batch              |                 |
|--------------------------------|----------------------|-------|----------|----|--------------------|-----------------|
| EPA METHOD 8011/504.1: EDB     |                      |       |          |    | Anai               | yst: <b>LRW</b> |
| 1,2-Dibromoethane              | ND                   | 0.010 | μg/L     | 1  | 12/18/2013 6:05:07 | PM 10868        |
| TOTAL PHENOLICS BY SW-846 9067 |                      |       |          |    | Ana                | yst: SCC        |
| Phenolics, Total Recoverable   | 10                   | 2.5   | μg/L     | 1  | 12/19/2013         | 10893           |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Lab Order **1312725**Date Reported: **1/8/2014** 

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-4

Project: Lightning Dock Geothermal Groundwater Collection Date: 12/9/2013 6:00:00 PM

Lab ID: 1312725-005 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed      | Batch           |
|--------------------------------|--------|-------|----------|----|--------------------|-----------------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Anal               | yst: <b>LRW</b> |
| 1,2-Dibromoethane              | ND     | 0.010 | μg/L     | 1  | 12/18/2013 6:18:58 | PM 10868        |
| TOTAL PHENOLICS BY SW-846 9067 |        |       |          |    | Anal               | yst: SCC        |
| Phenolics, Total Recoverable   | ND     | 2.5   | µg/L     | 1  | 12/19/2013         | 10893           |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### Lab Order 1312725

Date Reported: 1/8/2014

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-5

Project: Lightning Dock Geothermal Groundwater Collection Date: 12/9/2013 12:00:00 PM

Lab ID: 1312725-006 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed      | Batch           |
|--------------------------------|--------|-------|----------|----|--------------------|-----------------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Anal               | yst: <b>LRW</b> |
| 1,2-Dibromoethane              | ND     | 0.010 | μg/L     | 1  | 12/18/2013 6:32:39 | PM 10868        |
| TOTAL PHENOLICS BY SW-846 9067 |        |       |          |    | Anal               | yst: SCC        |
| Phenolics, Total Recoverable   | ND     | 2.5   | μg/L     | 1  | 12/19/2013         | 10893           |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Lab Order 1312725

Date Reported: 1/8/2014

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-6

Lightning Dock Geothermal Groundwater Collection Date: 12/9/2013 3:00:00 PM Project:

Lab ID: 1312725-007 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed      | Batch           |
|--------------------------------|--------|-------|----------|----|--------------------|-----------------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Anal               | yst: <b>LRW</b> |
| 1,2-Dibromoethane              | ND     | 0.010 | µg/L     | 1  | 12/18/2013 6:46:28 | PM 10868        |
| TOTAL PHENOLICS BY SW-846 9067 |        |       |          |    | Anal               | yst: SCC        |
| Phenolics, Total Recoverable   | ND     | 2.5   | μg/L     | 1  | 12/19/2013         | 10893           |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Not Detected at the Reporting Limit Page 7 of 9 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Anatek Labs, Inc.

1282 Alturas Drive · Moscow, ID 83843 · (208) 883-2839 · Fax (208) 882-9246 · email moscow@anateklabs.com 504 E Sprague Ste, D · Spokane WA 99202 · (509) 838-3999 · Fax (509) 838-4433 · email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131220064

Address:

4901 HAWKINS NE SUITE D

**Project Name:** 

1312725

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

**Analytical Results Report** 

Sample Number

131220064-001

Sampling Date Sampling Time 12/10/2013 4:30 PM

Date/Time Received 12/20/2013 2:09 PM

Client Sample ID Matrix

1312725-001C / MW-1

Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 12/23/2013    | ETL     | EPA 335.4 |           |

Sample Number Client Sample ID 131220064-002 1312725-002C / MW-2 Sampling Date **Sampling Time** 

12/10/2013 11:00 AM

Date/Time Received 12/20/2013 2:09 PM

Matrix

Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 12/23/2013    | ETL     | EPA 335.4 |           |

Sample Number Client Sample ID

Comments

131220064-003 1312725-003C / MW-2B

12/10/2013 Sampling Date Sampling Time 11:30 AM

Date/Time Received 12/20/2013 2:09 PM

Matrix

Water

Parameter Result Units PQL Analysis Date Analyst Method Qualifier Cyanide ND mg/L 0.01 12/23/2013 ETL EPA 335.4

Sample Number

131220064-004

Sampling Date **Sampling Time** 

12/10/2013 10:30 PM

Date/Time Received 12/20/2013 2:09 PM

Client Sample ID Matrix

1312725-004C / MW-3

Water

Comments

| Cyanide ND mg/L 0.01 12/23/2013 ETL EPA 335.4 | Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|---|-----------|--------|-------|------|---------------|---------|-----------|-----------|
|   | Cyanide   | ND     | mg/L  | 0.01 | 12/23/2013    | ETL     | EPA 335.4 |           |

Sample Number Client Sample ID 131220064-005

1312725-005C / MW-4

Sampling Date 12/9/2013 6:00 PM Sampling Time

Date/Time Received 12/20/2013 2:09 PM

Matrix

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 12/23/2013    | ETL     | EPA 335.4 |           |

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Friday, December 27, 2013 Page 1 of 2

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D · Spokane WA 99202 · (509) 838-3999 · Fax (509) 838-4433 · email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131220064

Address:

4901 HAWKINS NE SUITE D

**Project Name:** 

1312725

Attn:

ALBUQUERQUE, NM 87109

ANDY FREEMAN

#### **Analytical Results Report**

Sample Number

131220064-006

Sampling Date

12/9/2013

Date/Time Received 12/20/2013 2:09 PM

Client Sample ID

1312725-006C / MW-5

Sampling Time

12:00 PM

Matrix

Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 12/23/2013    | ETL     | EPA 335.4 |           |

Sample Number

131220064-007

Sampling Date 12/9/2013 Date/Time Received 12/20/2013 2:09 PM

Client Sample ID

1312725-007C / MW-6

Sampling Time 3:00 PM

Matrix

Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 12/23/2013    | ETL     | EPA 335.4 |           |

Authorized Signature

John Coddington, Lab Manager

MCI

**EPA's Maximum Contaminant Level** 

ND

Not Detected

PQL

Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.

The results reported relate only to the samples indicated.

Soil/solid results are reported on a dry-weight basis unless otherwise noted.

CAS No.

Qual

Qual



#### **ANALYTICAL RESULTS**

Project:

1312725

Pace Project No.:

30110107

Sample: 1312725-001 MW-1

Parameters

Parameters

Parameters

Lab ID: 30110107001

Method

Sample Type:

Act ± Unc (MDC)

Collected: 12/10/13 16:30 Received: 12/20/13 10:30

Units

PWS: Site ID:

EPA 903.1 Radium-226 Radium-228 EPA 904.0

0.285 ± 0.350 (0.571) 0.888 ± 0.456 (0.799) pCi/L 01/06/14 13:54 13982-63-3 pCi/L 01/07/14 14:05 15262-20-1

Analyzed

01/07/14 15:02 15262-20-1

Lab ID: 30110107002 Collected: 12/10/13 11:00 Received: 12/20/13 10:30 Sample: 1312725-002 MW-2

PWS:

Radium-226

Radium-228

Site ID: Method

Method

Sample Type: Act ± Unc (MDC) Units Analyzed CAS No.

EPA 903.1 pCi/L 01/06/14 14:09 13982-63-3 Radium-226 0.266 ± 0.377 (0.638) EPA 904.0 01/07/14 15:50 15262-20-1 Radium-228 0.0585 ± 0.308 (0.702) pCi/L

Lab ID: 30110107003 Collected: 12/10/13 11:30 Received: 12/20/13 10:30 Matrix: Water Sample: 1312725-003 MW-2B PWS:

Site ID: Sample Type:

EPA 903.1

EPA 904.0

Units Analyzed CAS No. Act ± Unc (MDC) Qual pCi/L 01/06/14 13:54 13982-63-3 0.183 ± 0.312 (0.550)

pCi/L

0.468 ± 0.385 (0.767)

Lab ID: 30110107004 Collected: 12/10/13 10:30 Received: 12/20/13 10:30 Sample: 1312725-004 MW-3 Matrix: Water Site ID: PWS: Sample Type:

**Parameters** Method Act ± Unc (MDC) Units Analyzed CAS No. Qual Radium-226 EPA 903.1 pCi/L 01/06/14 14:24 13982-63-3 0.102 ± 0.375 (0.720) EPA 904.0  $0.156 \pm 0.270 \quad (0.590)$ pCi/L 01/07/14 15:02 15262-20-1 Radium-228

Sample: 1312725-005 MW-4 Lab ID: 30110107005 Collected: 12/09/13 18:00 Received: 12/20/13 10:30 Matrix: Water

PWS: Site ID: Sample Type:

Method Act ± Unc (MDC) Units Analyzed CAS No. Parameters Qual EPA 903.1 Radium-226 1.32 ± 0.615 (0.664) pCi/L 01/06/14 14:09 13982-63-3 EPA 904.0 01/07/14 15:02 15262-20-1 0.542 ± 0.396 (0.772) pCi/L Radium-228

Lab ID: 30110107006 Collected: 12/09/13 12:00 Received: 12/20/13 10:30 Matrix: Water Sample: 1312725-006 MW-5

PWS: Site ID: Sample Type:

**Parameters** Method Act ± Unc (MDC) Units Analyzed CAS No. Qual EPA 903.1 01/06/14 13:54 13982-63-3 Radium-226 0.305 ± 0.401 (0.667) pCi/L Radium-228 EPA 904.0 0.333 ± 0.452 (0.966) pCi/L 01/07/14 17:06 15262-20-1

#### REPORT OF LABORATORY ANALYSIS



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

#### **ANALYTICAL RESULTS**

Project:

1312725

Pace Project No.:

30110107

Sample: 1312725-007 MW-6

Lab ID: 30110107007

Collected: 12/09/13 15:00 Received: 12/20/13 10:30 Matrix: Water

Qual

PWS:

Radium-226

Radium-228

Site ID:

EPA 904.0

Sample Type:

Act ± Unc (MDC)

Method Parameters EPA 903.1

0.140 ± 0.305 (0.562) 2.53 ± 0.949 (1.39)

pCi/L pCi/L

Units

01/06/14 14:09 13982-63-3 01/07/14 15:50 15262-20-1

Analyzed

CAS No.



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

#### **QUALITY CONTROL DATA**

Project:

1312725

Pace Project No.:

30110107

QC Batch:

RADC/18162

Analysis Method:

EPA 903.1

QC Batch Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples:

30110107001, 30110107002, 30110107003, 30110107004, 30110107005, 30110107006, 30110107007

METHOD BLANK: 673486

Matrix: Water

Associated Lab Samples:

30110107001, 30110107002, 30110107003, 30110107004, 30110107005, 30110107006, 30110107007

Parameter

Act ± Unc (MDC)

Units

Analyzed

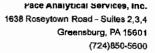
Qualifiers

Radium-226

-0.195 ± 0.271 (0.686)

pCi/L

01/06/14 13:51





#### **QUALITY CONTROL DATA**

Project:

1312725

Pace Project No.:

30110107

QC Batch:

RADC/18180

Analysis Method:

EPA 904.0

QC Batch Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples:

30110107001, 30110107002, 30110107003, 30110107004, 30110107005, 30110107006, 30110107007

METHOD BLANK: 674062

Matrix: Water

Associated Lab Samples:

30110107001, 30110107002, 30110107003, 30110107004, 30110107005, 30110107006, 30110107007

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-228

 $-0.113 \pm 0.319$  (0.769)

pCi/L

01/07/14 12:48

## **QC SUMMARY REPORT**

# 'all Environmental Analysis Laboratory, Inc.

WO#:

1312725

08-Jan-14

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Groundwater Qualit

Sample ID MB-10868

Prep Date: 12/18/2013

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

Client ID: **PBW** 

Batch ID: 10868 Analysis Date: 12/18/2013 RunNo: 15596

SeqNo: 449514

Units: µg/L

Analyte

Result **PQL** 

SPK value SPK Ref Val %REC LowLimit

HighLimit

**RPDLimit** %RPD

Qual

1,2-Dibromoethane

ND 0.010

Sample ID LCS-10868

SampType: LCS

TestCode: EPA Method 8011/504.1: EDB

Client ID: **LCSW** 

Prep Date: 12/18/2013

Batch ID: 10868

RunNo: 15596

SeqNo: 449515

Units: µg/L

Analyte

Analysis Date: 12/18/2013 Result

SPK value SPK Ref Val

%REC

LowLimit HighLimit %RPD **RPDLimit** 

Qual

1,2-Dibromoethane

70

130

0.10 0.010 102 0.1000 0

**PQL** 

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

Value above quantitation range Е

Analyte detected below quantitation limits J

0 RSD is greater than RSDlimit

RPD outside accepted recovery limits R

Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit RL

Page 8 of 9

# **QC SUMMARY REPORT**

#### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312725 08-Jan-14

Client: **AMEC** 

Lightning Dock Geothermal Groundwater Qualit Project:

Sample ID MB-10893 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Batch ID: 10893 RunNo: 15599 Client ID: PRW

12/19/2013 Analysis Date: 12/19/2013 SeqNo: 449235 Units: µg/L Prep Date:

SPK value SPK Ref Val %REC LowLimit **RPDLimit** Analyte Result PQL HighLimit %RPD Qual

Phenolics, Total Recoverable ND

Sample ID LCS-10893 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Batch ID: 10893 RunNo: 15599 Client ID: LCSW

Analysis Date: 12/19/2013 SeqNo: 449236 Units: µg/L Prep Date: 12/19/2013

Result SPK value SPK Ref Val **PQL** %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Phenolics, Total Recoverable 23 2.5 20.00 116 73.7 135

Sample ID LCSD-10893 SampType: LCSD TestCode: Total Phenolics by SW-846 9067

Client ID: LCSS02 Batch ID: 10893 RunNo: 15599

Prep Date: 12/19/2013 Analysis Date: 12/19/2013 SeqNo: 449248 Units: µg/L

%REC %RPD Analyte **PQL** SPK value SPK Ref Val LowLimit HighLimit **RPDLimit** Qual

22 110 73.7 135 5.63 Phenolics, Total Recoverable 2.5 20.00 0 21.4

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits S
- Analyte detected in the associated Method Blank В
- H Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL

Page 9 of 9



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

# Sample Log-In Check List

| Client Name:      | AMEC               |                                       | Work Order N      | lumber: 1312 | 725                |           | RcptN                             | o: 1                                      |
|-------------------|--------------------|---------------------------------------|-------------------|--------------|--------------------|-----------|-----------------------------------|---|
| Received by/da    | te: K              | 5 12/16                               | 1/5               |              | -                  |           |                                   |   |
| Logged By:        | Anne Thorn         | 18                                    | 12/16/2013 9:05   | 5:00 AM      |                    | aone Am   | _                                 |   |
| Completed By:     | Anne Thorn         | te                                    | 12/17/2013        |              |                    | aone Am   |                                   |   |
| Reviewed By:      | Ma                 | -                                     | 12/18/13          | ,            |                    | Care Sem  |                                   |   |
| Chain of Cus      | stody              |                                       | to trate >        |              |                    |           |                                   |   |
| 1. Custody sea    | als intact on sa   | mple bottles?                         |                   | Yes          | , <b></b>          | No 🗆      | Not Present ▼                     | •   |
| 2. Is Chain of    | Custody comple     | ete?                                  |                   | Yes          | . 🗸                | No 🗌      | Not Present                       | ]   |
| 3. How was th     | e sample delive    | ered?                                 |                   | Clie         | <u>nt</u>          |           |                                   |   |
| <u>Log In</u>     |                    |                                       |                   |              |                    |           |                                   |   |
| 4. Was an atte    | empt made to o     | cool the samples                      | ?                 | Ye           | s 🗸                | No 🗌      | na [                              | ]   |
| 5. Were all sa    | mples received     | at a temperature                      | of >0° C to 6.0°  | C Yes        | <b>✓</b>           | No 🗆      | NA 🗆                              | ]   |
| 6. Sample(s)      | in proper contai   | iner(s)?                              |                   | Ye           | s 🗸                | No 🗌      |                                   |   |
| 7. Sufficient sa  | ample volume f     | or indicated test(                    | s)?               | Yes          | · 🗸                | No 🗌      |                                   |   |
| 8. Are sample     | s (except VOA      | and ONG) prope                        | rly preserved?    | Yes          | · 🗸                | No 🗆      |                                   |   |
| 9. Was preser     | vative added to    | bottles?                              |                   | Yes          | <b>.</b> $\square$ | No 🗹      | na [                              | ]   |
| 10.VOA viats h    | nave zero heads    | space?                                |                   | Yes          | · 🗸                | No 🗌      | No VOA Vials                      | ]   |
| 11. Were any s    | sample containe    | ers received brok                     | en?               | Ye           | s 🗆                | No 🗹      | F                                 |   |
|                   |                    |                                       |                   |              |                    |           | # of preserved<br>bottles checked | 21 7                                      |
| 12. Does paper    |                    |                                       |                   | Yes          | · 🗸                | No 🗌      | for pH:                           | 2/or 12 inless noted)                     |
| •                 | epancies on cha    | ain of custody)<br>itified on Chain o | F Custody2        | Vas          |                    | No 🗆      | Adjusted?                         | A / O I I I I I I I I I I I I I I I I I I |
| 14. Is it clear w | =                  |                                       | oustody:          |              | · 🔽                | No 🗆      |                                   | 16 - 1-1:01                               |
| 15. Were all ho   | •                  | -                                     |                   |              | · 🔽                | No 🗌      | Checked by                        | KNS 12/18/13                              |
|                   | customer for a     |                                       |                   |              |                    |           |                                   |   |
| Special Hand      | dling (if app      | licable)                              |                   |              |                    |           |                                   |   |
| 16. Was client    | notified of all di | screpancies with                      | this order?       | Yes          |                    | No 🗌      | NA 🔽                              | <u> </u>                                  |
| Perso             | on Notified:       |                                       |                   | Date         | -                  |           |                                   |   |
| By W              | hom:               |                                       |                   |              | Mail [             | Phone Fax | In Person                         |   |
|                   | rding:             |                                       |                   |              |                    |           |                                   | •   |
|                   | t Instructions:    |                                       |                   |              |                    |           |                                   | ,   |
| 17. Additional    | remarks:           |                                       |                   |              |                    |           |                                   |   |
| 18. Cooler Inf    | ormation           |                                       |                   |              |                    |           |                                   |   |
| Cooler            |                    |                                       | eal intact   Seal | No Seal [    | )ale :             | Signed By |                                   |   |
| 1                 | 2.9                | Good No                               | t Present         |              |                    |           |                                   |   |

| C              | :hain     | of-Cu       | stody Record                             | Turn-Around                             | Time:                |                            |           |                  |           |             | AL               | E             | NIX.  | /TE                          | <b>&gt;</b> ^ | NJ B            | 4E  | NT   | TA I     | J                    |
|----------------|-----------|-------------|--|---|----------------------|----------------------------|-----------|------------------|-----------|-------------|------------------|---------------|---|------------------------------|---------------|-----------------|-----|------|----------|----------------------|
| Client:        | AMI       | 5           |  | Standard                                |                      |                            |           |                  |           |             | NA               |               |   |                              |               |                 |     |      |          |                      |
|                |           |             |  | Project Name                            | inc Doc              | k Geotherman               |           | •                |           | W           | ww.h             | allen         | viron   | men                          | tal.co        | om              |     |      |          |                      |
| Mailing        | Address   | 451         | 9 Jefferson St                           | Groundly                                | Jee Qu               | k Geothermon<br>ality Mon. |           | 49               | 01 H      | awkin       | s NE             | - All         | upud  | erqu                         | e, N          | M 87            | 109 |      |          |                      |
| A              | BQ,       | NU          | 9 Jafferson St<br>8743<br>21-1801        | Project #:                              | Si 7-0               | 0102.06                    |           | Τe               | l. 50     | 5-345       | -3975            | ;             | Fax   | 505-                         | 345           | 4107            | 7   |      |          |                      |
| Phone          | #: 56     | 5 8         | 21-1801                                  | 1                                       |                      |                            |           |                  |           |             |                  | Anal          | ysis  | Req                          | ues           |                 |     |      |          |                      |
| email o        | r Fax#: ، | david       | . jahrez Banec.com                       | Project Mana                            | ger: Durie           | 1 Janner                   | <u>_</u>  | J)               | / MRO)    | İ           |                  |               | 0   |                              |               | \$              |     | İ    |          |                      |
| QA/QC I        | Package:  |             | ☐ Level 4 (Full Validation)              |   |                      |                            | 's (8021) | + TPH (Gas only) | RO/M      |             | SIMIS            |               | ,PO4,S  | 2 PCB!                       |               | SIMILE !        | W.  |      |          |                      |
| Accredi        | itation   |             |  | Sampler:                                | /                    |                            | TMB.      | PH               |           | =           |                  |               | S<br>S  | 808                          |               |                 | 2   |      |          | 2                    |
| □ NEL          |           | □ Othe      | r  | 1 | v Yes∗               | 100                        | +         |                  | (GRO      | 418.1)      | 504.1)           | S             | 103,  | / 86                         |               | 8               |     | a    |          | ō                    |
|                | (Type) _  |             |  | Sample Tem                              | oerature: 🧳          | <b>2.</b> 7                | MTBE      | TBE              | B (6      | poc         | و ا <del>د</del> | leta          | 2,5   | icide                        | (A)           | )-i-            | 727 | , 3  | اپ       | λ) s                 |
| Date           | Time      | Matrix      | Sample Request ID                        | Container<br>Type and #                 | Preservative<br>Type | HEAL NO.                   | BTEX + M  | BTEX + MTBE      | TPH 8015B | TPH (Method | EDB (Method 5    | RCRA 8 Metals | Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> ) | 8081 Pesticides / 8082 PCB's | 8260B (VOA)   | 8270 (Semi-VOA) | 72  | Lyar | Pheho    | Air Bubbles (Y or N) |
| 12/10/13       | 16:30     | water       | MW-1                                     | 5                                       | 1033203<br>140H H2S  | cu -col                    |           |                  |           | 1           | X                |               |   |                              |               |                 | X   | X    | R        |                      |
|                | 11:00     |             | MW-2                                     | 3                                       | 1                    | -602                       |           |                  |           | 5           | X                |               |   |                              |               |                 |     | B    | R        |                      |
|                | u:30      |             | MW-ZB                                    | 3                                       |                      | -w3                        |           |                  |           |             | X                |               |   |                              |               |                 | X   | R    | R        |                      |
| W.             | 22130     |             | MW-3                                     | 5                                       |                      | -204                       |           |                  |           | 5           | X                |               |   |                              |               |                 | X   | X    | X        |                      |
| rapp           | 18:00     |             | MW-4                                     | 3                                       |                      | -US                        |           |                  |           | 7           | ۲                |               |   |                              |               |                 | X   | R.   | R        |                      |
| 12/9/12        | 12:00     |             | MW-5                                     | 5                                       | 7,                   | -004                       |           |                  |           | Š           | X                |               |   |                              |               |                 | X   | X    | X        |                      |
| 12/9/13        | 12 300    | 6           | MW-6                                     | 5                                       | V                    | -607                       |           |                  |           | 2           | 4                |               |   |                              |               |                 | X   | X    | X        |                      |
|                |           |             |  |   |                      |                            |           |                  |           |             |                  | -             |   |                              |               |                 |     |      | $\dashv$ |                      |
|                |           |             |  |   |                      |                            |           |                  |           |             |                  |               |   |                              |               |                 |     |      |          |                      |
| Date:          | Time:     | Polinguish  | ad hu                                    | Received by:                            |                      | Date Time                  | Bon       | narks            |           |             |                  |               | <u> </u>  |                              |               |                 |     |      |          |                      |
| 12/12/12       | 16:00     | Em          | D. Koenig                                |   |                      |                            | ) P       | W                | کم        | In          | või              | 10            | KO  | A                            | 12/16         | 113             |     |      |          |                      |
| Date: 12/16/13 |           | Relinquishe | nitted to Hall Environmental may be subc | Received by:                            | 187                  | 12/16/13 0905              |           |                  |           |             |                  |               |   |                              |               |                 |     |      |          |                      |



**Lightning Dock Geothermal Monitoring** 

|                |                                       |                   |                        |                                    |                | Job No.:        | 11-51          | 7-00102       |           | Page         | 1 of           |
|----------------|---------------------------------------|-------------------|------------------------|------------------------------------|----------------|-----------------|----------------|---------------|-----------|--------------|----------------|
| Well No.       |                                       | Purge             | Equipment              | Ana                                | lytical Equipm | ent             | Sampler's      |               | Time      |              | Date           |
| М              | W-1A                                  |                   | Bennett Pump           | -                                  | emperature):   |                 | EDK            |               |           | 11:45        | 11/25/2013     |
|                |                                       |                   | Bennett Pump           | X YSI                              |                |                 |                |               |           |              |                |
| Casing Diame   | ter (in.)                             | Perista           | ltic Pump              | Orio                               | on             |                 |                | Me            | ter Calib | ration       |                |
| •              |                                       | Dedica            | ted Pump               | Oth                                | er:            |                 | Time:          |               |           |              |                |
| 1              | .913                                  | 2" Grui           | ndfos                  | Serial No.:                        |                |                 |                |               |           |              |                |
|                |                                       | Waterr            | a Pump                 |                                    |                |                 | pH4            | _=            | at _      |              | °C             |
| Total Well Dep | oth (ft.)                             | Geoted            | h Pump                 | Conductivity                       | y Meter:       |                 | Lot #          |               | Ехр.      |              |                |
|                |                                       | X Other:          | Bailer                 | X_YSI                              | 556            |                 |                |               |           |              |                |
| 8              | 5.00                                  |                   |                        | Orio                               | on             |                 | pH7            | _=            | at _      |              | °C             |
|                |                                       |                   |                        | Oth                                | er:            |                 | Lot #          |               | Exp       |              |                |
| Static Water L | evel (ft.)                            | Serial Number     | :                      | Serial No.:                        |                |                 |                |               |           |              |                |
|                |                                       | Sample            | Equipment              |                                    |                |                 | pH10           | =             | at _      |              | °C             |
| 67.8           | 6 BTOC                                | 1.40" E           | Bennett Pump           | Dissolved C                        | Oxygen Meter:  |                 | Lot #          |               | Ехр.      |              |                |
|                |                                       | 1.80" E           | Bennett Pump           | X YS                               | 556            |                 |                |               |           |              |                |
| Water Thickne  | ess (ft.)                             | Perista           | ltic Pump              | Oth                                | ner            |                 | Conductance S  | tandard: 14   | 13 umho   | os/cm Oth    | er:            |
|                |                                       | Dedica            | ited Pump              | Serial No.                         |                |                 |                |               |           |              |                |
| -              | 18.6                                  | 2" Gru            | ndfos                  |                                    |                |                 | Calibrated to  |               | uml       | hos/cm at    | °C             |
|                |                                       | Waterr            | a Pump                 | ORP Meter                          | :              |                 |                |               |           |              |                |
| Casing Volum   | e (gal.)                              | Geoted            | ch Pump                | X YSI                              | 1556           |                 | Lot #          |               | Exp.      |              |                |
|                |                                       | X Other:          | Bailer                 | Oth                                | ner            |                 | Dissolved Oxyg | en:           |           |              |                |
| ·              | ~ 2.8                                 |                   |                        | Serial No.                         |                |                 | C              | alibrated to  |           | mg/l         | at°C           |
|                |                                       |                   |                        |                                    |                |                 |                |               |           |              |                |
| Stick-up       | Screen Int.                           | Serial Number     | :                      | Water Levi                         | el Meter:      |                 | Redox:         |               |           |              |                |
|                | 60-85                                 | Filtration        | Equipment:             | Ked                                | ck             |                 |                | Calibrated to | ·         | mV           | at°C           |
| (ft.           | (ft.)                                 | 0.45 <i>Micro</i> | n Filter               | X_Oth                              | er: Geotech    |                 | Lot #          |               | Exp.      |              |                |
| Purge Contain  | nerized:                              | 1                 |                        | Serial No.                         |                |                 |                |               |           |              | T              |
| <u>X_</u> Yes  | No                                    | Brand: Geoted     |                        |                                    |                |                 | Sample Depth ( | (feet)        |           |              | Time:          |
|                | · · · · · · · · · · · · · · · · · · · | Casing Volume n   | nultipliers: 1"=(.04)  | 2"=(.16) 3"=(.3                    | 7) 4"=(.65)    | 1               | <u> </u>       |               |           |              |                |
|                | Volume<br>Removed                     | Temp              | Conductivity           | Dissolved 0 <sub>2</sub><br>(mg/l) | рН             | ORP             |                | Waterl        | evel      | Pump<br>Rate | Visual         |
| Time           | (gallons)                             | (°C)<br>(+/- 3%)  | (umhos/cm)<br>(+/- 3%) | (+/- 10%)                          | (+/- 0.1)      | (mV)<br>(+/- 10 |                | (ft bo        |           | (gpm)        | Description    |
|                |                                       | (17 070)          | (17 070)               |                                    |                | (17 10          | (17 1070)      |               |           | (ml/m)       |                |
|                |                                       |                   |                        |                                    | }              |                 |                |               |           |              |                |
|                | 9                                     | 55.2              | 2119                   | 5.7                                | 8.69           | -47.6           | S NA           | NA NA         | ·         | NA           | Cloudy,        |
|                | ļ                                     | 21.15             |                        |                                    |                | <u> </u>        |                |               |           |              | gray, brown    |
|                |                                       |                   |                        |                                    |                |                 |                |               |           |              |                |
|                |                                       |                   |                        |                                    |                | <u> </u>        |                | <u></u>       |           |              |                |
|                |                                       |                   |                        |                                    |                |                 |                |               |           |              |                |
|                |                                       |                   |                        |                                    |                | ļ               |                |               |           |              |                |
|                |                                       |                   |                        |                                    |                |                 |                |               |           |              |                |
|                |                                       | -                 |                        | -                                  |                | -               |                |               |           |              |                |
|                |                                       |                   |                        |                                    |                | i               | 1              | ŀ             |           |              |                |
|                |                                       |                   |                        |                                    | -              |                 |                |               |           |              | <del> </del>   |
|                |                                       |                   |                        |                                    |                |                 |                |               |           |              |                |
|                |                                       |                   |                        |                                    |                | +               |                |               |           |              |                |
|                |                                       |                   |                        |                                    |                |                 |                |               |           |              |                |
|                |                                       |                   |                        |                                    |                |                 |                | -             |           |              |                |
|                |                                       |                   |                        |                                    |                |                 |                |               |           |              |                |
|                |                                       | 5.00              | .ta.                   | Destrict O. F.                     | · (augleia)    | DID/FID 5       |                |               | 1-21-1    | 2            | Comple 5 ::    |
| Analyses requ  |                                       | Full Su           |                        | Partial Suite                      |                | PID/FID Re      |                |               |           | Readings:    | Sample Reading |
|                | als - U-Rb-S (field filt              | ered), l'otal Me  | tais u-Hg, Anion       | s, IDS, PAH, I                     | PCB            | NA NA           | -HNu           |               | TOC:      |              | TOC: NA        |
| P, 8260        |                                       |                   |                        |                                    |                | NA NA           | _OVA           |               | BZ: NA    |              | BZ: NA         |
|                |                                       |                   |                        |                                    |                | NA_             | _Microtip      |               | Bkgd: I   | AV           | Bkgd: NA       |
| Additional Co  |                                       |                   |                        |                                    |                |                 | Serial No      |               |           |              |                |
| 1              | 6 gallons removed l                   | by driller during | development.           |                                    | 1              | Condition       |                | New           |           |              |                |
| PPE Level: B   | CD                                    |                   |                        |                                    |                | Signature       | :              |               |           |              |                |



**Lightning Dock Geothermal Monitoring** 

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|                      |                   |                 |                            |                          |                | Job No.:   | 11-517             | 7-00102      |          | Page             | 1 of            |
|----------------------|-------------------|-----------------|----------------------------|--------------------------|----------------|--|--------------------|--------------|----------|------------------|-----------------|
| Well No.             |                   | Purge           | Equipment                  | Anal                     | lytical Equipn | nent   | Sampler's          | Initials     | Time     |                  | Date            |
| M                    | W-1A              | 1.40" E         | Bennett Pump               | pH meter (te             | emperature):   |  | EDK                |              |          | 16:30            | 12/10/2013      |
|                      |                   | 1.80" E         | Bennett Pump               | X YSI                    | 556            |  |                    |              |          |                  |                 |
| Casing Diame         | ter (in.)         | Perista         | ltic Pump                  | Orio                     | on             |  |                    | Me           | ter Cali | bration          |                 |
|                      |                   | Dedica          | ted Pump                   | Oth                      | er:            |  | Time:              |              |          |                  |                 |
| 1.913                |                   | 2" Grui         | ndfos                      | Serial No.:              |                |  |                    |              |          |                  |                 |
|                      |                   | Waterr          | a Pump                     |                          |                |  | pH4                | =4           | .00      | _ at <u>15</u> _ | °C              |
| Total Well Dep       | th (ft.)          | Geoted          | h Pump                     | Conductivity             | y Meter:       |  | Lot#               |              | Ехр.     |                  |                 |
|                      | ` ,               | X Other:        | Bailer                     | X YSI                    | 556            |  | İ                  |              |          |                  |                 |
| 8                    | 5.00              |                 |                            | Orio                     |                |  | pH7                | _ =7.0       | )5       | _ at15_          | °C              |
|                      |                   |                 |                            | Oth                      | er:            |  | Lot#               |              | Ехр      |                  |                 |
| Static Water L       | evel (ft.)        | Serial Number   | :                          | Serial No.:              |                |  | [                  |              |          |                  |                 |
|                      |                   |                 | Equipment                  |                          |                |  | pH10               | =10          | .12      | at15             | °C              |
| 6                    | 7.55              |                 | Bennett Pump               | Dissolved C              | Oxygen Meter:  |  | Lot #              |              | Ехр.     |                  |                 |
| •                    |                   |                 | Bennett Pump               | X YSI                    |                |  |                    |              |          |                  |                 |
| Water Thickne        | ess (ft.)         |                 | Itic Pump                  | Oth                      |                |  | Conductance St     | tandard: 14  | 13 umh   | os/cm Oth        | er:             |
|                      | · · ·             |                 | ited Pump                  | Serial No.               |                |  |                    |              |          |                  |                 |
| ~                    | 18.90             | 2" Gru          | -                          |                          |                |  | Calibrated to      | _1413        |          | _ umhos/cm       | at15            |
|                      |                   | _               | a Pump                     | ORP Meter                | ;              |  |                    |              |          |                  |                 |
| Casing Volum         | e (gal.)          |                 | ch Pump                    | X YSI                    |                |  | Lot#               |              | Exp.     |                  |                 |
| l and and a state of | - (9)             | X Other:        |                            | Oth                      |                |  | Dissolved Oxyg     | en:          |          |                  |                 |
|                      | 2.82              |                 |                            | Serial No.               |                |  | 1                  |              | .67      | mg/l at          | 15°C            |
| ·                    | _                 |                 |                            |                          |                |  |                    |              |          |                  |                 |
| Stick-up             | Screen Int.       | Serial Number   | :                          | Water Leve               | el Meter:      |  | Redox:             |              |          |                  |                 |
| 1.45                 | 60-85             |                 | Equipment:                 | Ked                      |                |  | l                  | ted to       | 229      | mV at            | 15°C            |
| (ft.)                |                   |                 |                            | X Oth                    |                |  | Lot #              |              | Exp.     |                  |                 |
| Purge Contain        |                   |                 |                            | Serial No.               |                |  |                    |              |          |                  |                 |
|                      | No                | Brand: Geotec   | ch                         |                          |                |  | Sample Depth (     | feet)        |          |                  | Time:           |
|                      |                   | Casing Volume r | nultipliers: 1"=(.04)      | 2"=(.16) 3"=(.3          | 7) 4"=(.65)    |  | 1                  | ,            |          |                  |                 |
|                      | Volume            |                 |                            | Dissolved 0 <sub>2</sub> | I              |  |                    |              |          | Pump             |                 |
| Time                 | Removed           | Temp<br>(°C)    | Conductivity<br>(umhos/cm) | (mg/l)                   | pН             | ORP<br>(mV)                                      | Turbidity<br>(NTU) | Water        |          | Rate             | Visual          |
| 1,,,,,               | (gallons)         | (+/- 3%)        | (+/- 3%)                   | (+/- 10%)                | (+/- 0.1)      | (+/- 10  |                    | (ft b        | gs)      | (gpm)<br>(ml/m)  | Description     |
|                      |                   |                 |                            |                          | <u></u>        | <del> </del>                                     |                    |              |          |                  |                 |
|                      |                   |                 | 0000                       |                          | 7.50           |  |                    |              |          | A1.A             | Cloudy          |
|                      | 2.8               | 62.6            | 2232                       | 2.4                      | 7.53           | -2.4   |                    | NA           |          | NA               | brown           |
|                      |                   | 33.8            |                            |                          |                |  |                    |              |          |                  | 011             |
|                      | 5.0               | 005             | 0000                       | 0.0                      | 7.00           | 24.6   |                    | NIA.         |          | NIA              | Cloudy          |
|                      | 5.6               | 60.5            | 2290                       | 2.2                      | 7.88           | 24.6   | '                  | NA           |          | NA               | brown           |
|                      |                   | 38.8            |                            |                          |                | <del>                                     </del> |                    | <del> </del> | -        |                  | Claudu          |
|                      | 0.5               | 00.4            | 0000                       | 1.8                      | 7.69           | 34.4   |                    | NA           |          | NA               | Cloudy<br>brown |
|                      | 8.5               | 63.4            | 2266                       | 1.0                      | 7.09           | 34.4   |                    | INA          |          | INA              | DIOWII          |
|                      |                   | 7 34.2          |                            |                          |                | -  |                    | +            |          |                  |                 |
|                      |                   |                 |                            |                          |                | 1  |                    | 1            |          |                  |                 |
|                      |                   |                 |                            |                          |                | -  |                    | <del> </del> |          |                  |                 |
|                      |                   |                 |                            |                          |                |  |                    |              |          |                  |                 |
|                      | -                 |                 |                            |                          |                | +  |                    | 1            |          |                  |                 |
|                      |                   |                 |                            |                          |                |  |                    |              |          |                  |                 |
|                      | +                 |                 |                            |                          |                | +  |                    | +            |          |                  |                 |
|                      |                   |                 |                            |                          |                |  |                    |              |          |                  |                 |
| Analora              | l                 | F::II C         | uito                       | Domini Colle             | (oveleis)      | DID/EID D  | odings             |              | Initi-1  | Dondings:        | Sample Dead'-   |
| Analyses requ        |                   | Full St         | nte                        | Partial Suite            | e (explain)    | PID/FID Re                                       | _                  |              |          | Readings:        | Sample Reading  |
| Ha 226/227, R        | n, EDB, CN Phenol |                 |                            |                          |                |  | _HNu               |              | TOC:     |                  | TOC: NA         |
| 1                    |                   |                 |                            |                          |                |  | OVA                |              | BZ: N    |                  | BZ: NA          |
|                      | <del></del>       |                 |                            |                          |                |  | Microtip           |              | Bkgd:    | NA               | Bkgd: NA        |
| Additional Co        | mments:           |                 |                            |                          |                |  | Serial No          | .:<br>       |          |                  |                 |
|                      |                   |                 |                            |                          |                | Condition  |                    |              |          |                  |                 |
| PPE Level: B         | CD                |                 |                            |                          |                | Signature  | <b>:</b>           |              |          |                  |                 |



**Lightning Dock Geothermal Monitoring** 

|                 |                          |                   |                        |                                    |                  | Job No.:        | 11-               | 517-00102      |        | Page         | 1 of            |
|-----------------|--------------------------|-------------------|------------------------|------------------------------------|------------------|-----------------|-------------------|----------------|--------|--------------|-----------------|
| Well No.        |                          | Purge             | Equipment              | Ana                                | lytical Equipr   |                 |                   | r's Initials   | Time   | 7            | Date            |
| M               | W-1B                     |                   | Bennett Pump           | pH meter (t                        | emperature):     |                 | JC                |                |        | 9:25         | 12/11/2013      |
|                 |                          | 1.80"             | Bennett Pump           | X YSI                              | 556              |                 |                   |                |        |              |                 |
| Casing Diamet   | er (in.)                 | Perist            | altic Pump             | Orio                               | on               |                 |                   | Me             | ter Ca | libration    |                 |
| _               |                          | Dedic             | ated Pump              | Oth                                | ner:             |                 | Time:             |                |        |              |                 |
| 1               | .913                     | 2" Gru            | ındfos                 | Serial No.:                        |                  |                 |                   |                |        |              |                 |
|                 |                          | Water             | ra Pump                |                                    |                  |                 | рН <u>4</u>       | =              | a      | t            | °C              |
| Total Well Dep  | th (ft.)                 | Geote             | ch Pump                | Conductivit                        | y Meter:         |                 | Lot #             | 3AF099         | Ехр.   | 06/15        |                 |
|                 |                          | X Other           | Bailer                 | _X_YSI                             | 556              |                 |                   |                |        |              |                 |
| 8               | 5.00                     |                   |                        | Orio                               | on               |                 | pH <u>7</u>       | =              | a      | t            | °C              |
|                 |                          |                   |                        | Oth                                | ner:             |                 | Lot#              | 3AE725         | Ехр    | 05/15        |                 |
| Static Water Lo | evel (ft.)               | Serial Numbe      | r:                     | Serial No.:                        |                  |                 |                   |                |        |              |                 |
|                 |                          | Sample            | Equipment              |                                    |                  |                 | pH10_             | =              | a      | t            | °C              |
| 6               | 6.05                     | 1.40"             | Bennett Pump           | Dissolved C                        | Oxygen Meter:    |                 | Lot #             | 3AE634         | Exp.   | 05/15        |                 |
|                 |                          | 1.80"             | Bennett Pump           | X YSI                              | 556              |                 |                   |                |        |              |                 |
| Water Thickne   | ss (ft.)                 | Perist            | altic Pump             | Oth                                | ner              |                 | Conductance       | e Standard: 14 | 113 um | hos/cm Othe  | er:             |
|                 |                          | Dedic             | ated Pump              | Serial No.                         |                  |                 |                   |                |        |              |                 |
| 1               | 9.00                     | 2" Grt            | ındfos                 |                                    |                  |                 | Calibrated to     |                | ur     | mhos/cm at   | °C              |
|                 |                          | Water             | ra Pump                | ORP Meter                          | :                |                 |                   |                |        |              |                 |
| Casing Volume   | e (gal.)                 | Geote             | ch Pump                | X YSI                              | 556              |                 | Lot #             | 3AF774         | Ехр.   | 06/14        |                 |
|                 |                          | X Other           | Bailer                 | Oth                                | ner              |                 | Dissolved Ox      | , -            |        |              |                 |
| 3               | 3.10                     |                   |                        | Serial No.                         |                  |                 |                   | Calibrated to  |        | mg/l         | at°C            |
|                 |                          |                   |                        |                                    |                  |                 |                   |                |        |              |                 |
|                 | Screen Int.              | Serial Numbe      | r:                     | Water Leve                         | el Meter:        |                 | Redox:            |                |        |              |                 |
| 1.30            | 15-35                    |                   | n Equipment:           | Ked                                | ck               |                 |                   |                |        |              | at°C            |
| (ft.)           | (ft.)                    | 0.45 <i>Micro</i> | on Filter              | X Oth                              | er: Geotech      |                 | Lot #             | 3AE866         | Exp.   | 02/14        | -               |
| Purge Contain   |                          |                   |                        | Serial No.                         |                  |                 |                   | <del> </del>   |        |              |                 |
| <u>X</u> Yes _  | No                       | Brand: Geote      |                        |                                    |                  |                 | Sample Dept       | th (feet)      |        |              | Time:           |
|                 |                          | Casing Volume     | multipliers: 1"=(.04)  | 2"=(.16) 3"=(.3                    | 7) 4"=(.65)<br>I | Ī               | 1                 |                |        | 1            |                 |
|                 | Volume<br>Removed        | Temp              | Conductivity           | Dissolved 0 <sub>2</sub><br>(mg/l) | pН               | ORP             | Turbidi           |                | Lovel  | Pump<br>Rate | Visual          |
| Time            | (gallons)                | (°C)<br>(+/- 3%)  | (umhos/cm)<br>(+/- 3%) | (+/- 10%)                          | (+/- 0.1)        | (mV)<br>(+/- 10 | (NTU)<br>(+/- 109 | ) (fth         |        | (gpm)        | Description     |
|                 | (milliliters)            | (+/- 5 /6)        | (+/- 3/6)              |                                    |                  | (+/- 10         | (+)-10,           | /6)            |        | (ml/m)       |                 |
|                 |                          |                   |                        |                                    |                  |                 |                   |                |        |              | Murky           |
| 10:09           | 3.1                      | 59                | 2544                   | 3.5                                | 7.88             | -94.3           |                   |                |        |              | brown           |
|                 |                          |                   |                        |                                    |                  |                 |                   |                |        |              |                 |
|                 |                          |                   |                        |                                    |                  |                 |                   |                |        |              | Murky           |
| 10:30           | 6.2                      | 68                | 2234                   | 0.60                               | 7.95             | -35.6           |                   |                |        |              | brown           |
|                 |                          |                   | <u> </u>               | <u></u>                            |                  |                 |                   |                |        |              |                 |
|                 |                          | İ                 |                        |                                    |                  |                 |                   |                |        |              | Murky           |
| 10:45           | 3.3                      | 68.6              | 2893                   | 1.8                                | 7.96             | -19.3           |                   |                |        |              | brown           |
|                 |                          | ļ                 |                        |                                    |                  |                 |                   |                |        |              |                 |
| !               |                          |                   |                        |                                    |                  |                 |                   |                |        |              |                 |
|                 |                          | ļ                 |                        |                                    |                  |                 |                   |                |        |              |                 |
|                 |                          |                   |                        |                                    |                  |                 |                   |                |        |              |                 |
|                 |                          |                   |                        |                                    | 1                | 1               |                   |                |        |              |                 |
|                 |                          |                   |                        |                                    |                  |                 |                   |                |        |              |                 |
|                 |                          |                   |                        |                                    |                  |                 |                   |                |        |              |                 |
|                 |                          |                   |                        |                                    |                  |                 |                   |                |        |              |                 |
|                 |                          |                   |                        |                                    |                  |                 |                   |                |        |              |                 |
| Analyses requ   |                          | Full S            |                        | Partial Suite                      |                  | PID/FID Re      | adings            |                |        | Readings:    | Sample Readings |
| ł               | ls - Rb-5 (field filtere | , .               | s U-hg, Anions, T      | DS, PAH, PCE                       | 3, P,            |                 | HNu               |                | TOC:   |              | TOC: NA         |
| 8260, Ra 226/2  | 27, Rn EDB, CN, P        | henol             |                        |                                    |                  |                 | OVA               |                | BZ: N  | Α            | BZ: NA          |
|                 |                          |                   |                        |                                    |                  |                 | Microtip          |                | Bkgd:  | : NA         | Bkgd: NA        |
| Additional Cor  |                          |                   |                        |                                    |                  |                 | Serial i          | No.:           |        |              |                 |
|                 | out of well: 164.6°F     |                   |                        |                                    |                  | Condition       |                   |                |        |              |                 |
| PPE Level: B    | CD                       |                   |                        |                                    |                  | Signature:      |                   |                |        |              |                 |



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|                 |  |                 |                       |                          |                 | Job No.:  | 11-517         | 7-00102       | Page              | e 1 of               |
|-----------------|--|-----------------|-----------------------|--------------------------|-----------------|-----------|----------------|---------------|-------------------|----------------------|
| Well No.        | -  | Purge E         | quipment              | Anal                     | ytical Equipm   | ent       | Sampler's I    | nitials       | Time              | Date                 |
| MW-2            | 2 & Dup  | 1.40" B         | ennett Pump           | pH meter (te             | emperature):    |           | EDK            | i             | 9:00**            | 11/25/2013           |
|                 |  | 1.80" B         | ennett Pump           | X YSI                    | 556             |           |                |               |                   | 1                    |
| Casing Diamet   | er (in.)   | Perista         | ític Pump             | Orio                     | n               |           |                | Met           | er Calibration    |                      |
|                 |  | Dedica          | ted Pump              | Oth                      | er:             |           | Time:          |               |                   |                      |
| 1               | .913   | 2" Grur         | ndfos                 | Serial No.:              |                 |           |                |               |                   |                      |
|                 |  | Waterra         | a Pump                |                          |                 |           | pH4            | =             | at                | _°C                  |
| Total Well Dep  | th (ft )   | X Geotec        | •                     | Conductivity             | / Meter:        |           | Lot #          |               | Exp.              |                      |
| rotal Well Dep  | (1)  | Other:          | р                     | X YSI                    |                 |           |                |               | ·                 |                      |
| 8               | 0.00   |                 |                       | Orio                     |                 |           | pH 7           | =             | at                | °C                   |
| v               | 0.00   |                 |                       | Oth                      |                 |           | Lot#           |               | Exp               | _                    |
| Static Water Lo |  | Serial Number:  |                       | Serial No.:              | C1.             |           |                |               |                   |                      |
| Static Water L  | ever (it.)   |                 |                       | - Selial IVo             |                 |           | nH 10          | _             | at                | °C                   |
| 60.0            | 8 TOC  |                 | Equipment             | -                        | Navaan Matar    |           | Lot #          |               | Exp.              | _                    |
| 09.8            | 6 100  |                 | Sennett Pump          |                          | )xygen Meter:   |           | LOC#           |               | LAP.              |                      |
|                 |  |                 | ennett Pump           | X YSI                    |                 |           | Canduatanaa St | andard: 141   | 13 umhos/cm Ot    | thor                 |
| Water Thickne   | ss (ft.)   |                 | Itic Pump             | Oth                      | er              |           | Conductance St | alluaru. 14   | 13 diffilos/cm Ot | ner.                 |
|                 | 44 5   |                 | ted Pump              | Serial No.               |                 |           |                |               |                   | 90                   |
| ~               | 11.5   | 2" Grur         |                       |                          |                 |           | Calibrated to  |               | umhos/cm at _     | °C                   |
|                 |  |                 | a Pump                | ORP Meter:               |                 |           |                |               | <b>.</b>          |                      |
| Casing Volum    | e (gal.)   |                 | ch Pump               | X YSI                    |                 |           | Lot #          |               | Exp.              |                      |
|                 |  | X Other:        | Bailer                | Oth                      | er              |           | Dissolved Oxyg |               |                   |                      |
| 1               | 1.70   |                 |                       | Serial No.               |                 |           | C:             | alibrated to  | mg                | g/I at°C             |
|                 | ··-  |                 |                       |                          |                 |           |                |               |                   |                      |
| Stick-up        | Screen Int.  | Serial Number   | :                     | Water Leve               | el Meter:       |           | Redox:         |               |                   |                      |
| ĺ               | 55-80  | Filtration      | Equipment:            | Ked                      | k               |           |                | Calibrated to | m                 | V at°C               |
| (ft.)           | (ft.)  | 0.45 Microi     | n Filter              | X Oth                    | er: Geotech     |           | Lot #          |               | Exp.              |                      |
| Purge Contain   | erized:  |                 |                       | Serial No.               |                 |           |                |               |                   |                      |
| <u>X</u> Yes _  | No   | Brand: Geoted   | ch                    |                          |                 |           | Sample Depth ( | feet)         |                   | Time:                |
|                 |  | Casing Volume n | nultipliers: 1"=(.04) | 2"=(.16) 3"=(.37         | 7) 4*=(.65)     |           | L              |               |                   | <u> </u>             |
| l               | Volume   | Temp            | Conductivity          | Dissolved 0 <sub>2</sub> | nU.             | ORP       | Turbidity      | WaterL        | Pump              | Visual               |
| Time            | Removed (gallons)  | (°C)            | (umhos/cm)            | (mg/l)<br>(+/- 10%)      | pH<br>(+/- 0.1) | (mV)      |                | (ft bg        |                   | Description          |
|                 | (milliliters)  | (+/- 3%)        | (+/- 3%)              | ,                        |                 | (+/- 10   | ) (+/- 10%)    |               | (ml/m)            |                      |
|                 |  |                 | 4-04                  |                          |                 | 105       |                | İ             |                   |                      |
|                 | 11 gal   | 64.3            | 1704                  | 2.34                     | 8.14            | 10.5      | NA             | NA            |                   | Cloudy gray          |
|                 |  | 37.2            | 2                     |                          |                 |           |                |               |                   | brown                |
|                 | 18 gal   | 64.1            | 1659                  | 2.28                     | 8.32            | 52.4      | . NA           | NA NA         |                   | Cloudy gray          |
|                 | 10 gai   | 37.5            | 1009                  | 2.20                     | 0.02            | 52.7      |                | ''            |                   | Cloudy gray<br>brown |
|                 |  | 37.3            |                       |                          |                 | +         |                | -             |                   | DIOWII               |
|                 | 24 gal   | 65.2            | 1650                  | 2.36                     | 8.24            | 57.7      | NA NA          | NA            |                   | Cloudy gray          |
|                 |  | 36.1            |                       |                          |                 |           |                |               |                   | brown                |
|                 | *29 gal  | 65.0            | 1703                  | 2.93                     | 8.59            | 36.2      | . NA           | NA            |                   |                      |
| j               | _ 23 gai   | 00.0            | 1700                  | 2.50                     | 0.00            | 00.2      | 1 17           | '''           |                   | Cloudy gray          |
|                 |  | 36.6            |                       |                          |                 |           |                | 1             |                   | colorless            |
|                 | 35 gal   | 61.4            | 1683                  | 2.40                     | 8.22            | 41.5      | NA NA          | NA            |                   | Slightly             |
|                 | 35 gai   |                 |                       | 2.40                     | 0.22            | 41.0      |                | "             |                   | cloudy gray          |
|                 |  | 37.2            |                       |                          |                 |           |                |               |                   | colorless            |
|                 |  | ? _             | 1657                  | 2.59                     | 8.52            | 57        | . NA           | NA NA         |                   | Slightly             |
|                 |  |                 | l                     | 2.55                     | 0.52            | 3'        | '\             | 111/          |                   | cloudy gray          |
|                 |  | 37.3            |                       |                          |                 |           |                |               |                   | colorless            |
|                 | L  |                 |                       |                          |                 | 1         |                |               |                   |                      |
| Analyses requ   | nalyses requested Full Suite                                       |                 |                       | Partial Suite            | e (explain)     | PID/FID R | eadings        |               | Initial Readings: | Sample Reading       |
| Dissolved meta  | ssolved metals (field filtered) - Rb-S, Total Metals-U-Hg, Anions, |                 |                       |                          | CB, P,          | NA_       | _HNu           |               | TOC: NA           | TOC: NA              |
| 8260            | 8260   |                 |                       |                          |                 | NA        | OVA            |               | BZ: NA            | BZ: NA               |
| *Pump down fo   | r appx. 1-hour   |                 |                       |                          |                 | NA        | Microtip       |               | Bkgd: NA          | Bkgd: NA             |
| Additional Co   | mments: **Duplica  | ite Sampled at  | this well simultar    | neously                  |                 |           | Serial No      | .:            |                   |                      |
| Appx. 8 gallons | removed by drillers  | during develop  | oment.                |                          |                 | Condition | of Well:       | New           |                   |                      |
| PPE Level: D    |  |                 |                       |                          |                 | Signature | :              |               |                   |                      |



#### **Lightning Dock Geothermal Monitoring**

|                |                     |                  |                        |                    |                | Job No.:        | 11-517           | -00102     |           | Page            | 1 of           |
|----------------|---------------------|------------------|------------------------|--------------------|----------------|-----------------|------------------|------------|-----------|-----------------|----------------|
| Well No.       |                     | Purge            | Equipment              | Anal               | lytical Equipn | nent            | Sampler's li     | nitials    | Time      |                 | Date           |
| MW-            | 2 & Dup             | 1.40* E          | Bennett Pump           | pH meter (to       | emperature):   |                 | EDK              |            | -         | 11:00           | 12/10/2013     |
|                |                     | 1.80" E          | Bennett Pump           | X YSI              | 556            |                 |                  |            |           |                 |                |
| Casing Diamet  | ter (in.)           | Perista          | Itic Pump              | Orio               | on             |                 |                  | Me         | ter Calib | ration          |                |
|                | . ,                 | Dedica           | ted Pump               | Oth                | er:            |                 | Time:            |            |           |                 |                |
| 1              | .913                | 2" Grui          | •                      | Serial No.:        |                |                 |                  |            |           |                 |                |
| Ĭ              |                     | <del></del>      | a Pump                 |                    |                |                 | pH <u>4</u>      | = 4.002    |           | at 15           | °C             |
| Total Well Dep | th (ft )            | _                | ch Pump                | Conductivity       | Motor:         |                 | Lot #            |            | Exp.      | _ u             |                |
| Total Well Dep | in (ii.)            |                  | Bailer                 | 1 '                | •              |                 | LOC #            |            | LAP.      |                 |                |
|                | 0.00                | A. Other.        | Daller                 | X YSI              |                |                 | pH7              | - 7.05     |           | ot 15           | °C             |
| °              | 0.00                |                  |                        | ——Orio             |                |                 | Lot #            | =7.05      |           | _ at15_         |                |
|                |                     |                  |                        | Oth                | er:            |                 | Lot#             |            | Exp       |                 |                |
| Static Water L | evel (ft.)          | Serial Number    |                        | Serial No.:        |                |                 |                  |            | _         |                 | 0.0            |
| _              |                     |                  | Equipment              |                    |                |                 | pH <u>10</u>     | =10.1      |           | at15            | °C             |
| 6              | 9.85                |                  | Bennett Pump           | 1                  | Oxygen Meter:  |                 | Lot #            |            | Exp.      |                 |                |
|                |                     | 1.80" E          | Bennett Pump           | X YSI              | 556            |                 |                  |            |           |                 |                |
| Water Thickne  | ss (ft.)            | Perista          | ıltic Pump             | Oth                | er             |                 | Conductance Sta  | andard: 14 | 13 umho   | os/cm Oth       | er:            |
|                |                     | Dedica           | ted Pump               | Serial No.         |                |                 |                  |            |           |                 |                |
| 1              | 1.35                | 2" Grui          | ndfos                  |                    |                |                 | Calibrated to    | _1413      |           | _ umhos/cm      | at15           |
|                |                     | Waterr           | a Pump                 | ORP Meter          |                |                 |                  |            |           |                 |                |
| Casing Volum   | e (gal.)            | Geoted           | ch Pump                | X YSI              | 556            |                 | Lot #            |            | Ехр.      |                 |                |
|                |                     | X Other:         | Bailer                 | Oth                | er             |                 | Dissolved Oxyge  | n:         |           |                 |                |
| 1              | 1.69                |                  |                        | Serial No.         |                |                 | Calibrated       | d to8      | .67       | mg/l at         | 15°C           |
|                |                     |                  |                        |                    |                |                 |                  |            |           |                 |                |
| Stick-up       | Screen Int.         | Serial Number    | :                      | Water Leve         | el Meter:      |                 | Redox:           |            |           |                 |                |
| 1.20           | 15-35               | Filtration       | Equipment:             | Ked                | k              |                 | Calibrate        | ed to2     | 29        | mV at           | 15°C           |
| (ft.)          | (ft.)               | 0.45 Micro       | n Filter               | X Oth              | er: Bailer     |                 | Lot#             |            | Exp.      |                 |                |
| Purge Contain  |                     | 1                |                        | Serial No.         |                |                 | Ì                |            |           |                 |                |
| _X Yes _       |                     | Brand: Geoted    | ch                     |                    |                |                 | Sample Depth (fo | eet)       |           |                 | Time:          |
|                |                     |                  | nultipliers: 1"=(.04   | ) 2"=(.16) 3"=(.37 | 7) 4"=(.65)    |                 | 1                | ,          |           |                 |                |
|                | Volume              |                  |                        | Dissolved 02       |                |                 | <del>'-</del>    |            |           | Pump            |                |
| Time           | Removed             | Temp             | Conductivity           | (mg/l)             | рН             | ORP             | Turbidity        | WaterL     | _evel     | Rate            | Visual         |
| Time           | (gallons)           | (°C)<br>(+/- 3%) | (umhos/cm)<br>(+/- 3%) | (+/- 10%)          | (+/- 0.1)      | (mV)<br>(+/- 10 |                  | (ft bg     | ıs)       | (gpm)<br>(ml/m) | Description    |
|                | (milliliters)       |                  |                        |                    |                |                 |                  | ļ          |           | (1112111)       |                |
|                |                     |                  |                        |                    |                |                 |                  |            |           |                 | Cloudy         |
|                |                     | 67.4             | 1744                   | 2.93               | 6.58           | 117.1           |                  | NA NA      | .         | NA              | translucent    |
|                |                     | 36.0             |                        |                    |                |                 |                  |            |           |                 | brown          |
|                |                     |                  |                        |                    |                |                 |                  |            |           |                 |                |
|                | ł                   | 67.2             | 1719                   | 2.40               | 7.64           | 90.6            |                  | NA         |           | NIA             | Cloudy         |
|                |                     |                  |                        | 2.40               | 7.64           | 82.6            |                  | INA        | ·         | NA              | translucent    |
|                |                     | 33.9             |                        |                    |                | -               |                  |            | -         |                 | brown          |
|                |                     |                  |                        |                    |                | 1               |                  |            |           |                 | Cloudy         |
|                |                     | 68.3             | 1725                   | 2.65               | 7.85           | 77.5            |                  | NA         |           | NA              | translucent    |
|                |                     | 32.5             |                        |                    |                |                 |                  |            |           |                 | brown          |
|                |                     |                  |                        |                    |                |                 |                  | i          |           |                 |                |
|                |                     |                  |                        |                    |                |                 |                  |            |           |                 |                |
|                |                     |                  |                        |                    |                |                 |                  |            |           |                 |                |
|                |                     |                  |                        |                    |                |                 |                  |            |           |                 |                |
|                |                     |                  |                        |                    |                |                 |                  |            |           |                 |                |
|                |                     |                  |                        |                    |                |                 |                  |            |           |                 |                |
|                |                     |                  |                        |                    |                |                 |                  |            |           |                 |                |
|                |                     |                  |                        |                    |                |                 |                  |            |           |                 |                |
| Analyses requ  | ested               | Full Su          | ite                    | Partial Suite      | e (explain)    | PID/FID Re      | eadings          |            | Initial F | Readings:       | Sample Reading |
|                | anide, 504.1, Pheno |                  |                        |                    | , ,,           | NA NA           | HNu              |            | TOC:      |                 | TOC: NA        |
|                |                     |                  |                        |                    |                | NA NA           | OVA              |            | BZ: NA    |                 | BZ: NA         |
|                |                     |                  |                        |                    |                | NA<br>NA        | - Microtip       |            |           |                 |                |
| Additional Car | nmente:             |                  |                        |                    |                | IVA             | -                |            | Bkgd: N   | 10              | Bkgd: NA       |
| Additional Cor | mnents:             |                  |                        |                    |                | 0               | Serial No.:      |            |           |                 |                |
|                |                     |                  |                        |                    |                | Condition       |                  |            |           |                 |                |
| PPE Level: D   |                     |                  |                        |                    |                | Signature:      | :                |            |           |                 |                |



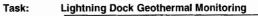
# amec<sup>(5)</sup>

|                 |                          |                  |                            |                  | J             | lob No.:     | 11-517             | -00102         | Page             | 1 of          |
|-----------------|--------------------------|------------------|----------------------------|------------------|---------------|--------------|--------------------|----------------|------------------|---------------|
| Well No.        |                          | Purge E          | quipment                   | Anal             | ytical Equipm | ent          | Sampler's li       | nitials Ti     | me               | Date          |
| M               | W-3                      | 1.40" B          | ennett Pump                | pH meter (te     | emperature):  |              | EDK                |                | 22:00            | 11/24/2013    |
|                 |                          | 1.80" B          | ennett Pump                | X YSI            | 556           |              |                    |                |                  |               |
| Casing Diamet   | er (in.)                 | Perista          | ltic Pump                  | Orio             | n             |              |                    | Meter          | Calibration      |               |
|                 |                          | Dedica           | ted Pump                   | Oth              | er:           |              | Time:              |                |                  |               |
| 1.              | .913                     | 2" Grur          | ndfos                      | Serial No.:      |               |              | l                  |                |                  |               |
|                 |                          | Waterr           | a Pump                     |                  |               |              | pH <u>4</u>        | =              | _ at             | °C            |
| Total Well Dep  | th (ft.)                 | Geoted           | h Pump                     | Conductivity     | Meter:        |              | Lot#               | Ex             | ¢ρ.              |               |
|                 | , ,                      | X Other:         | Bailer                     | X YSI            | 556           |              |                    |                |                  |               |
| 8               | 0.00                     |                  |                            | Orio             | on            |              | pH7                | =              | _ at             | °C            |
|                 |                          |                  |                            | Oth              | er:           |              | Lot #              | Ex             |                  |               |
| Static Water Le | evel (ft.)               | Serial Number    | :                          | Serial No.:      |               |              |                    |                |                  |               |
|                 | ` ,                      | Sample           | Equipment                  | 7                |               |              | pH10               | =              | _ at             | °C            |
| 73.€            | 6 TOC                    |                  | Jennett Pump               | Dissolved C      | xygen Meter:  |              | Lot #              |                | φ.               |               |
|                 |                          |                  | Bennett Pump               | X YSI            | , -           |              |                    |                |                  |               |
| Water Thickne   | ss (ft.)                 |                  | Itic Pump                  | Oth              |               |              | Conductance Sta    | andard: 1413   | umhos/cm Oth     | er:           |
|                 | (,                       |                  | ted Pump                   | Serial No.       |               |              | 1                  |                |                  |               |
|                 | -7.8                     | 2" Grui          |                            |                  |               |              | Calibrated to      |                | _ umhos/cm at    | °C            |
|                 |                          |                  | a Pump                     | ORP Meter:       |               |              |                    |                |                  |               |
| Casing Volum    | e (gal.)                 | _                | ch Pump                    | X YSI            |               |              | Lot#               | Ex             | φ.               |               |
|                 | ,                        | X Other:         | ,                          | Oth              |               |              | Dissolved Oxyge    |                |                  |               |
|                 | -1.2                     |                  |                            | Serial No.       |               |              |                    |                | mg/              | lat°(         |
|                 |                          |                  |                            |                  |               |              |                    |                | _ •              | <u>-</u>      |
| Stick-up        | Screen Int.              | Serial Number    | :                          | Water Leve       | el Meter:     |              | Redox:             |                |                  |               |
|                 | 55-80                    | Filtration       | Equipment:                 | Ked              | k             |              | С с                | alibrated to _ | mV               | at°(          |
| (ft.)           | (ft.)                    | 0.45 Micro       |                            | X Oth            | er: Geotech   |              | Lot #              |                | φ.               |               |
| Purge Contain   |                          |                  |                            | Serial No.       |               |              |                    |                |                  |               |
| X_Yes _         |                          | Brand: Geoted    | ch                         |                  |               |              | Sample Depth (f    | eet)           |                  | Time:         |
|                 |                          | Casing Volume r  | nultipliers: 1"=(.04)      | 2"=(.16) 3"=(.37 | 7) 4"=(.65)   |              |                    |                |                  | 22:00         |
|                 | Volume                   | _                |                            | Dissolved 0,     |               | 000          |                    |                | Pump             |               |
| Time            | Removed                  | Temp<br>(°C)     | Conductivity<br>(umhos/cm) | (mg/l)           | pH            | ORP<br>(mV)  | Turbidity<br>(NTU) | Water Lev      | el Rate (gpm)    | Visual        |
|                 | (gallons)                | (+/- 3%)         | (+/- 3%)                   | (+/- 10%)        | (+/- 0.1)     | (+/- 10      | (+/- 10%)          | (ft bgs)       | (ml/m)           | Description   |
|                 |                          |                  |                            |                  |               | <del> </del> |                    |                | <del></del>      | 1             |
|                 | 4                        | 73.9             | 1938                       | 2.11             | 8.83          | -65.1        | NA                 | NA             | NA               | Cloudy        |
|                 |                          | 32.2             |                            |                  |               |              |                    |                |                  | gray brown    |
|                 | 5                        | 75.1             | 1745                       | 1.81             | 9.25          | -89.7        | NA                 | NA             | NA               | Cloudy        |
|                 |                          | 34.5             |                            | 1.01             | 0.20          | "            | 1                  |                |                  | gray brown    |
|                 |                          |                  |                            |                  |               |              |                    | <u> </u>       |                  |               |
|                 | 6                        | 74.2             | 1737                       | 3.50             | 9.33          | -75.6        | NA NA              | NA             | NA               | Cloudy        |
|                 |                          | 23.7             |                            |                  |               |              |                    |                |                  | gray brown    |
|                 | 7                        | 71.0 _           | 1733                       | 3.81             | 9.44          | -88.1        | NA                 | NA             | NA               | Cloudy        |
|                 |                          | 22.1             |                            |                  |               |              |                    |                |                  | gray brown    |
| . 100           |                          |                  | 4=40                       | 0 = -            |               | ,===         |                    |                |                  |               |
|                 | 8                        | 74.9             | 1710                       | 3.72             | 9.40          | -152.7       | ' NA               | NA             | NA               | Cloudy        |
|                 |                          | 26.3             |                            |                  |               |              |                    |                |                  | gray browr    |
|                 | 9                        | 77.2             | 1707                       | 4.94             | 9.28          |              | · NA               | NA             | NA               | Cloudy        |
|                 |                          | 25.6             |                            |                  |               |              |                    |                |                  | gray browr    |
|                 |                          |                  |                            |                  |               |              |                    |                |                  |               |
|                 |                          |                  |                            |                  |               |              |                    |                |                  |               |
|                 |                          |                  |                            |                  |               |              |                    |                |                  |               |
|                 |                          |                  |                            |                  |               |              |                    |                |                  |               |
| Analyses requ   | ested                    | Full St          | uite                       | Partial Suite    | e (explain)   | PID/FID R    | eadings            | Ir             | nitial Readings: | Sample Readin |
| Dissolved meta  | als - Rb-S (field filter | ed, Total Metals | s - u-Hg, Anions,          | TDS,             |               | NA           | HNu -              | T              | OC: NA           | TOC: NA       |
| PAH, PCB, P,    | 8260                     |                  |                            |                  |               | NA           | OVA                | В              | Z: NA            | BZ: NA        |
|                 |                          |                  |                            |                  |               | NA           | Microtip           | В              | kgd: NA          | Bkgd: NA      |
| Additional Co   | mments: Approx. 3        | gallons remov    | ed by                      |                  |               |              | Serial No.         | :              |                  |               |
|                 | development. Subm        |                  |                            | 1                |               | Condition    | of Well:           |                |                  |               |
| PPE Level: D    |                          |                  |                            |                  |               | Signature    | :                  |                |                  |               |



**Lightning Dock Geothermal Monitoring** 

|                 |                            |                 |                       |                          |                 | Job No.:   | 11-517           | -00102        |              | Page         | 1 of                  |
|-----------------|----------------------------|-----------------|-----------------------|--------------------------|-----------------|------------|------------------|---------------|--------------|--------------|-----------------------|
| Well No.        |                            | Purge           | Equipment             | Anal                     | ytical Equipm   | ent        | Sampler's In     | itials        | Time         |              | Date                  |
| M               | W-3                        | 1.40" E         | Bennett Pump          | pH meter (te             | emperature):    |            | EDK              |               | 20:3         | 0            | 12/10/2013            |
|                 |                            | 1.80" E         | Bennett Pump          | X YSI                    | 556             |            |                  |               |              |              |                       |
| Casing Diamet   | er (in.)                   | Perista         | ltic Pump             | Orio                     | on              |            |                  | Met           | er Calibrati | on           |                       |
| _               |                            | Dedica          | ted Pump              | Oth                      | er:             |            | Time:            |               |              |              |                       |
| 1.              | 913                        | 2" Grui         | -                     | Serial No.:              |                 |            |                  |               |              |              |                       |
|                 |                            | Waterr          | a Pump                |                          |                 |            | pH <u>4002</u>   | =             | 3.72         | at           | _15°C                 |
| Total Well Dep  | th (ft.)                   |                 | ch Pump               | Conductivity             | Meter:          |            | Lot #            | 3AF099        |              |              |                       |
|                 |                            | X Other:        | •                     | X YSI                    |                 |            |                  |               |              |              |                       |
| 80              | 0.00                       |                 |                       | Orio                     |                 |            | pH 7.05          | =7            | .43 at       | 15           | °C                    |
|                 |                            |                 |                       | Oth                      |                 |            | Lot #            | 3AE725        | Ехр          |              |                       |
| Static Water Le | evel (ft.)                 | Serial Number   | :                     | Serial No.:              |                 |            |                  |               |              |              |                       |
|                 | , ,                        |                 | Equipment             | 7                        |                 |            | pH <u>10.12</u>  | =9            | 0.67 at _    | 15           | °C                    |
| 73              | 3.24                       |                 | Bennett Pump          | Dissolved C              | xygen Meter:    |            | Lot #            | 3AE634        | Ехр.         |              |                       |
|                 |                            | _               | Bennett Pump          | X YSI                    |                 |            |                  |               |              |              |                       |
| Water Thickne   | ss (ft.)                   |                 | Itic Pump             | Oth                      |                 |            | Conductance Sta  | ındard: 141   | 3 umhos/cr   | n Oth        | er:                   |
|                 | -                          | _               | ted Pump              | Serial No.               |                 |            |                  |               |              |              |                       |
| 7               | .85                        | 2" Gru          |                       |                          |                 |            | Calibrated to    | 1413          | umhos/o      | cm at _      | 15°C                  |
|                 |                            | Waterr          | a Pump                | ORP Meter:               |                 |            |                  |               |              |              |                       |
| Casing Volume   | (gal.)                     | Geoted          | ch Pump               | X YSI                    | 556             |            | Lot #            |               | Ехр.         |              |                       |
|                 |                            | X Other:        | Bailer                | Oth                      | er              |            | Dissolved Oxyge  | n:            |              |              |                       |
| 1               | .17                        |                 |                       | Serial No.               |                 |            | Ca               | librated to _ | 8.67         | mg           | /I at15°C             |
|                 |                            |                 |                       |                          |                 |            |                  |               |              |              |                       |
| Stick-up        | Screen Int.                | Serial Number   | :                     | Water Leve               | el Meter:       |            | Redox:           |               |              |              |                       |
| 1.09            | 55-80                      | Filtratio       | n Equipment:          | Ked                      | :k              |            |                  | Calibrated    | to229_       |              | _mV at15°C            |
| (ft.)           | (ft.)                      | 0.45 Micro      | n Filter              | X Oth                    | er: Geotech     |            | Lot #            |               | Exp.         |              |                       |
| Purge Contain   | erized:                    |                 |                       | Serial No.               |                 |            |                  |               |              |              |                       |
| X_Yes           | No                         | Brand: Geoted   | ch                    |                          |                 |            | Sample Depth (fe | eet)          |              |              | Time:                 |
|                 |                            | Casing Volume n | nultipliers: 1"=(.04) | 2"=(.16) 3"=(.37)        | 4"=(.65)        |            |                  |               |              |              | 12:10                 |
|                 | Volume                     | Temp            | Conductivity          | Dissolved 0 <sub>2</sub> |                 | ORP        | Turbidity        |               |              | ump          |                       |
| Time            | Removed                    | (°C)            | (umhos/cm)            | (mg/l)<br>(+/- 10%)      | pH<br>(+/- 0.1) | (mV)       | (NTU)            | Water Le      |              | Rate<br>gpm) | Visual<br>Description |
|                 | (gallons)<br>(milliliters) | (+/- 3%)        | (+/- 3%)              | (+/- 10%)                | (+/- 0.1)       | (+/- 10    | ) (+/- 10%)      | (it bys       |              | nl/m)        | Description           |
|                 |                            |                 | 4.0                   | 4                        |                 |            |                  |               |              |              | -                     |
|                 | 1.2                        | 84.2            | 1870                  | 1.59                     | 8.11            | -161.8     |                  | NA            |              | NA           | Cloudy                |
|                 |                            | 33.8            |                       |                          |                 |            |                  |               |              |              | Translucent           |
|                 | 2.4                        | 84.7            | 1839                  | 0.98                     | 8.24            | -173.6     |                  | NA            |              | NA           | Cloudy                |
|                 |                            | 42.0            |                       | 2.00                     | J.L.            |            |                  | ''''          |              |              | Translucent           |
|                 |                            |                 | 1001                  | 4.67                     | 2.2:            | 055        |                  | <b></b>       |              |              |                       |
|                 | 3.5                        | 85.7            | 1861                  | 1.27                     | 8.64            | -220.4     |                  | NA            |              | NA           | Cloudy                |
|                 |                            | 37.3            |                       |                          |                 |            |                  |               |              |              | Translucent           |
|                 |                            |                 |                       |                          |                 |            |                  |               |              |              |                       |
|                 |                            |                 |                       |                          |                 |            |                  | -             |              |              | -                     |
|                 |                            |                 |                       |                          |                 |            |                  |               |              |              |                       |
|                 |                            |                 |                       |                          |                 |            |                  |               |              |              |                       |
|                 |                            |                 |                       |                          |                 |            |                  |               |              |              |                       |
|                 |                            |                 |                       |                          |                 |            |                  |               |              |              |                       |
|                 |                            |                 |                       |                          |                 |            |                  | L             |              |              |                       |
|                 |                            |                 |                       |                          |                 |            |                  |               |              |              |                       |
|                 |                            |                 |                       |                          |                 |            |                  |               |              |              |                       |
|                 |                            |                 |                       |                          |                 |            |                  |               |              |              |                       |
|                 |                            |                 |                       |                          | 1               | <u> </u>   |                  |               |              |              |                       |
| Analyses requ   | ested                      | Full Su         | iite                  | Partial Suite            | e (explain)     | PID/FID Re |                  |               | Initial Read | ings:        | Sample Readings       |
| f.,             | - 5044 5 005               |                 |                       |                          |                 | NA         | -HNu             |               | TOC: NA      |              | TOC: NA               |
| phenois, cynaid | e, 504.1, Ra 226/2         | 2/              |                       |                          |                 | NA NA      | OVA              |               | BZ: NA       |              | BZ: NA                |
|                 |                            |                 |                       |                          |                 | NA_        | _Microtip        |               | Bkgd: NA     |              | Bkgd: NA              |
| Additional Cor  | nments                     |                 |                       |                          |                 | Condition  | Serial No.:      | New           |              |              |                       |
| DDE Lovol: D    |                            |                 |                       | Signature                |                 | 14044      |                  |               |              |              |                       |
| PPE Level: D    |                            |                 |                       |                          | i               | vignature  |                  |               |              |              |                       |



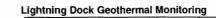


| SVOA QC           | SAMPLE                    |                   |                        |                          | ,               | Job No.:        | 11-517          | -00102         | Page                | 1 of          |
|-------------------|---------------------------|-------------------|------------------------|--------------------------|-----------------|-----------------|-----------------|----------------|---------------------|---------------|
| Well No.          |                           | Purge             | Equipment              | Analy                    | ytical Equipm   | ent             | Sampler's I     | nitials Ti     | me                  | Date          |
| M                 | W-4                       | 1.40" B           | ennett Pump            | pH meter (te             | emperature):    |                 | EDK             |                | 14:35               | 11/24/2013    |
|                   |                           | 1.80" B           | ennett Pump            | X YSI                    | 556             |                 |                 |                |                     |               |
| Casing Diamet     | er (in.)                  | Peristal          | tic Pump               | Orio                     | n               |                 |                 | Meter          | Calibration         |               |
|                   |                           | Dedicat           | ted Pump               | Othe                     | er:             |                 | Time:           |                |                     |               |
| 1                 | .913                      | 2" Grun           | idfos                  | Serial No.:              |                 |                 |                 |                |                     |               |
|                   |                           | Waterra           | a Pump                 |                          |                 |                 | pH <u>4</u>     | =              | _ at                | °C            |
| Total Well Dep    | th (ft.)                  | Geotec            | h Pump                 | Conductivity             | Meter:          |                 | Lot #           | Ex             | ¢ρ.                 |               |
|                   |                           | X Other:          | Bailer                 | X YSI                    | 556             |                 |                 |                |                     | 0-            |
|                   | -80'                      |                   |                        | Orio                     |                 |                 | pH7             |                |                     | °C            |
|                   |                           |                   |                        | Othe                     | er:             |                 | Lot #           | Ex             | ф                   |               |
| Static Water Lo   | evel (ft.)                | Serial Number:    |                        | Serial No.:              |                 |                 | pH10            |                | -4                  | °C            |
| 67.6              | e TOC                     |                   | Equipment              |                          |                 |                 | DH10<br>Lot #   |                |                     |               |
| 67.6              | 6 TOC                     | _                 | ennett Pump            |                          | xygen Meter:    |                 | Lot #           | E)             | φ.                  |               |
|                   | (5)                       |                   | ennett Pump            | X YSI                    |                 |                 | Conductance St  | andard: 1413   | umhos/cm Oth        | ner:          |
| Water Thickne     | ss (ft.)                  |                   | tic Pump               | Othe<br>Serial No.       | er              |                 | Conductance 3   | andard. 1415   | annos/em Ou         | iei.          |
| _                 | 13.8                      | 2" Grur           | ted Pump               | Serial No.               |                 |                 | Calibrated to   |                | _ umhos/cm at _     | °C            |
| ~                 | 13.0                      |                   | a Pump                 | ORP Meter:               |                 |                 | Calibrated to   |                | _ dillios/cill at _ | 0             |
| Casing Volum      | e (gal.)                  |                   | h Pump                 | X YSI                    |                 |                 | Lot #           | E              | rp.                 |               |
| Casing Volum      | e (gai.)                  | X Other:          | ,                      | Oth                      |                 |                 | Dissolved Oxyge |                | Τ.                  |               |
|                   | 2.10                      | - Outer.          | Ballot                 | Serial No.               | 01              |                 | , ,             |                | mg/                 | 1at°(         |
|                   |                           |                   |                        |                          |                 |                 |                 |                |                     |               |
| Stick-up          | Screen Int.               | Serial Number     | :                      | Water Leve               | el Meter:       |                 | Redox:          |                |                     |               |
| 1.38              | 55-80                     | Filtration        | n Equipment:           | Kec                      | :k              |                 | C               | alibrated to _ | m\                  | at°           |
| (ft.)             | (ft.)                     | 0.45 Microi       | n Filter               | X Oth                    | er: Geotech     |                 | Lot #           | E              | κp.                 |               |
| Purge Contair     | erized:                   |                   |                        | Serial No.               |                 |                 |                 |                |                     |               |
| _ <u>X</u> _Yes _ | No                        | Brand: Geoted     | h                      |                          |                 |                 | Sample Depth (f | feet)          |                     | Time:         |
|                   |                           | Casing Volume m   | nultipliers: 1"=(.04)  | 2"=(.16) 3"=(.37)        | 4"=(.65)        | 1               | L,              |                |                     | ļ             |
|                   | Volume                    | Temp              | Conductivity           | Dissolved 0 <sub>2</sub> | الم             | ORP             | Turbidity       | Water Lev      | Pump<br>Rate        | Visual        |
| Time              | Removed (gallons)         | (°C)              | (umhos/cm)<br>(+/- 3%) | (mg/l)<br>(+/- 10%)      | pH<br>(+/- 0.1) | (mV)<br>(+/- 10 |                 | (ft bgs)       | (gpm)               | Description   |
|                   |                           | (+/- 3%)          | (+/- 376)              |                          |                 | (4/- 10         | (47-1078)       |                | (ml/m)              |               |
|                   | 22                        | 44.9 /            | 3912                   | 2.98                     | 7.64            | 33.7            | NA              | NA             | ~1.3                | Cloudy        |
|                   |                           | 34.1              |                        |                          |                 |                 |                 |                |                     | Brown         |
|                   | 26                        | 45.4              | 3883                   | 2.07                     | 7.56            |                 | . NA            | NA             |                     | Cloudy        |
|                   |                           | 38.1              |                        |                          |                 |                 |                 |                |                     | Brown         |
|                   | 30                        | 45.7              | 3901                   | 1.91                     | 7.47            | 77.5            | NA NA           | NA             |                     | Cloudy        |
|                   |                           | 35.7              |                        |                          |                 |                 |                 |                |                     | Brown         |
| 12:30             | 33                        | 44.2              | 3812                   | 1.87                     | 7.48            | 75              | NA NA           | NA             |                     | Cloudy        |
|                   |                           | 37.2              |                        |                          |                 |                 |                 |                |                     | Brown         |
|                   | 35                        | 45.2              | 3818                   | 2.0                      | 7.49            | 68.1            | NA              | NA             |                     | Cloudy        |
|                   |                           | 37.7              |                        |                          |                 |                 |                 | <u> </u>       |                     | Brown         |
|                   |                           |                   |                        | . = -                    |                 |                 |                 |                |                     | Slightly      |
|                   |                           | 45.0              | 3786                   | 1.74                     | 7.48            | 66.1            | NA              | NA             |                     | cloudy        |
|                   |                           | 36.6              |                        |                          |                 |                 |                 | 111            |                     | colorless     |
|                   | 40                        | 44.6              | 3773                   | 2.0                      | 7.49            | 63.4            | l NA            | NA             |                     |               |
|                   | 40                        | 36.6              |                        | 1.01                     | 7.5             | 60.0            | NA              | NA             |                     | <del> </del>  |
|                   | 43                        | 44.6              | 3760                   | 1.81                     | 7.5             | 63.2            | . NA            | INA            |                     |               |
|                   |                           | 30.7              |                        |                          |                 |                 |                 |                |                     | <del> </del>  |
| Analyses requ     | ested                     | Full Su           | ite                    | Partial Suite            | e (explain)     | PID/FID R       | eadings         | Ir             | nitial Readings:    | Sample Readin |
| Dissolved Meta    | als - Rb - S (field filte | ered), Total Meta | als - u - Hg, Anior    | ns, TDS, PAH,            |                 | NA              | _HNu            | T              | OC: NA              | TOC: NA       |
| PCB, P, 8260      |                           |                   |                        |                          |                 | NA              | OVA             | В              | Z: NA               | BZ: NA        |
|                   |                           |                   |                        |                          |                 | NA              | Microtip        | В              | kgd: NA             | Bkgd: NA      |
| Additional Co     |                           |                   |                        |                          |                 |                 | Serial No.      | <i>:</i>       |                     |               |
| Appx. 20 gailo    | ns removed by drille      | rs during develo  | opment                 |                          |                 | Condition       | of Well:        | New            |                     |               |
| PPE Level: D      |                           |                   |                        |                          |                 | Signature       | :               |                |                     |               |





|                                 |                                |                          |  |   |                 | Job No.:                     | 11-5                              | 17-00102       |                                   | Page                            | 1 of  |
|---------------------------------|--------------------------------|--------------------------|--|---|-----------------|------------------------------|-----------------------------------|----------------|-----------------------------------|---------------------------------|---|
| Well No.                        |                                | Purge                    | Equipment                              | Anal  | ytical Equipn   | nent                         | Sampler's                         | s Initials     | Time                              |                                 | Date  |
| M                               | IW-4                           | 1.40" B                  | Sennett Pump                           | pH meter (te                                    | mperature):     |                              | EDK                               |                |                                   | 18:00                           | 12/9/2013                                       |
|                                 |                                | 1.80" B                  | Sennett Pump                           | X YSI   | 556             |                              |                                   |                |                                   |                                 |   |
| Casing Diamet                   | er (in.)                       | Perista                  | ltic Pump                              | Orio  | n               |                              |                                   | Me             | ter Cal                           | ibration                        |   |
|                                 |                                | Dedica                   | ted Pump                               | Othe  | er:             |                              | Time:                             |                |                                   |                                 |   |
| 1                               | .913                           | 2" Grun                  | ndfos                                  | Serial No.:                                     |                 |                              |                                   |                |                                   |                                 |   |
|                                 |                                | Waterr                   | a Pump                                 |   |                 |                              | pH <u>4</u>                       | =              | at                                |                                 | c   |
| Total Well Dep                  | th (ft.)                       |                          | h Pump                                 | Conductivity                                    | Meter:          |                              | Lot #                             | 3AF099         |                                   |                                 |   |
|                                 | ,                              | X Other:                 |  | X YSI   |                 |                              |                                   |                |                                   |                                 |   |
| 8                               | 0.00                           |                          |  | Orio  |                 |                              | pH7                               | _ =            | at                                |                                 | C   |
|                                 |                                |                          |  | Othe  |                 |                              | Lot #                             | 3AE725         |                                   |                                 |   |
| Static Water L                  | evel (ft.)                     | Serial Number:           |  | Serial No.:                                     |                 |                              |                                   |                |                                   |                                 |   |
|                                 |                                |                          | Equipment                              | 7   |                 |                              | pH10                              | _=             | at                                |                                 | C   |
| 67.6                            | 8 TOC                          |                          | Sennett Pump                           | Dissolved O                                     | xygen Meter:    |                              | Lot#                              | 3AE634         |                                   |                                 |   |
|                                 |                                |                          | Sennett Pump                           | X YSI   | , ,             |                              |                                   |                |                                   | <b>0</b> C. 12                  |   |
| Water Thickne                   | ee (ft )                       |                          | Itic Pump                              | Othe  |                 |                              | Conductance                       | Standard: 14   | 113 umh                           | nos/cm Othe                     | r:  |
| Water Company                   | 33 (10)                        | _                        | ted Pump                               | Serial No.                                      |                 |                              |                                   |                |                                   |                                 |   |
| 1                               | 3.70                           | 2" Grur                  | •                                      | 00114.115.                                      |                 |                              | Calibrated to                     |                | un                                | nhos/cm at                      | °C  |
| •                               | 3.70                           |                          | a Pump                                 | ORP Meter:                                      |                 |                              | Cambiated to                      |                | u                                 | IIII US/CIII at                 |   |
| Casina Valum                    | - (aal )                       |                          | ch Pump                                | X YSI   |                 |                              | Lot #                             | 3AF774         | Evn                               | 06/14                           |   |
| Casing Volum                    | e (gai.)                       | X Other:                 | •                                      | Othe  |                 |                              | Dissolved Oxy                     |                | LAP.                              | 00/14                           |   |
| ,                               | 2.05                           | Other:                   | baller                                 |   | er              |                              |                                   | -              |                                   | ma/l                            | at°C  |
| •                               | 2.05                           |                          |  | Serial No.                                      |                 |                              |                                   | Calibrated to  |                                   | mg/i a                          | at C  |
| 0::1                            |                                |                          |  | Material and                                    | .1.5.4          |                              | D. des                            |                |                                   |                                 |   |
| Stick-up                        | Screen Int.                    | Serial Number:           |  | Water Leve                                      |                 |                              | Redox:                            | 0              |                                   | .,,                             |   |
| 1.38                            | 55-80                          |                          | Equipment:                             | Kec   |                 |                              | 1 -4 "                            |                |                                   |                                 | at°C  |
| (ft.)                           |                                | 0.45 Micror              | 1 Filter                               |   | er: Geotech     |                              | Lot #                             | 3AE866         | Exp.                              | 02/14                           |   |
| Purge Contain                   |                                | 1                        |  | Serial No.                                      |                 |                              |                                   |                |                                   |                                 |   |
| _ <u>X</u> _Yes                 | No                             | Brand: Geotec            |  |   |                 |                              | Sample Depth                      | (feet)         |                                   |                                 | Time:   |
|                                 | 1                              | Casing Volume m          | nultipliers: 1"=(.04)                  | 2"=(.16) 3"=(.37)                               | 4"=(.65)        |                              | <u> </u>                          |                |                                   |                                 |   |
| Time                            | Volume<br>Removed<br>(gallons) | Temp<br>(°C)<br>(+/- 3%) | Conductivity<br>(umhos/cm)<br>(+/- 3%) | Dissolved 0 <sub>2</sub><br>(mg/l)<br>(+/- 10%) | pH<br>(+/- 0.1) | ORP<br>(mV)<br>(+/- 10       |                                   | water<br>(ft b |                                   | Pump<br>Rate<br>(gpm)<br>(ml/m) | Visual<br>Description                           |
|                                 | 2                              | 49.8                     | 4234                                   | 1.84  | 7.19            | 36.3                         |                                   | NA             | ١                                 | NA                              | Cloudy<br>Brown                                 |
|                                 | 4                              | 50.2                     | 3986                                   | 1.59  | 7.23            | 40.0                         |                                   | NA             | ١                                 | NA                              | Cloudy<br>Brown                                 |
|                                 | 6                              | 49.7                     | 3955                                   | 1.35  | 7.27            | 38.6                         |                                   | NA             |                                   | NA                              | Cloudy<br>brown                                 |
|                                 |                                |                          |  |   |                 |                              |                                   |                |                                   |                                 |   |
|                                 |                                |                          |  |   |                 |                              |                                   |                |                                   |                                 |   |
| Analyses requ<br>Ra 226/227, Ph | ested<br>nenol, Cyanide, EDE   | Full Su                  | ite                                    | Partial Suite                                   | (explain)       | PID/FID Re<br>NA<br>NA<br>NA | eadings<br>HNu<br>OVA<br>Microtip |                | Initial<br>TOC:<br>BZ: N<br>Bkgd: | A                               | Sample Reading<br>TOC: NA<br>BZ: NA<br>Bkgd: NA |
| Additional Cor                  | nments:                        |                          |  |   |                 | Condition                    |                                   | New            |                                   |                                 | P   |



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Task:

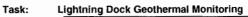


|                |                          |                   |                        |                                    |               | Job No.:        | _             | 11-517-            | 00102       |         | Page            | 1 of         |
|----------------|--------------------------|-------------------|------------------------|------------------------------------|---------------|-----------------|---------------|--------------------|-------------|---------|-----------------|--------------|
| Well No.       |                          | Purge E           | quipment               | Anal                               | ytical Equipm | ent             |               | Sampler's Ini      | tials       | Time    |                 | Date         |
| M              | W-5                      | 1.40" E           | Bennett Pump           | pH meter (te                       | emperature):  |                 |               | EDK                | - [         |         | 12:15           | 11/24/2013   |
|                |                          | 1.80" E           | ennett Pump            | X YSI                              | 556           |                 | L             |                    | l           |         |                 |              |
| Casing Diamet  | er (in.)                 | Perista           | ltic Pump              | Orio                               | on            |                 |               |                    | Mete        | er Cali | bration         |              |
|                |                          | Dedica            | ted Pump               | Oth                                | er:           |                 | Tim           | e:                 |             |         |                 |              |
| 1              | .913                     | 2" Grui           | ndfos                  | Serial No.:                        |               |                 |               |                    |             |         |                 |              |
|                |                          | Waterr            | a Pump                 |                                    |               |                 | рН.           | =                  |             | at      |                 | С            |
| Total Well Dep | th (ft.)                 | X Geoted          | •                      | Conductivity                       | / Meter:      |                 | Lot           |                    |             | Exp.    |                 |              |
| rotal Well Dep |                          | X Other:          | •                      | X YSI                              |               |                 |               |                    |             | •       |                 |              |
| 7              | 8.00                     | - A Other         | Dalici                 | Orio                               |               |                 | nН            | =                  |             | at      | o               | С            |
| •              | 0.00                     |                   |                        | Oth                                |               |                 | Lot           |                    |             | Exp     |                 |              |
|                | 1.00                     |                   |                        |                                    | er.           |                 | "             | π                  |             | Lvh     |                 |              |
| Static Water L | evel (ft.)               | Serial Number:    |                        | Serial No.:                        |               |                 |               | 10=                |             | -4      | 0               | ^            |
|                |                          |                   | Equipment              | -                                  |               |                 | 1             |                    |             |         |                 | C            |
| 76.0           | 1 BTOC                   |                   | Bennett Pump           |                                    | xygen Meter:  |                 | Lot           | #                  |             | Exp.    |                 |              |
|                |                          | 1.80" E           | Bennett Pump           | X YSI                              | 556           |                 |               |                    |             |         |                 |              |
| Water Thickne  | ss (ft.)                 | Perista           | ltic Pump              | Oth                                | er            |                 | Cor           | nductance Star     | ndard: 141  | 3 umh   | os/cm Othe      | r:           |
|                |                          | Dedica            | ted Pump               | Serial No.                         |               |                 |               |                    |             |         |                 |              |
|                | -3.5                     | 2" Gru            | ndfos                  |                                    |               |                 | Cal           | ibrated to         |             | um      | nhos/cm at      | °C           |
|                |                          | Wateri            | a Pump                 | ORP Meter:                         | :             |                 |               |                    |             |         |                 |              |
| Casing Volum   | e (gal.)                 | Geote             | ch Pump                | X YSI                              | 556           |                 | Lot           | #                  |             | Ехр.    |                 |              |
|                |                          | X Other:          | Bailer                 | Oth                                | er            |                 | Dis           | solved Oxyger      | 1:          |         |                 |              |
| ,              | ~ <b>0.5</b>             |                   |                        | Serial No.                         |               |                 |               | Cali               | brated to   |         | mg/l a          | at°          |
|                |                          |                   |                        |                                    |               |                 | -             |                    |             |         |                 |              |
| Stick-up       | Screen Int.              | Serial Number:    |                        | Water Leve                         | el Meter:     |                 | Red           | dox:               |             |         |                 |              |
| ouou ap        | 63-78                    |                   | Equipment:             | Ked                                |               |                 |               |                    | librated to |         | mV :            | at°          |
| (ft.)          |                          |                   |                        | X Oth                              |               |                 | Lot           |                    |             | Exp.    |                 |              |
| Purge Contain  |                          | 0.45 1/11/07      | ir i iii ci            | Serial No.                         |               |                 |               |                    |             |         |                 |              |
| X_Yes          |                          | Brand: Geote      | sh                     | ochanvo.                           |               |                 | Sar           | nple Depth (fe     | et)         |         |                 | Time:        |
|                | 110                      |                   | ultipliers: 1*=(.04)   | 2"-( 16) 3"-( 37)                  | 4"-( 65)      |                 | <b>-</b>  ``` | npie Deptii (ie    | etj         |         |                 | 11110.       |
|                |                          | Casing volume in  | maphers: 1 = (.04)     |                                    | 7 -(.55)      | 1               | щ             |                    |             |         | Pump            |              |
|                | Volume<br>Removed        | Temp              | Conductivity           | Dissolved 0 <sub>2</sub><br>(mg/l) | рH            | ORP             |               | Turbidity          | WaterL      | evel    | Rate            | Visual       |
| Time           | (gallons)                | (°C)<br>(+/- 3%)  | (umhos/cm)<br>(+/- 3%) | (+/- 10%)                          | (+/- 0.1)     | (mV)<br>(+/- 10 |               | (NTU)<br>(+/- 10%) | (ft bg:     | s)      | (gpm)<br>(ml/m) | Description  |
|                |                          | ( 575)            | ( 0.0)                 |                                    |               | ( )             |               |                    |             |         | (1112111)       |              |
|                |                          |                   |                        |                                    |               |                 |               |                    |             |         | ~1.3            | Yellowish    |
|                |                          |                   |                        |                                    |               |                 |               |                    |             |         | gpm             | gray,        |
|                | ~2                       | 35.2              | 3773                   | 1.9                                | 8.1           | 144.2           |               | NA                 | NA          |         | w/pump          | cloudy       |
|                |                          |                   |                        |                                    |               |                 |               |                    |             |         |                 |              |
|                |                          |                   |                        |                                    |               |                 |               |                    |             |         |                 |              |
|                |                          |                   |                        |                                    |               |                 |               |                    |             |         |                 |              |
|                |                          | Pum               | ped dry the            | n bailed dr                        | v. recover    | d an a          | ddit          | ional              |             |         |                 |              |
|                |                          |                   | n total (afte          |                                    | ,,            |                 |               |                    |             |         |                 |              |
| ·              |                          | Well              | did not go             | dry durina                         | sampling t    | he folio        | win           | a mornina          |             |         |                 |              |
|                |                          | 1                 |                        |                                    |               |                 |               | <b>y</b>           |             |         |                 |              |
|                |                          |                   |                        |                                    |               |                 |               |                    |             |         |                 |              |
|                |                          |                   |                        |                                    |               |                 |               |                    |             |         |                 |              |
|                |                          |                   |                        |                                    |               |                 |               |                    |             |         |                 |              |
|                |                          |                   |                        |                                    |               |                 |               |                    |             |         |                 |              |
|                |                          |                   |                        |                                    |               | <del> </del>    |               |                    |             |         |                 | -            |
|                |                          |                   |                        |                                    |               |                 |               |                    |             |         |                 |              |
|                |                          |                   |                        |                                    |               | -               |               |                    |             |         |                 |              |
|                |                          |                   |                        |                                    |               |                 |               |                    |             |         |                 |              |
|                | L                        | <u> </u>          |                        |                                    | L             | <u> </u>        |               |                    |             |         | L               |              |
| Analyses requ  | ested                    | Full St           | uite                   | Partial Suite                      | e (explain)   | PID/FID R       | eadi          | ngs                |             |         | Readings:       | Sample Readi |
| Dissolved Meta | ıls - Rb-S (field filter | ed), Total Metals | -U-Hg, Anions,         | TDS, PAH,                          |               | NA              | _HN           | u                  |             | TOC:    | NA              | TOC: NA      |
| PCB, P, 8260   |                          |                   |                        |                                    |               | NA              | _ov           | 'A                 |             | BZ: N   | A               | BZ: NA       |
|                |                          |                   |                        |                                    |               | NA              | Mic           | crotip             |             | Bkgd:   | NA              | Bkgd: NA     |
| Additional Co  | mments:                  |                   |                        |                                    |               |                 |               | Serial No.:        |             |         |                 |              |
|                | oved by drillers durin   | ng development    | - bailed dry           |                                    |               | Condition       | of V          | Vell:              | New         |         |                 |              |
| PPE Level: B   | CD                       |                   |                        |                                    |               | Signature       | :             |                    |             |         |                 |              |



**Lightning Dock Geothermal Monitoring** 

|                               |                                |                                  |  |   |                 | JOD NO.:               | 11-51/            | 7-00102  |  |                       |  |  |  |
|-------------------------------|--------------------------------|----------------------------------|--|---|-----------------|------------------------|-------------------|--|--|-----------------------|--|--|--|
| Well No.                      |                                | Purge Equipment Analytical Equip |  |   | lytical Equipm  | nent                   | Sampler's I       | nitials Time                                     | ,                                      | Date                  |  |  |  |
| l                             | MW-5                           | 1.40" E                          | Bennett Pump                           | pH meter (te                                    | emperature):    |                        | EDK               |  | 12:00                                  | 12/9/2013             |  |  |  |
|                               |                                | 1.80" E                          | Bennett Pump                           | X YSI   | X YSI 556       |                        |                   |  |  |                       |  |  |  |
| Casing Diam                   | eter (in.)                     | Perista                          | ltic Pump                              | Orio  | Orion           |                        |                   | Meter Calibration                                |  |                       |  |  |  |
|                               |                                | Dedica                           | ited Pump                              | Oth   | Other:          |                        |                   |  |  |                       |  |  |  |
|                               | 1.913                          | 2" Grui                          | •                                      | Serial No.:                                     |                 |                        |                   |  |  |                       |  |  |  |
|                               |                                |                                  | a Pump                                 |   |                 |                        | pH <u>4</u>       | = 8  | ət                                     | °C                    |  |  |  |
| Tatal Wall Da                 |                                | _                                |  | Conductivity                                    | Matan           |                        | Lot #             | Exp.   |  | ŭ                     |  |  |  |
| Total Well De                 | ·ptn (π.)                      |                                  | ch Pump                                | Conductivity                                    | •               |                        | LOC#              | Exp.   |  |                       |  |  |  |
|                               | 70.00                          | X Other:                         | Bailer                                 | X YSI   |                 |                        | i                 |  |  | 0.0                   |  |  |  |
|                               | 78.00                          |                                  |  | Orio  |                 |                        | pH                |  | ıt                                     | °C                    |  |  |  |
|                               |                                | 4                                |  | Oth   | er:             |                        | Lot #             | Exp  |  |                       |  |  |  |
| Static Water                  | Level (ft.)                    | Serial Number                    | :                                      | Serial No.:                                     |                 |                        |                   |  |  |                       |  |  |  |
|                               |                                | Sample                           | Equipment                              |   |                 |                        | pH <u>10</u>      | = 8  | at                                     | °C                    |  |  |  |
|                               | 76.05                          | 1.40" E                          | Bennett Pump                           | Dissolved C                                     | Oxygen Meter:   |                        | Lot #             | Exp.   |  |                       |  |  |  |
|                               |                                | 1.80" E                          | Bennett Pump                           | X YSI   | 556             |                        |                   |  |  |                       |  |  |  |
| Water Thickn                  | ess (ft.)                      | Perista                          | ıltic Pump                             | Oth   |                 |                        | Conductance Sta   | andard: 1413 um                                  | nhos/cm Oth                            | er:                   |  |  |  |
|                               | , , ,                          |                                  | ited Pump                              | Serial No.                                      |                 |                        |                   |  |  |                       |  |  |  |
|                               | 3.247                          | 2" Grui                          | •                                      |   |                 |                        | Calibrated to     | u  | mhos/cm at                             | °C                    |  |  |  |
|                               | J. E - 7 /                     |                                  | ra Pump                                | ORP Meter:                                      | Ī .             |                        |                   |  | ////////////////////////////////////// |                       |  |  |  |
| 0 l W-los                     | /1>                            |                                  | •                                      | 1   |                 |                        | 1 24 11           | Evo  |  |                       |  |  |  |
| Casing Volur                  | ne (gal.)                      |                                  | ch Pump                                | X YSI   |                 |                        | Lot #             | Exp.   |  |                       |  |  |  |
|                               |                                | X Other:                         | Bailer                                 | Oth   |                 |                        | Dissolved Oxyge   |  |  |                       |  |  |  |
|                               | 0.485                          |                                  |  | Serial No.                                      |                 |                        | Ca                | mg/l   | at°C                                   |                       |  |  |  |
|                               |                                |                                  |  |   |                 |                        |                   |  |  |                       |  |  |  |
| Stick-up                      | Screen Int.                    | Serial Number                    | :                                      | Water Leve                                      | el Meter:       |                        | Redox:            |  |  |                       |  |  |  |
| 1.297                         | 63-78                          | Filtration                       | Equipment:                             | Kec   | ck              |                        | С                 | alibrated to                                     | mV                                     | at°C                  |  |  |  |
| l (ft                         | t.) (ft.)                      | 0.45 Micro                       | n Filter                               | X Oth   | er: Geotech     |                        | Lot #             | Exp.   |  |                       |  |  |  |
| (Purge Contai                 |                                | 1                                |  | Serial No.                                      |                 |                        |                   |  |  |                       |  |  |  |
| _X_YesNo                      |                                | Brand: Geoted                    | ch                                     |   |                 |                        |                   | Sample Depth (feet) Time:                        |  |                       |  |  |  |
|                               |                                |                                  | nultipliers: 1"=(.04)                  | 2"=(.16) 3"=(.37                                | 7) 4"=(.65)     |                        |                   | .,   |  | 12:00                 |  |  |  |
| Time                          | Volume<br>Removed<br>(gallons) | Temp<br>(°C)<br>(+/- 3%)         | Conductivity<br>(umhos/cm)<br>(+/- 3%) | Dissolved 0 <sub>2</sub><br>(mg/l)<br>(+/- 10%) | pH<br>(+/- 0.1) | ORP<br>(mV)<br>(+/- 10 | (NTU)             | Water Level<br>(ft bgs)                          | Pump<br>Rate<br>(gpm)                  | Visual<br>Description |  |  |  |
|                               | (milliliters)                  | (+/- 3 /6)                       | (+/- 370)                              |   |                 | (+/- 10                | (+/- 10/0)        |  | (ml/m)                                 |                       |  |  |  |
|                               | 0.06                           | 47.0                             | 2865                                   | 2.5   | 7.09            | 31.1                   | NA                | NA   | NA                                     | Cloudy                |  |  |  |
|                               |                                | , 30,0                           |  |   |                 |                        |                   |  |  | Gloudy                |  |  |  |
|                               | 1                              | 48.1                             | 2802                                   | 2.5   | 7.16            | 43.4                   | NA NA             | NA   | NA                                     | yellowish             |  |  |  |
|                               |                                | 36.8                             |  |   |                 |                        |                   |  |  | gray                  |  |  |  |
|                               |                                |                                  |  |   |                 |                        |                   |  | T                                      |                       |  |  |  |
|                               | 1.5                            |                                  | 0074                                   | 2.0   | 7.00            | 07.0                   | .   .,,           |  | 1                                      | Cloudy                |  |  |  |
|                               | 1.5                            | /20.7                            | 2871                                   | 3.9   | 7.38            | 27.3                   | NA NA             | NA   | NA                                     | yellowish             |  |  |  |
|                               | -                              | 29.7                             |  |   |                 |                        |                   |  |  | gray                  |  |  |  |
|                               |                                |                                  |  |   |                 |                        |                   |  |  |                       |  |  |  |
|                               |                                |                                  |  |   |                 |                        |                   |  |  |                       |  |  |  |
| ĺ                             | 1                              |                                  |  |   |                 |                        |                   |  |  |                       |  |  |  |
|                               |                                |                                  |  |   |                 |                        |                   |  | 1                                      |                       |  |  |  |
|                               |                                |                                  |  |   |                 |                        |                   |  |  |                       |  |  |  |
|                               |                                |                                  |  |   |                 |                        |                   |  |  |                       |  |  |  |
|                               |                                |                                  |  |   |                 | +                      |                   | <del>                                     </del> | +                                      |                       |  |  |  |
|                               |                                | 1                                |  |   |                 |                        |                   |  |  |                       |  |  |  |
|                               | <u> </u>                       |                                  |  |   | <u> </u>        |                        |                   |  |  |                       |  |  |  |
| Analyses requested Full Suite |                                |                                  | Partial Suite                          | explain)  | PID/FID Re      | -                      |                   | l Readings:                                      | Sample Reading                         |                       |  |  |  |
| Ra 226/227, F                 | Phenols, Cyanide, EC           | В                                |  | 1   |                 | NA                     | _HNu              | TOC  | : NA                                   | TOC: NA               |  |  |  |
|                               |                                |                                  |  | ,   |                 | NA_                    | OVA               | BZ: N  | BZ: NA BZ                              |                       |  |  |  |
|                               |                                |                                  |  |   |                 | NA                     | Microtip Bkgd: NA |  |  | Bkgd: NA              |  |  |  |
| Additional Co                 | omments: Well wen              | t dry a few tim                  | es                                     |   |                 |                        | Serial No.:       | :  |  |                       |  |  |  |
| during purging                | g/sampling                     |                                  |  |   |                 | Condition              | of Well:          |  |  |                       |  |  |  |
| PPE Level: D                  |                                |                                  |  |   |                 | Signature:             |                   |  |  |                       |  |  |  |



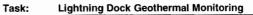
11-517-00102

Page 1 of

Job No.:



| Well No.                               |                                | Purge !                           | Equipment                              | Anal   | ytical Equipn   | nent   | Sampler's In            | itials Tin             | ne                                 | Date                  |  |  |  |
|--|--------------------------------|-----------------------------------|--|--|-----------------|--|-------------------------|------------------------|------------------------------------|-----------------------|--|--|--|
| MW-6                                   |                                | 1.40" B                           | ennett Pump                            | pH meter (te                                 | emperature):    |  | EDK                     |                        | 12:00                              | 11/23/2013            |  |  |  |
|  |                                | 1.80" B                           | ennett Pump                            | YSI  | 556             |  |                         |                        |                                    | .,,                   |  |  |  |
| Casing Diameter (in.)  Peristaltic Pum |                                |                                   |  | Orio   | n               |  | Meter Calibration       |                        |                                    |                       |  |  |  |
|  |                                | Dedica                            | ted Pump                               | Othe   | er:             |  | Time:                   |                        |                                    |                       |  |  |  |
| 1.                                     | .913                           | 2" Grui                           | ndfos                                  | Serial No.:                                  |                 |  |                         |                        |                                    | i                     |  |  |  |
|  |                                | Waterr                            | a Pump                                 |  |                 |  | pH <u>4</u> :           | =                      | _at                                | C                     |  |  |  |
| Total Well Dep                         | th (ft.)                       | Geoted                            | h Pump                                 | Conductivity                                 | Meter:          |  | Lot #                   | Exp                    | D.                                 |                       |  |  |  |
|  |                                | X Other:                          | Bailer                                 | YSI  | 556             |  |                         |                        |                                    |                       |  |  |  |
| 8                                      | 5.00                           |                                   |  | Orio   | n               |  | pH=                     |                        | _at°                               | °C                    |  |  |  |
|  |                                |                                   |  | Oth  | er:             |  | Lot#                    | Exp                    | •                                  |                       |  |  |  |
| Static Water Le                        | evel (ft.)                     | Serial Number                     | :                                      | Serial No.:                                  |                 |  |                         |                        |                                    |                       |  |  |  |
|  |                                | Sample                            | Equipment                              |  |                 |  | pH10=                   | =                      | _at °                              | C C                   |  |  |  |
| 67.1                                   | 2 TOC                          | 1.40" E                           | ennett Pump                            | Dissolved O                                  | xygen Meter:    |  | Lot #                   | Exp                    | o.                                 |                       |  |  |  |
|  |                                | 1.80" E                           | ennett Pump                            | YSI  | 556             |  |                         |                        |                                    |                       |  |  |  |
| Water Thickne                          | ss (ft.)                       | Perista                           | ític Pump                              | Oth  | er              |  | Conductance Sta         | ndard: 1413 u          | ımhos/cm Othe                      | er:                   |  |  |  |
|  |                                | Dedica                            | ted Pump                               | Serial No.                                   |                 |  |                         |                        |                                    |                       |  |  |  |
| ~                                      | 19.4                           | 2" Gru                            | ndfos                                  |  |                 |  | Calibrated to           |                        | umhos/cm at                        | °C                    |  |  |  |
|  |                                | Waterr                            | a Pump                                 | ORP Meter:                                   |                 |  |                         |                        |                                    |                       |  |  |  |
| Casing Volum                           | e (gal.)                       | Geoted                            | h Pump                                 | YSI  | 556             |  | Lot #                   | Ex                     | o.                                 |                       |  |  |  |
|  |                                | X Other:                          | Bailer                                 | Oth  | er              |  | Dissolved Oxyge         | n:                     |                                    |                       |  |  |  |
|  | -2.9                           |                                   |  | Serial No.                                   |                 |  | Calibrated to mg/l at°C |                        |                                    |                       |  |  |  |
|  |                                |                                   |  |  |                 |  |                         |                        |                                    |                       |  |  |  |
| Stick-up                               | Screen Int.                    | Serial Number: Water Level Meter: |  |  |                 | Redox:   |                         |                        |                                    |                       |  |  |  |
| Ì                                      | 60-85                          | Filtration                        | Equipment:                             | nent: Keck                                   |                 |  | Calibrated to mV at     |                        |                                    |                       |  |  |  |
| (ft.)                                  | (ft.)                          | 0.45 Micro                        | n Filter                               | Oth  | er:             |  | Lot#                    |                        |                                    |                       |  |  |  |
| Purge Contain                          | erized:                        | ]                                 |  | Serial No.                                   |                 |  |                         |                        |                                    |                       |  |  |  |
| <u>X</u> Yes _                         | No                             | Brand: Geoted                     | h                                      |  |                 |  | Sample Depth (fe        | eet)                   |                                    | Time:                 |  |  |  |
|  |                                | Casing Volume n                   | nuftipliers: 1"=(.04)                  | 2"=(.16) 3"=(.37                             | 7) 4"=(.65)     |  |                         | (ft.)                  |                                    |                       |  |  |  |
| Time                                   | Volume<br>Removed<br>(gallons) | Temp<br>(°C)<br>(+/- 3%)          | Conductivity<br>(umhos/cm)<br>(+/- 3%) | Dissolved 0 <sub>2</sub> (mg/l)<br>(+/- 10%) | pH<br>(+/- 0.1) | ORP<br>(mV)<br>(+/- 10                           |                         | Water Leve<br>(ft bgs) | Pump<br>Rate<br>(gpm)<br>(ml/m)    | Visual<br>Description |  |  |  |
|  | 25                             | 48.9                              | 2563                                   | 2.32   | 7.57            | 76.3   | NA                      | NA                     | ~ 1gal/mi                          | Cloudy                |  |  |  |
|  | 29                             | 47.8                              | 2540                                   | 2.12   | 7.86            | 54.7   | NA                      | NA                     |                                    | 2.0                   |  |  |  |
|  | 33                             | 47.3 /                            | 2505                                   | 2.09   | 7.78            | 41.5   | NA                      | NA                     |                                    |                       |  |  |  |
|  | 33                             | 35.8                              |  | 2.09   | 7.70            | 41.5   | '   INA                 | 11/                    |                                    | 1                     |  |  |  |
|  | 37                             | 48.2                              | 2529                                   | 2.30   | 7.88            | 48.4   | . NA                    | NA                     |                                    |                       |  |  |  |
| ŀ                                      | 31                             | 35.3                              |  | 2.30   | 7.00            | 40.4   | '   '\                  | '\\                    |                                    |                       |  |  |  |
|  | 41                             | 48.4                              | 2534                                   | 2.42   | 7.87            | 68.2   | . NA                    | NA                     | <del></del>                        | 1                     |  |  |  |
|  | -                              | 34.7                              |  | 2.72   | 7.07            | 00.2   |                         | ''`                    |                                    |                       |  |  |  |
|  | 45                             | 48.3                              | 2519                                   | 2.48   | 7.81            | 48.6   | NA                      | NA                     |                                    |                       |  |  |  |
| ľ                                      | 10                             | 35.7                              | 2010                                   | 2.10   | 7.01            | 10.0   | ""                      | '''                    |                                    |                       |  |  |  |
|  |                                | . 00.7                            |  | ····   |                 | <del> </del>                                     |                         |                        |                                    | Slightly              |  |  |  |
| }                                      | 50                             | 49.7                              | 2518                                   | 2.77   | 7.78            | 43.9   | NA NA                   | NA                     |                                    | cloudy,               |  |  |  |
|  |                                | 34.5                              | 1                                      |  |                 |  |                         |                        |                                    | colorless             |  |  |  |
|  | 55                             |                                   | 2539                                   | 2.17   | 7.78            | 30.1   | NA                      | NA                     |                                    |                       |  |  |  |
|  |                                | 48.2                              |  |  |                 |  |                         |                        |                                    |                       |  |  |  |
|  |                                | 00.7                              |  |  |                 | <del>                                     </del> |                         |                        |                                    |                       |  |  |  |
|  |                                |                                   |  |  |                 |  |                         |                        |                                    |                       |  |  |  |
| Analyses requ                          | ested                          | Full St                           | uite                                   | Partial Suite                                | e (explain)     | PID/FID Re                                       | eadings                 | ļni                    | I Initial Readings: Sample Reading |                       |  |  |  |
| (miaiyaca iequ                         |                                | Tuilot                            |  | , araar odite                                | - (oxpidiri)    | NA NA  | HNu                     |                        | C: NA                              | TOC: NA               |  |  |  |
| 1                                      |                                |                                   |  |  |                 | NA NA  | OVA                     |                        | :: NA                              | BZ: NA                |  |  |  |
|  |                                |                                   |  |  |                 | NA NA  | _ Microtip              |                        | gd: NA                             | Bkgd: NA              |  |  |  |
| Additional Co                          | mments: ~ 7 gallon             | s removed by d                    | rillers during dev                     | elopment                                     |                 |  | Serial No.:             |                        | -                                  | -                     |  |  |  |
|  | •                              | , -                               | 0                                      | •  |                 | Condition  |                         |                        |                                    |                       |  |  |  |
| PPE Level: D                           |                                |                                   |  |  |                 | Signature  |                         |                        |                                    |                       |  |  |  |
| L LOVEI. D                             |                                |                                   |  |  |                 | 1  |                         |                        |                                    | ···                   |  |  |  |



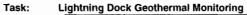
Page 1 of

11-517-00102

Job No.:



| Well No.                        |   | Purge E                  | quipment                               | Analytical Equipment                            |                 |                        | Sampler's Initials   |                     | ime               | Date                  |  |  |  |
|---------------------------------|---|--------------------------|--|---|-----------------|------------------------|----------------------|---------------------|-------------------|-----------------------|--|--|--|
| MW-6                            |   | 1.40" B                  | ennett Pump                            | pH meter (te                                    | mperature):     |                        | EDK                  |                     | 15:00             | 12/9/2013             |  |  |  |
|                                 |   | 1.80" B                  | ennett Pump                            | X YSI 556                                       |                 |                        |                      |                     |                   |                       |  |  |  |
| Casing Diamete                  | er (in.)                                | Peristal                 | tic Pump                               | Orion   |                 |                        | Meter Calibration    |                     |                   |                       |  |  |  |
|                                 |   | Dedicat                  | ed Pump                                | np Other:                                       |                 |                        | Time:                |                     |                   |                       |  |  |  |
| 1.                              | 913                                     | 2" Grun                  | dfos                                   | Serial No.:                                     |                 |                        |                      |                     |                   |                       |  |  |  |
|                                 |   | Waterra                  | Pump                                   |   |                 |                        | pH                   |                     | at                | °C                    |  |  |  |
| Total Well Dept                 | th (ft.)                                | Geotec                   | h Pump                                 | Conductivity                                    | Meter:          |                        | Lot #                |                     | xp.               |                       |  |  |  |
|                                 | ,                                       | X Other:                 | -                                      | X YSI   |                 |                        |                      |                     |                   |                       |  |  |  |
| 8!                              | 5.00                                    |                          |  | Orio  |                 |                        | pH7                  | =                   | at                | °C                    |  |  |  |
|                                 |   |                          |  | Othe  |                 |                        | Lot #                |                     | xp                |                       |  |  |  |
| Static Water Le                 | vel (ft )                               | Serial Number:           |  | Serial No.:                                     |                 |                        |                      |                     |                   |                       |  |  |  |
| Claire Water Le                 | , |                          | Equipment                              | 1   |                 |                        | pH 10                | =                   | at                | °c                    |  |  |  |
| 6.                              | 7.01                                    |                          | ennett Pump                            | Dissolved O                                     | xygen Meter:    |                        | Lot #                |                     | xp.               |                       |  |  |  |
| •                               | 7.01                                    |                          | ennett Pump                            | X YSI   |                 |                        |                      | _                   |                   |                       |  |  |  |
| Mara Thicker                    | (ft )                                   |                          | ·                                      | Othe  |                 |                        | Conductance Sta      | andard: 1413        | 3 umhos/cm Oth    | er:                   |  |  |  |
| Water Thickne                   | ss (II.)                                |                          | tic Pump                               | Serial No.                                      | ei .            |                        |                      | induid: 111         | Janin Sorom Sa    |                       |  |  |  |
| ۱ ,                             | 504                                     |                          | ed Pump                                | Senarivo.                                       |                 |                        | Calibrated to        |                     | umbos/sm at       | °C                    |  |  |  |
| 18                              | ).594                                   | 2" Grun                  |  | OPP Mata  |                 |                        | Calibrated to        |                     | umhos/cm at _     |                       |  |  |  |
| 0 1 11                          | - (1)                                   | Waterra                  | · ·                                    | ORP Meter:                                      |                 |                        | Lot #                |                     | Exp.              |                       |  |  |  |
| Casing Volume                   | e (gal.)                                |                          | h Pump                                 | X YSI   |                 |                        |                      |                     | -^ <del>-</del> - |                       |  |  |  |
|                                 | . 02                                    | X Other: I               | aller                                  | Oth   | er              |                        | Dissolved Oxyge      |                     |                   | lot Po                |  |  |  |
| 2                               | 2.92                                    |                          |  | Serial No.                                      | Serial No.      |                        |                      | librated to _       | mg/               | l at°C                |  |  |  |
|                                 |   |                          |  |   |                 |                        |                      |                     |                   |                       |  |  |  |
|                                 | Screen Int.                             | Serial Number:           |  | Water Leve                                      |                 |                        | Redox:               |                     |                   |                       |  |  |  |
| 1.6                             | 60-85                                   | Filtration               | Equipment:                             | Kec   |                 | 1                      | Calibrated tomV at°C |                     |                   |                       |  |  |  |
|                                 | (ft.) (ft.) 0.45 Micron Filter          |                          |  | X Oth   | er: Geotech     |                        | Lot # Exp.           |                     |                   |                       |  |  |  |
| Purge Contain                   | Purge Containerized:                    |                          |  |   |                 |                        |                      |                     |                   |                       |  |  |  |
| X YesNo                         |   | Brand: Geotec            |  |   |                 |                        |                      | eet)                |                   | Time:                 |  |  |  |
|                                 | r                                       | Casing Volume m          | ultipliers: 1"=(.04)                   |   | ') 4"=(.65)     |                        | L                    | (ft.)               |                   | <u> </u>              |  |  |  |
| Time                            | Volume<br>Removed<br>(gallons)          | Temp<br>(°C)<br>(+/- 3%) | Conductivity<br>(umhos/cm)<br>(+/- 3%) | Dissolved 0 <sub>2</sub><br>(mg/l)<br>(+/- 10%) | pH<br>(+/- 0.1) | ORP<br>(mV)<br>(+/- 10 |                      | Water Le<br>(ft bgs |                   | Visual<br>Description |  |  |  |
|                                 | 3                                       | 48.8                     | 2675                                   | 3.51  | 7.83            | 29.8                   | NA NA                | NA                  | NA                | Cloudy<br>brown       |  |  |  |
|                                 | 6                                       | 49.6                     | 2551                                   | 1.87  | 7.70            | 54.4                   | NA                   | NA                  | NA                | Cloudy<br>brown       |  |  |  |
|                                 | 9                                       | 48.8                     | 2570                                   | 1.62  | 7.60            | 42.1                   | NA                   | NA                  | NA                | Cloudy                |  |  |  |
|                                 |   | 36.7                     |  |   |                 |                        |                      |                     |                   | DIOWII                |  |  |  |
|                                 |   |                          |  |   |                 |                        |                      |                     |                   |                       |  |  |  |
|                                 |   |                          |  |   |                 |                        |                      |                     |                   |                       |  |  |  |
|                                 |   |                          |  |   |                 |                        |                      |                     |                   |                       |  |  |  |
|                                 |   |                          |  |   |                 |                        |                      |                     |                   |                       |  |  |  |
|                                 |   |                          |  |   |                 |                        |                      |                     |                   |                       |  |  |  |
| Analyses requested Full Suite F |   |                          | Partial Suite                          | e (explain)                                     | PID/FID R       | eadings                |                      | Initial Readings:   | Sample Reading    |                       |  |  |  |
|                                 | nenols, Cyanide, ED                     | )B                       |  |   |                 | NA                     | _HNu                 | -                   | TOC: NA           | TOC: NA               |  |  |  |
|                                 |   |                          |  |   |                 | NA                     | OVA                  |                     | BZ: NA            | NA BZ: NA             |  |  |  |
|                                 |   |                          |  |   |                 | NA                     | Microtip             |                     | Bkgd: NA Bkgd: NA |                       |  |  |  |
| Additional Cor                  | nments:                                 |                          |  |   |                 |                        | Serial No.           | :                   |                   |                       |  |  |  |
|                                 |   |                          |  |   |                 | Condition              | of Well:             |                     |                   |                       |  |  |  |
| PPE Level: D                    |   |                          |  |   |                 | Signature              |                      |                     |                   |                       |  |  |  |
|                                 |   |                          |  |   |                 |                        |                      |                     |                   |                       |  |  |  |

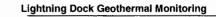


11-517-00102

Job No.:



|                 |                       |                                  |                            |                          | ,            | Job No.:    | 11-517-                                      | 00102          | Page 1 of       |                |  |  |
|-----------------|-----------------------|----------------------------------|----------------------------|--------------------------|--------------|-------------|--|----------------|-----------------|----------------|--|--|
| Well No.        |                       | Purge Equipment Analytical Equip |                            |                          |              | nent        | Sampler's Initials Time                      |                |                 | Date           |  |  |
| IN              | W-1                   | 1.40" E                          | Bennett Pump               | pH meter (te             | mperature):  |             | EDK  |                | 17:00           | 12/20/2013     |  |  |
|                 |                       | 1.80" Bennett Pump X YSI 556     |                            |                          |              |             |  |                |                 |                |  |  |
| Casing Diamet   | er (in.)              | Peristaltic Pump Orion           |                            |                          |              |             | Meter Ca                                     | libration      |                 |                |  |  |
|                 |                       | Dedica                           | ted Pump                   | Oth                      | er:          |             | Time:  |                |                 |                |  |  |
| 1.              | 913                   | 2" Grui                          | ndfos                      | Serial No.:              |              |             | 1  |                |                 |                |  |  |
|                 |                       | Waterr                           | a Pump                     |                          |              |             | pH <u>4</u> :                                | =a             |                 | °C             |  |  |
| Total Well Dept | th (ft.)              | Geoted                           | h Pump                     | Conductivity             | Meter:       |             | Lot #  | Exp.           |                 |                |  |  |
|                 |                       | X Other:                         | Bailer                     | X YSI                    | 556          |             |  |                |                 |                |  |  |
| 60              | 0.00                  |                                  |                            | Orio                     | n            |             | pH <u>7</u> :                                | = a            | t               | °C             |  |  |
|                 |                       |                                  |                            | Oth                      | er:          |             | Lot #  | Exp            |                 |                |  |  |
| Static Water Le | vel (ft.)             | Serial Number                    | :                          | Serial No.:              |              |             |  |                |                 |                |  |  |
|                 |                       | Sample                           | Equipment                  | 1                        |              |             |  | a              | t               | °C             |  |  |
| 7               | 7.10                  |                                  | Bennett Pump               | Dissolved O              | xygen Meter: |             | Lot#   | Exp.           |                 |                |  |  |
|                 |                       | 1.80" Bennett Pump               |                            | X YSI                    | 556          |             |  |                |                 |                |  |  |
| Water Thickne   | ss (ft.)              | Perista                          | ltic Pump                  | Oth                      |              |             | Conductance Sta                              | ndard: 1413 um | hos/cm Oth      | er:            |  |  |
|                 |                       |                                  | ited Pump                  | Serial No.               |              |             |  |                |                 |                |  |  |
| 52              | 4.780                 | 2" Gru                           | •                          |                          |              |             | Calibrated to                                | u              | nhos/cm at      | °C             |  |  |
| ,_              |                       |                                  | a Pump                     | ORP Meter:               |              |             |  |                | _               |                |  |  |
| Casing Volume   | (gal.)                | _                                | ch Pump                    | X YSI                    |              |             | Lot #  | Exp.           |                 |                |  |  |
|                 | ,,,                   | X Other:                         | •                          | Oth                      |              |             | Dissolved Oxyge                              |                |                 |                |  |  |
| 7               | 8.36                  |                                  |                            | Serial No.               |              |             |  |                | ma/             | lat°C          |  |  |
| ,               |                       | Genario.                         |                            |                          |              |             |  |                |                 |                |  |  |
| Stick-up        | Screen Int.           | Serial Number                    |                            | Water Level Meter:       |              |             | Redox:                                       |                |                 |                |  |  |
| 1.9             | 570-590               |                                  | Equipment:                 | Kec                      |              |             | 1  | librated to    | m\/             | ′ at°C         |  |  |
| (ft.)           |                       |                                  |                            |                          | er: Geotech  |             | Lot #  | Exp.           |                 | at0            |  |  |
| Purge Contain   |                       | 0.43 1/11/21/01                  | ii i iiici                 | Serial No.               | er. deolecti |             | 201 "  | EAP.           |                 |                |  |  |
| _X_YesNo        |                       | Brand: Geoted                    | nh.                        | Joenai No.               |              |             | Sample Depth (feet) Time:                    |                |                 |                |  |  |
|                 |                       |                                  | nultipliers: 1"=(.04)      | 2"=(.16) 3"=(.37         | ) 4"=(.65)   |             | Cample Departie                              | (ft.)          |                 | 1              |  |  |
|                 |                       |                                  |                            | Dissolved 0 <sub>2</sub> | , , -()      | 000         |  | (11./          | Pump            |                |  |  |
| Time            | Volume<br>Removed     | Temp<br>(°C)                     | Conductivity<br>(umhos/cm) | (mg/l)                   | pH           | ORP<br>(mV) | Turbidity<br>(NTU)                           | Water Level    | Rate            | Visual         |  |  |
| 1               | (galions)             | (+/- 3%)                         | (+/- 3%)                   | (+/- 10%)                | (+/- 0.1)    | (+/- 10     |  | (ft bgs)       | (gpm)<br>(ml/m) | Description    |  |  |
|                 | 00                    | 74.0                             | 0000                       | 4 54                     | 0.70         | 00.7        |  |                | (minn)          |                |  |  |
|                 | ~80                   | 71.0                             | 3660                       | 1.51                     | 9.78         | 20.7        |  |                |                 |                |  |  |
| ļ               |                       | 33.1                             | <b>/</b>                   |                          |              | ┼           |  |                |                 |                |  |  |
|                 | ~125                  | 28.0 /                           | 3642                       | 1.18                     | 9.86         | -74.0       |  |                |                 |                |  |  |
|                 |                       | 36.7                             |                            |                          |              |             |  |                |                 |                |  |  |
|                 | ~165                  | 29.6                             | 2277                       | 2.11                     | 9.82         | -53.6       |  |                | <del> </del>    |                |  |  |
| ]               | 100                   | 20.0                             | 2277                       | 2.11                     | 0.02         | 55.0        |  |                |                 |                |  |  |
|                 |                       |                                  |                            |                          |              | ļ           |  |                | ļ               |                |  |  |
|                 |                       |                                  |                            |                          |              |             |  |                |                 |                |  |  |
|                 |                       |                                  |                            |                          |              | ļ           |  |                | <u> </u>        |                |  |  |
|                 |                       |                                  |                            |                          |              |             | 1  |                |                 |                |  |  |
|                 |                       |                                  |                            |                          |              | -           |  |                |                 |                |  |  |
|                 |                       |                                  |                            |                          |              | 1           |  |                |                 |                |  |  |
|                 |                       |                                  |                            |                          |              |             |  |                |                 |                |  |  |
|                 |                       |                                  |                            |                          |              |             |  |                |                 |                |  |  |
|                 |                       |                                  |                            |                          |              |             |  |                |                 |                |  |  |
|                 |                       |                                  |                            |                          |              |             |  |                |                 |                |  |  |
|                 |                       |                                  |                            |                          |              |             |  |                |                 |                |  |  |
|                 |                       |                                  |                            |                          |              |             |  |                |                 |                |  |  |
|                 |                       |                                  |                            |                          |              |             |  |                |                 |                |  |  |
| Analyses requ   | ested                 | Full St                          | uite                       | Partial Suite            | (explain)    | PID/FID Re  | eadings                                      | Initia         | Readings:       | Sample Reading |  |  |
|                 | ls-Rb-S (Field Filter |                                  |                            |                          | ,,           | NA NA       | HNu  | TOC            |                 | TOC: NA        |  |  |
| Ra 226/226, Ph  | •                     |                                  |                            | , , , , , ,              |              | NA          | OVA  |                |                 | BZ: NA         |  |  |
|                 | , 200, 1111,          |                                  |                            |                          |              | NA          | OVA BZ: NA BZ: N/<br>Microtip Bkgd: NA Bkgd: |                |                 |                |  |  |
| Additional Cor  | nments: ~ 7 gallon    | s removed by d                   | rillers during deve        | lopment                  |              |             | Serial No.:                                  |                |                 | _              |  |  |
|                 | 3                     | , -                              | 3                          |                          |              | Condition   |  | New            |                 |                |  |  |
| PPE Level: D    |                       |                                  |                            |                          |              | Signature   |  |                |                 |                |  |  |





|  |                               |                            |  |                     |                         | JOD 110.:              | 11-51                           | 7-00102       | P                 | age 1 of              |  |  |
|--|-------------------------------|----------------------------|--|---------------------|-------------------------|------------------------|---------------------------------|---------------|-------------------|-----------------------|--|--|
| Well No.   |                               |                            | quipment                               | 7                   | lytical Equipr          | nent                   | Sampler's<br>JC/EDK             | Initials      | Time              | Date                  |  |  |
| []   | G 53-7                        |                            | Bennett Pump                           | 1 .                 | pH meter (temperature): |                        |                                 |               | 14:00             | 12/13/2013            |  |  |
| Carina Biana                                     | A (! \                        | <del> </del>               | Bennett Pump                           |                     | 556                     |                        |                                 |               | - Calibration     | 1                     |  |  |
| Casing Diame                                     | eter (in.)                    |                            | altic Pump                             | Orio                |                         |                        | Time:                           | Wiet          | er Calibration    |                       |  |  |
|  |                               | Dedicated Pump 2" Grundfos |  | Serial No.:         | iei.                    |                        | rinie.                          |               |                   |                       |  |  |
|  |                               |                            |  | Senarivo            |                         |                        | nH 4                            | =             | at                | °C                    |  |  |
| Total Well Depth (ft.) Waterra Pump Geotech Pump |                               |                            |  | Conductivit         | v Meter                 |                        | Lot #                           |               | u<br>Exp.         | . •                   |  |  |
| Total Well De                                    | pur (it.)                     |                            | Bailer                                 |                     | 1 556                   |                        | 201 11                          |               |                   |                       |  |  |
|  |                               | - Calleri                  | Banor                                  | Orio                |                         |                        | pH 7                            | =             | at                | °C                    |  |  |
|  |                               | 1                          |  | Oth                 |                         |                        | Lot #                           |               | Exp               |                       |  |  |
| Static Water I                                   | evel (ft.)                    | Serial Number:             |  | Serial No.:         |                         |                        |                                 |               | ·                 |                       |  |  |
|  | ,                             |                            | Equipment                              |                     |                         |                        | pH10                            | _=            | at                | °C                    |  |  |
| :  | 39.55                         |                            | Bennett Pump                           | Dissolved C         | Oxygen Meter:           |                        | Lot#                            |               | Ехр.              |                       |  |  |
|  |                               | 1.80"                      | Bennett Pump                           | YSI                 | 1 556                   |                        |                                 |               |                   |                       |  |  |
| Water Thickn                                     | ess (ft.)                     | Perista                    | altic Pump                             | Oth                 | ner                     |                        | Conductance S                   | Standard: 141 | 3 umhos/cm Otl    | ner:                  |  |  |
|  |                               | Dedica                     | ated Pump                              | Serial No.          |                         |                        |                                 |               |                   |                       |  |  |
|  |                               | 2" Gru                     | indfos                                 |                     |                         |                        | Calibrated to _                 |               | umhos/cm at _     | °C                    |  |  |
|  |                               | Water                      | ra Pump                                | ORP Meter           | :                       |                        |                                 |               |                   |                       |  |  |
| Casing Volun                                     | ne (gal.)                     | Geote                      | ch Pump                                | YSI                 | YSI 556                 |                        |                                 |               | Exp.              |                       |  |  |
|  |                               | Other:                     | Bailer                                 | Oth                 | ner                     |                        | Dissolved Oxyg                  | •             |                   |                       |  |  |
|  |                               |                            |  | Serial No.          |                         |                        | Calibrated to mg/l at           |               |                   |                       |  |  |
|  |                               | 1                          |  |                     |                         |                        |                                 |               |                   |                       |  |  |
| Stick-up   | Screen Int.                   | Serial Number:             |  | Water Leve          | el Meter:               |                        | Redox:                          |               |                   |                       |  |  |
| 8' 4"  |                               |                            | Equipment:                             | Ked                 | Keck                    |                        |                                 |               |                   | / at°C                |  |  |
| (ft.) (ft.)                                      |                               | 0.45 <i>Micro</i>          | n Filter                               |                     | er: Geotech             |                        | Lot #                           |               | Exp.              |                       |  |  |
| Purge Containerized:                             |                               | 1                          |  | Serial No.          |                         |                        |                                 |               |                   | 1                     |  |  |
| _ <u>X</u> _Yes _                                | No                            | Brand: Geote               |  | (10) 01 (07)        | 41. (05)                |                        | Sample Depth                    | ` 1 ` 1       |                   | Time:                 |  |  |
|  |                               | Casing volume mu           | tipliers: 1"=(.04) 2":                 | Dissolved 0,        | T                       | 1                      | <u> </u>                        | (ft.)         |                   | 1                     |  |  |
| Time   | Volume<br>Removed<br>(liters) | Temp<br>(°C)<br>(+/- 3%)   | Conductivity<br>(umhos/cm)<br>(+/- 3%) | (mg/l)<br>(+/- 10%) | pH<br>(+/- 0.1)         | ORP<br>(mV)<br>(+/- 10 | Turbidity<br>(NTU)<br>(+/- 10%) | Water Le      |                   | Visual<br>Description |  |  |
|  | (11013)                       | (47 370)                   | (47- 370)                              |                     |                         | (+/ 10                 | (47-1070)                       |               | (ml/m)            | <u> </u>              |  |  |
| 13:11  | 1                             | 2.25                       | 634                                    | 7.09                | 6.77                    | 61.3                   |                                 | 40.24         | NA                | Clear                 |  |  |
| 13:35  | 2.5                           | 3.86                       | 1020                                   | 2.05                | 6.51                    | 58.7                   |                                 | 40.38         | NA                | Clear                 |  |  |
| 13:50  | 4                             | 2.07                       | 582                                    | 2.07                | 6.67                    | 14.1                   |                                 | 40.50         |                   | Clear                 |  |  |
|  |                               |                            |  |                     |                         |                        |                                 | 40.68         |                   |                       |  |  |
|  |                               |                            |  |                     |                         |                        |                                 |               |                   | <u> </u>              |  |  |
|  |                               |                            |  | -                   |                         |                        |                                 |               |                   |                       |  |  |
|  |                               |                            |  |                     |                         |                        |                                 |               |                   |                       |  |  |
|  |                               |                            |  |                     |                         |                        |                                 |               |                   |                       |  |  |
|  |                               |                            |  |                     |                         |                        |                                 |               |                   |                       |  |  |
| Analyses req                                     | uested                        | Full S                     | uite                                   | Partial Suite       | e (explain)             | PID/FID Re             | adings                          |               | Initial Readings: | Sample Reading        |  |  |
| Dissolved Met                                    | als-12b-S (Field Filte        | ered) / Total Metal        | s U-Hg, PAH, PC                        | B, P, 8260          |                         | NA NA                  | HNu                             |               | TOC: NA           | TOC: NA               |  |  |
| Ra 226/226, P                                    | henol, EDB, RN,               |                            |  |                     |                         | NA                     | OVA                             |               | BZ: NA            | BZ: NA                |  |  |
|  |                               |                            |  |                     |                         | NA_                    | Microtip                        |               | Bkgd: NA          | Bkgd: NA              |  |  |
| Additional Co                                    | mments: ~ 7 gallon            | s removed by drill         | ers during develo                      | pment               |                         |                        | Serial No                       |               |                   |                       |  |  |
|  |                               |                            |  |                     |                         | Condition              |                                 | New           |                   |                       |  |  |
| PPF Level: D                                     |                               |                            |  |                     |                         | Signature:             |                                 |               |                   |                       |  |  |



Lightning Dock Geothermal Monitoring

|                                |                                |                        |                            |                  | ,                       | JOD NO.:   |                           | 11-51/-                 | 00102          |                 | ge 1 of         |  |  |
|--------------------------------|--------------------------------|------------------------|----------------------------|------------------|-------------------------|--|---------------------------|-------------------------|----------------|-----------------|-----------------|--|--|
| Well No.                       |                                | Purge Equipment        |                            |                  | Analytical Equipment    |  |                           | npler's In              | itials Tim     | Time Date       |                 |  |  |
| LDC                            | G 63-7                         | 1.40" B                | ennett Pump                | pH meter (te     | pH meter (temperature): |  |                           | EDK 13:0                |                |                 | 12/20/2013      |  |  |
|                                |                                | 1.80" B                | ennett Pump                | YSI              | 556                     |  |                           |                         |                |                 | ,               |  |  |
| Casing Diamet                  | er (in.)                       | Peristaltic Pump Orion |                            |                  |                         |  |                           | Meter C                 | alibration     |                 |                 |  |  |
|                                |                                | Dedica                 | ted Pump                   | Oth              | er:                     |  | Time:                     |                         |                |                 |                 |  |  |
|                                | 2                              | 2" Grur                | ndfos                      | Serial No.:      |                         |  |                           |                         |                |                 |                 |  |  |
|                                |                                | Waterra                | a Pump                     |                  |                         |  | рН                        | 1=                      |                | at              | °C              |  |  |
| Total Well Dept                | th (ft.)                       | Geotec                 | h Pump                     | Conductivity     | y Meter:                |  | Lot#                      |                         | Ехр            |                 |                 |  |  |
|                                |                                | Other:                 | Bailer                     | YSI              | 556                     |  |                           |                         |                |                 |                 |  |  |
|                                |                                |                        |                            | Orio             | Orion                   |  |                           | 7=                      | ·              | at              | °C              |  |  |
|                                |                                |                        |                            | Oth              | er:                     |  | Lot#                      |                         | Exp            |                 |                 |  |  |
| Static Water Le                | vel (ft.)                      | Serial Number:         | :                          | Serial No.:      |                         |  |                           |                         |                |                 |                 |  |  |
|                                |                                | Sample                 | Equipment                  | 7                |                         |  | рН                        | 10=                     |                | at              | °C              |  |  |
|                                |                                | 1.40" B                | ennett Pump                | Dissolved C      | Oxygen Meter:           |  | Lot#                      |                         | Ехр            |                 |                 |  |  |
|                                |                                | 1.80" B                | ennett Pump                | YSI              | 556                     |  |                           |                         |                |                 |                 |  |  |
| Water Thicknes                 | ss (ft.)                       | Perista                | Itic Pump                  | Oth              |                         |  | Conduc                    | tance Sta               | ndard: 1413 ui | mhos/cm Oth     | er:             |  |  |
|                                | . ,                            | Dedica                 | ted Pump                   | Serial No.       |                         |  |                           |                         |                |                 |                 |  |  |
|                                |                                | 2" Grur                | -                          |                  |                         |  | Calibrat                  | ed to                   |                | umhos/cm at     | °c              |  |  |
|                                |                                | Waterra                | a Pump                     | ORP Meter:       |                         |  |                           |                         |                | _               |                 |  |  |
| Casing Volume                  | e (gal.)                       |                        | h Pump                     |                  | 556                     |  | Lot #                     |                         | Exp            |                 |                 |  |  |
|                                | (9)                            | Other:                 | •                          | Oth              |                         |  |                           | ed Oxyger               | ·              |                 |                 |  |  |
|                                |                                |                        | ouno:                      | Serial No.       |                         |  | , Diocoliv                |                         |                | ma/l            | at °C           |  |  |
|                                |                                |                        |                            | Ocharito.        | Selial No.              |  |                           | Calibrated to mg/l at°C |                |                 |                 |  |  |
| Stick-up                       | Screen Int.                    | Serial Number:         |                            | Water Leve       | Redox:                  |  |                           |                         |                |                 |                 |  |  |
| Stick-up                       | Scieen art.                    |                        |                            | Ked              |                         |  | l ledox.                  | Ca                      | librated to    | at°C            |                 |  |  |
| (ft.)                          | (ft.) (ft.) 0.45 Micron Filter |                        |                            |                  | er: Geotech             |  | Lot #                     | Oa                      | Exp            |                 | at 0            |  |  |
|                                |                                | 0.43 1/110101          | i i iilei                  | Serial No.       | ier. Geolech            |  | 201 #                     |                         | LAP            | •               |                 |  |  |
| Purge Containerized:  X Yes No |                                | Brand: Geotec          | ь                          | Serial No.       |                         |  | Cample                    | Donth /fo               | ot)            |                 | Time:           |  |  |
|                                |                                |                        | ultipliers: 1"=(.04)       | 2"-( 16) 3"-( 37 | 7) 4"-(65)              |  | Sample Depth (feet) Time: |                         |                |                 |                 |  |  |
|                                |                                | <u> </u>               |                            | Dissolved 02     | 1 = (.03)               | 1  | Ь_                        |                         | (11.)]         | Dump            |                 |  |  |
| Time                           | Volume<br>Removed              | Temp<br>(°C)           | Conductivity<br>(umhos/cm) | (mg/l) -         | pН                      | ORP<br>(mV)                                      |                           | urbidity<br>NTU)        | Water Level    | Pump<br>Rate    | Visual          |  |  |
| 711110                         | (liters)                       | (+/- 3%)               | (+/- 3%)                   | (+/- 10%)        | (+/- 0.1)               | (+/- 10  |                           | /- 10%)                 | (ft bgs)       | (gpm)           | Description     |  |  |
|                                |                                |                        |                            |                  |                         | <del>                                     </del> |                           |                         |                | (ml/m)          | Slightly        |  |  |
|                                |                                |                        |                            |                  |                         | l  |                           |                         |                |                 | cloudy, with    |  |  |
| 13:30                          | 2.5                            | 56.1                   | 1247                       | 1.08             | 9.19                    | -3.1   |                           |                         | NA             | NA NA           | dark            |  |  |
|                                |                                | / 35.3                 | 3                          |                  |                         |  |                           |                         |                |                 | sediment        |  |  |
|                                |                                |                        |                            |                  |                         | 1  |                           |                         |                |                 | Colorless,      |  |  |
| 15:00                          | ~5                             | 65.6                   | 1266                       | 1.00             | 9.64                    | 28.6   |                           |                         | NA             | NA              |                 |  |  |
|                                |                                | 37.5                   | 3                          |                  |                         |  |                           |                         |                |                 | slight          |  |  |
|                                |                                |                        |                            |                  |                         | -  |                           |                         |                |                 | sheen           |  |  |
|                                |                                |                        |                            |                  |                         |  |                           |                         |                |                 |                 |  |  |
|                                |                                |                        |                            |                  |                         |  |                           |                         |                |                 |                 |  |  |
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|                                | ĺ                              |                        |                            |                  |                         |  |                           |                         |                |                 | 1               |  |  |
|                                |                                |                        |                            |                  |                         | <del> </del>                                     |                           |                         |                |                 |                 |  |  |
|                                |                                |                        |                            |                  |                         |  |                           |                         |                |                 |                 |  |  |
| A                              |                                | <b>F</b> 11 <b>F</b>   |                            | Da ii 1 C ii     |                         | DID (TIE T                                       |                           |                         |                |                 |                 |  |  |
| Analyses reque                 |                                | Full Su                |                            | Partial Suite    | e (explain)             | PID/FID Re                                       | _                         |                         |                | al Readings:    | Sample Readings |  |  |
|                                | s-12b-S (Field Filte           | red) / Total Meta      | als U-Hg, PAH, P           | CB, P, 8260      |                         | NA   | HNu                       |                         |                | TOC: NA TOC: NA |                 |  |  |
| Ra 226/226, Ph                 | enol, EDB, RN,                 |                        |                            |                  |                         | NA NA  | OVA BZ: NA                |                         |                |                 | BZ: NA          |  |  |
| A data                         |                                |                        | (I)                        |                  |                         | <del>-</del>                                     |                           |                         |                | Bkgd: NA        |                 |  |  |
| Additional Con                 | nments: ~ 7 gallons            | s removed by di        | illers during deve         | eiopment         |                         |  |                           | erial No.:              |                |                 |                 |  |  |
|                                |                                |                        |                            |                  |                         | Condition of Well: New                           |                           |                         |                |                 |                 |  |  |



# **Annual Geothermal Well Report**

# Owner/Operator: Lightning Dock Geothermal HI-01, LLC (a subsidiary of Cyrq Energy, Inc.)

# **Discharge Permit GTHT-001**

Submitted by:

Nick Goodman CEO of Cyrq Energy, Inc. 136 South Main Street, Ste. 600 Salt Lake City, UT 84101

31 January 2014

# **Table of Contents**

- 1. Cover Page
- 2. Comprehensive summary of all geothermal well operations
- 3. Production and injection volumes
- 4. Chemical analyses
- 5. Mechanical Integrity Test chart
- 6. Annual Subsidence Survey data results
- 7. Deviations from normal production methods
- 8. Leaks and Spills reports
- 9. Analytical data results from annual groundwater monitoring
- 10. Area of Review summary
- 11. Miscellaneous
- 12. Discharge Permit signatory requirements

# Lightning Dock Geothermal HI-01, LLC 2013 Annual Geothermal Well Report

Lightning Dock Geothermal HI-01, LLC (LDG), formerly Los Lobos Renewable Power, LLC, hereby submits its 2013 Annual Geothermal Well Report pursuant to ¶21(P) of its Discharge Permit, dated July 1, 2009.

#### **Background**

**Overview.** LDG is the operator for two BLM Geothermal Resources Leases, NM-34790 (2,500.96 acres) and NM-108801 (640.00 acres), in Hidalgo County, New Mexico. LDG, which is owned by Cyrq Energy, Inc., has recently completed construction of Phase I of the development of Lightning Dock geothermal resource. Phase I uses geothermal fluids to generate electricity on a utility scale. All wells used in Phase I were drilled prior to 2013 (LDG 45-7, 47-7, 53-7, 55-7, and 63-7).

**Technology.** Cyrq Energy, Inc. currently operates a binary-cycle power plant in Thermo, Utah, which does not require steam (water vapor) to generate electricity. Instead, geothermal heat heats working fluid with a boiling point lower than the boiling point of water. The working fluid, when vaporized, turns a screw-style turbine to generate electricity. LDG's recently completed Phase I power plant at the Lightning Dock geothermal resource uses RF245 as the working fluid. When vaporized, RF245 turns the screw-style turbine in four Kaishan KE-1000 1,000 kW power modules which generate electricity. Thus, the technology involves two closed loops.

In the first closed loop, the hot geothermal fluid is pumped to the surface via a production well. The hot geothermal fluid—contained in a pipeline—enters the power plant at over 300° F and flows through a heat exchanger that transfers the heat to RF245, the working fluid. Subsequently, 100% of the geothermal fluid, cooled slightly to between 140° F -160° F, is returned to the same geothermal reservoir or fluid flow intervals via an injection well(s). The fluid is then naturally reheated to be used again and again. At the point where the geothermal fluid leaves the geothermal reservoir to the point where it returns to the reservoir, it remains contained in a pipe under pressure and in the fluid phase. It does not boil or flash or comingle with the working fluid, shallow freshwater aquifers, or air. There are no additives to the fluid, there is no surface ponding, no holding tanks, no evaporative losses. The fluid is contained in pipe or well casing during its entire journey, it is chemically unaltered, and is never exposed to the atmosphere.

The second closed loop contains the working fluid. The working fluid, too, is continuously contained in pipes. The working fluid gathers heat from the heat exchanger, vaporizes, turns the screw-style turbine, becomes cooled via the air-cooling fans, and then returns to the heat exchanger to recycle again and again. Please see Figure 1.

#### **Binary Cycle Power Plant Example**

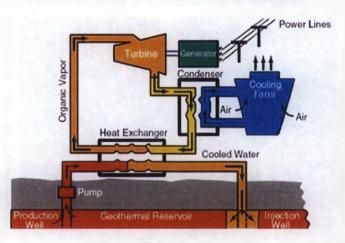


Figure 1

Because the fluids are constantly recycling through the geothermal reservoir at a steady rate, the geothermal reservoir maintains equilibrium

**Public Interest.** The Lightning Dock Geothermal project uses geothermal fluids to generate electricity on a utility scale. By contract, this electricity is sold to PNM and used by New Mexico customers. This project is in the public interest because geothermal heat is a renewable source of energy. In addition, geothermal heat is constant. It provides base load (i.e., 24/7) power, unlike wind and solar. Unlike other base-load sources of energy such as coal and natural gas, geothermal electricity is produced with zero emissions.

No Waste. Since the Lightning Dock Geothermal project relies on a geothermal closed-loop system, resulting in no net depletion of the geothermal reservoir, and is constantly returning the thermally depleted fluids to the geothermal reservoir for reheating, the project is in the interest of conservation. Further, the project prevents waste because the geothermal fluids are beneficially used to generate electricity that will be used by New Mexico customers.

Correlative Rights. Existing leases in the Lightning Dock geothermal area are: Los Lobos/LDG (3,140.96 acres of geothermal resources leased from BLM), Rosette, Inc. (313.59 acres of geothermal resources leased from NM State Land Office) and AmeriCulture, Inc. (10 acres of geothermal resources leased from NM State Land Office). In addition, the McCants family owns at least 240 acres of property with mineral rights in the Lightning Dock geothermal area. The Lightning Dock Geothermal project protects correlative rights and allows each leaseholder and owner their just and equitable share of recoverable geothermal resources.

#### **Discharge Permit Requirements**

- 1. Cover Sheet. Please see cover page.
- 2. Comprehensive summary of all geothermal well operations, including description and reason for any remedial work; include G-103s.

Summary: The following table summarizes changes to LDG's geothermal wells in 2013:

| LDG 45-7 | Placed on production in 2013   |
|----------|--|
| LDG 47-7 | Temporarily converted to monitoring well in 2013 (permitted as a production well)                |
| LDG 53-7 | Permitted as an injection well in 2013; built infrastructure to place well on injection          |
| LDG 55-7 | Permitted as an injection well in 2013; placed on injection in 2013                              |
| LDG 63-7 | Built infrastructure to place well on injection in 2013 (permitted as an injection well in 2012) |

Remedial Work: In 2013, LDG performed a well cleanout of well LDG 55-7. United Drilling mobilized to LDG on 10/09/13; installed a blow-out preventer, rigged up, and began drilling on 10/10/13; completed drilling on 10/19/13; and demobilized on 10/20/13. Blank liner was installed between depths of 570' to 731' bgs, and non-cemented slotted liner was installed from depths of 731' to 1486' bgs, to protect the open hole. The approved G-103 forms and Cleanout and Completion Handbook for the cleanout are included at <u>Tab 1</u>.

In 2013, LDG also performed mechanical integrity testing on LDG 55-7. The Mechanical Integrity Test chart is included at <u>Tab 4</u>.

3. Production and injection volumes, including a running total to be carried over each year (summary of the monthly filed production and injection reports, forms G-108 and G-110).

Total amount produced in 2013: 37.1 AF

Total amount injected in 2013: 37.1 AF

- 4. Copies of chemical analyses in accordance with Permit Condition 20 (Water Quality Monitoring Program). Copies of the laboratory analytical sheets for the samples collected from the groundwater quality monitoring wells, production wells, and injection wells in 2013 are included at <u>Tab 2</u>. Copies of the well development and field sampling sheets are included at <u>Tab 3</u>.
- 5. A copy of any mechanical integrity test chart in accordance with Permit Condition 2l.H. A mechanical integrity test was performed on Well LDG 55-7 in 2013. Please see <u>Tab 4</u> for the properly signed and dated circular test chart and calibration.
- **6.** A copy of the annual subsidence survey data results. On December 17, 2013, prior to power plant startup on December 20, 2013, LDG caused the well top-of-casing and ground elevations to be surveyed. Those baseline elevations are included at <u>Tab 5</u>.
- 7. Brief explanation describing deviations from normal production methods. After commissioning the power plant, there has been no deviation from normal production methods.
- 8. Copies of any leaks and spill reports submitted in accordance with Permit Condition There were no leaks or spills to report in 2013.
- 9. A copy of analytical data results from annual groundwater monitoring including the QA/QC Laboratory Summary. LDG installed six shallow groundwater quality monitoring wells (MW-1 through MW-6) and one intermediate depth (INW-1) groundwater quality monitoring well in 2013 and converted one of its geothermal production wells (LDG 47-7) into a deep up-gradient monitoring well (MW 47-7). Each of these wells was sampled prior to power plant startup which took place on December 20, 2013. Additionally, all the production and injection wells were also sampled prior to power plant startup. Groundwater monitoring well permits issued by the New Mexico Office of the State Engineer are presented in Tab 6. Prior to November 2013, water quality data for the geothermal reservoir was available only from historic samples collected from production or injection wells LDG 45-7, LDG 53-7, LDG 55-7 and LDG 63-7. A comprehensive tabular summary of all groundwater samples collected from the geothermal wells prior to December 31, 2013 is included in Table 1 at Tab 7 and a comprehensive summary of all groundwater samples collected from the water quality monitoring wells prior to plant startup is included in Table 2 at Tab-7.
- 10. An updated Area of Review (AOR) summary when any new wells are drilled within 1/4 mile of any UIC Class V Geothermal Injection Well (see (20.6.2 NMAC). LDG's permitted UIC Class V Geothermal Injection Wells are LDG 53-7, 55-7 and 63-7. LDG is not aware of any wells drilled within 1/4 mile of LDG 53-7, 55-7 and 63-7 that penetrate these wells' injection zones.

- 11. Miscellaneous section to include any other issues that should be brought to OCD's attention. LDG anticipates a discussion on the necessity of operating our power plant under the auspices of a renewed Discharge Permit. And if it's decided we must renew our Discharge Permit in 2014, we anticipate modifications will have to be made. As indicated in last year's Annual Report, LDG installed air-cooling systems for the condensers on each power block, thus eliminating the sampling and analysis requirements of Table 5 of the Discharge Permit.
- 12. Certification Form. Please see following page.

#### CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this 2013 Annual Geothermal Well Report, including all attachments, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

I further certify that I am a representative who performs similar policy-making functions for Lightning Dock Geothermal HI-01, LLC who has authority to sign for Lightning Dock Geothermal HI-01, LLC.

Yours sincerely,

Signature: Mile Lysan

Printed Name: MillE Gipson

Title: Airector of Operations

# STATE OF NEW MEXICO

CONDITIONS OF APPROVAL, IF ANY

# OIL CONSERVATION DIVISION P. O. BOX 2088 SANTA FE. NEW MEXICO 87501

| Form & | -10  | 3    |     |
|--------|------|------|-----|
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| NO. OF COPIES RECEIVED   | •  |
| DISTRIBUTION   |  |
| SUNDRY NOTICES AND REPORTS   |  |
| N. M. B. M. ON   | 5. Indicate Type of Lease  |
| U. S. G. S GEOTHERMAL RESOURCES WELLS  | State  |
| Operator   | S.a State Lease No.  |
| Land Office  | Federal NM34790  |
| Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. Use "Application For Permit " (Form G-101) for Such Proposals.)  | tion (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII                           |
| 1. Type of well Geothermal Producer / Temp. Observation  | 7. Unit Agreement Name   |
| Low-Temp Thermal  Injection/Disposal   | 1  |
| 2. Name of Operator  | B. Farm or Lease Name  |
| Los Lobos Renewable Power, LLC   |  |
| 3. Address of Operator   | 9. Well No.  |
| 136 South Main Street, Ste. 600, Salt Lake City, Utah 84101  | LDG 55-7   |
| 4. Location of Well  | 10. Field and Pool, or Wildcat                                       |
| Unit Letter J 2329 Feet From The South Line and 2412 Feet  | From Lightning Dock Geothermal                                       |
|  |  |
| The East Line, Section 7 Township 25S Range 19W N  | WALPAN.  |
| 110 minutes and the second sec |  |
| 11111111111111111111111111111111111111   | 12. County   |
| 4198 GR  | Hidalgo  |
| 16. Check Appropriate Box To Indicate Nature of Notice, Report or Oth  |  |
|  |  |
| _  | SEQUENT REPORT OF:   |
| PERFORM REMEDIAL WORK PLUG AND ABANDON REMEDIAL WORK   | ALTERING CASING  |
| TEMPORARILY ABANDON U COMMENCE DRILLING OPP  | NS PLUG & ABANDONMENT  |
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| OTHER Cement bond  | log performed in   |
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| OTHER  | es including estimated date of specting any                          |
| OTHER  | z, including estimated date of starting any                          |
| 17. Describe Proposed or completed Operations (Clearly state all pertinent details, and give pertinent date proposed work) SEE RULE 203.   | ppeared to be in good condition.                                     |
| 17. Describe Proposed or completed Operations (Clearly state 48 persinens details, and give persinens date proposed work) SEE RULE 203.  Subsequent notice of a cement bond log.  Baker Hughes performed a cement bond log on LDG 55-7 in 2008 and the cement bond at Please find attached a copy of this cement bond log and consider it partial fulfillment of the   | ppeared to be in good condition.                                     |
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| 17. Describe Proposed or completed Operations (Clearly store all persinent details, and give persinent details, an | ppeared to be in good condition. e mechanical integrity test that is |



November 6, 2013

Mr. Carl Chavez, CHMM
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3490
CarlJ.Chavez@state.nm.us

Project 1151700102

RE: Subsequent Sundry Notice Form G-103 for Geothermal Production Well LDG 55-7 for Lightning Dock Geothermal HI-01, LLC, Section 7, Twp. 25S, Rng. 19W, Hidalgo County, New Mexico

Dear Mr. Chavez:

On behalf of Lightning Dock Geothermal HI-01, LLC, AMEC Environment & Infrastructure, Inc. (AMEC) respectfully submits the attached Subsequent Sundry Notice for the clean out and liner installation in LDG-55-7 following successful completion of the casing integrity testing. The liner was set at 1486 to 570 feet with 480 feet of overlap inside the production casing. We believe open hole to be present below 1486 feet but could not get the liner to pass this depth.

Mr. Dade will receive two originals at his office in Artesia. Thank you very much for your assistance in the development of this important energy project. Should you have questions regarding this sundry notice please do not hesitate to contact me by email at <a href="mailto:David.Janney@amec.com">David.Janney@amec.com</a> or by phone at (505) 821-1801.

Respectfully submitted.

David W. Janney, PG

Agent for Lightning Dock Geothermal HI-01, LLC

Cc: Mr. Randy Dade - NMOCD Artesia

Mr. Chuck Smiley - Lightning Dock Geothermal HI-01, LLC

Ms. Michelle Henrie - Attorney for Lightning Dock Geothermal HI-01, LLC

**Attachments** 

One (1) Form G-103 Sundry Notice for LDG 55-7

# STATE OF NEW MEXICO

# OIL CONSERVATION DIVISION

| ENERGY AND MINEHALS DEPARTMEN |          |  |  |
|-------------------------------|----------|--|--|
| NO. OF COPIES RECEIVED        |          |  |  |
| DISTRIBUTION                  | <u> </u> |  |  |
| ile                           |          |  |  |
| N, M, B. M, .                 |          |  |  |
| U. S. G. S                    |          |  |  |
| Operator                      |          |  |  |
|                               |          |  |  |

SANTA FE. NEW MEXICO 87501

| NO. OF COPIES RECEIVED   | JANTA TE, ME                     | W WEX.CO 17501   |  |
|--|----------------------------------|--|--|
| DISTRIBUTION   |                                  |  |  |
| c'ile  |                                  |  |  |
| N. M. B. M.  | SUNDRY NOTICE                    | S. Indicate Type of Lease  |  |
| U. S. G. S   | GEOTHERMAL RE                    | •  | State   Fee                                  |
| Operator   | OLO ITELIMAL III                 | . SOUTH TELES  | 5.a State Lease No.                          |
| Land Office  |                                  |  | Federal NM34790                              |
| Do Not Use This Form for Proposals to<br>For Permit " (Form G-101) for Such                      |                                  | Different Reservoir. Use "Application  |  |
| 1. Type of well Geothermal Produ   | ucer — Temp. Observation         |  | 7. Unit Agreement Name                       |
| Low-Temp Therm   | ial Injection/Disposal           | <b>7</b>   |  |
| 2. Name of Operator  | ·                                | *  | 8. Farm or Lease Name                        |
| Lightning Dock Geothermal I  | 1I-01, LLC                       |  | Federal NM34790                              |
| 3. Address of Operator   |                                  | ·  | 9. Well No.                                  |
| 136 South Main Street, Ste. 6  | 600, Salt Lake City, Utah 84101  |  | LDG 55-7                                     |
| 4. Location of Well  |                                  |  | 10. Field and Pool, or Wildcat               |
| Unit Letter J  | 2329 Feet From The South         | Line andLeet From  | Lightning Dock Geothermal                    |
| The East Line, Section   | 7 Township 25S                   |  | 12. County                                   |
|  | 4198 GR                          |  | Hidalgo //////////////////////////////////// |
| 16. Check  | : Appropriate Box To Indicate Na | ature of Notice, Report or Other Da  | ita  |
| NOTICE OF INTE   |                                  | SUBSEQUE   | NT REPORT OF:                                |
| PERFORM REMEDIAL WORK  | PLUG AND ABANDON                 | REMEDIAL WORK  | ALTERING CASING                              |
| TEMPORARILY ABANDON  |                                  | COMMENCE DRILLING OPNS.  | PLUG & ABANDONMENT                           |
| ILL OR ALTER CASING  | CHANGE PLANS                     | CASING TEST AND CEMENT JOB   |  |
|  |                                  | OTHER Well clean out and I   | iner setting                                 |
| OTHÉR  |                                  |  |  |
| UINER  |                                  |  |  |
| 17. Describe Proposed or completed O proposed work) SEE RULE 203. Well cleanout and running slot |                                  | details, and give pertinence dates, inch   | uding estimated date of starting any         |
| Slotted liner was intended to b  |                                  | n October 14 and 18, 2013.<br>feet. Due to tight hole at 1516 fee<br>ore occurs from 1486 feet to 2349 f |  |
| Liner overlap in the production  | casing was intended to be 100    | feet. Liner over lap is now from 5   | 70 feet to 1050 feet.                        |

". I hereby certify that the information above is true and complete to the best of my knowledge and belief. Agent for Lightning Dock Geothermal HI-01, TITLE Environmental Engineer



July 8, 2013

Project 1151700102

Mr. Randy Dade District 2 Supervisor New Mexico Oil Conservation Division 811 South First Street Artesia, NM 88210 575-748-1283 Randv.Dade@state.nm.us

RE: Sundry Notice Form G-103 for Geothermal Production Well LDG 55-7 for

Los Lobos Renewable Power, LLC, Section 7, Twp. 25S, Rng. 19W, Hidalgo

County, New Mexico

Dear Mr. Dade:

On behalf of Los Lobos Renewable Power, LLC, AMEC Environment & Infrastructure respectfully submits the attached Sundry Notice for the cleanout and completion of LDG 55-7. LDG 55-7 is located on federal geothermal lease NM 34790 in Hidalgo County, New Mexico. There is one original and one copy of the form included in this submittal. Mr. Carl Chavez will also receive an original at his office in Santa Fe. AMEC will also submit a Sundry Notice for this work to Mr. Patrick Moran with the Bureau of Land Management in Las Cruces, New Mexico and an equivalent type of form will be submitted to Mr. Martin McMillan with the New Mexico Office of the State Engineer in Deming.

Thank you very much for your assistance in the development of this important energy project. Should you have questions regarding these applications, please do not hesitate to contact me by email at David.Janney@amec.com or by phone at (505) 821-1801.

Respectfully submitted,

David W. Janney, PG

Agent for Los Lobos Renewable Power, LLC

Cc: Mr. Carl Chavez - NMOCD Santa Fe

Mr. Chuck Smiley - Los Lobos Renewable Power, LLC (Lightning Dock

Geothermal HI-01, LLC)

Ms. Michelle Henrie - Attorney for Los Lobos Renewable Power, LLC

#### Attachments

Two (2) Forms G-103 Sundry Notice for LDG 55-7

Two (2) Cleanout & Completion program for LDG 55-7 by Capuano Engineering Consultants

#### STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT

CONDITIONS OF APPROVAL IF ANY

# OIL CONSERVATION DIVISION . P. G. BOX 2088

Form 6-103 Adopted 10-1-74 Revised 10-1-78

|  | SANTA FE, NEW MEXICO 87501   | Revised 10-1-78                         |
|--|--|---|
| NO. OF COPIES RECEIVED   | 4  | •                                       |
| DISTRIBUTION   |  |   |
| File   | SUNDRY NOTICES AND REPORTS   |   |
| N. M. B. M.  | ON   | S. Indicate Type of Lease               |
| U. S. G. S   | GEOTHERMAL RESOURCES WELLS   | State Fee                               |
| Operator   |  | 5.a State Lease No.                     |
| Land Office  |  | Federal NM34790                         |
| Do Not Use This Form ter Proposals to<br>For Permit (Farm G-101) for Such  | Drift or to Despen or Plug Back to a Officent Reservoir. Use "Application<br>Proposale.)   |   |
| 1. Type of well Geothermal Prod  | ucer 7 Temp. Observation   | 7. Unit Agreement Name                  |
| Low-Temp There   | nat Injection/Disposal   |   |
| 2. Name of Operator  |  | S. Farm or Lesse Name                   |
| Los Lobos Renewable Powe  3. Address of Operator   | IT. LLC  | 9. Well No.                             |
| · ·  | COO Calit Laka City Liliah 04404   | LDG 55-7                                |
|  | 600, Salt Lake City, Utah 84101  | Ig. Field and Pool, or Wildcat          |
| 4. Location of Well Unit Letter K  | 2329 Feet From The South Line and 2412 Feet Fro  | Lightning Dock Geothermal               |
|  | •  |   |
| The East Line, Section   | 7 Township 25S Range 19W NMF   |   |
|  |  |   |
|  | 15. Elevation (Show whether DF, RT, GR, etc.)  | 32. County                              |
|  | 4201 GR  | Hidalgo (IIIIIIIIII                     |
| 16. Chec   | k Appropriate Box To Indicate Nature of Notice, Report or Other  |   |
|  |  |   |
| NOTICE OF INTE   |  | EUENT REPORT OF:                        |
| PERFORM REMEDIAL WORK  | PLUG AND ABANDON  REMEDIAL WORK  | ALTERING CASING                         |
| TEMPORARILY ABANDON  | COMMENCE DRILLING OPNS.  | . PLUG & ABANDONMENT                    |
| LL OR ALTER CASING   | CHANGE PLANS . CASING TEST AND CEMENT J  | юв 🔲 -                                  |
|  |  |   |
|  | OTHER  |   |
| отнёя Cleanout well and run  | slotted liner  |   |
| proposed work) SEE RULE 203.  Move on location and rig-up dri Cleanout well to existing depth  | of 2,349 feet.   | ncluding estimated date of starting any |
| Run slotted liner with 100 feet of   |  |   |
| Close master valve, rig-down, a  | ind move on location.  |   |
| Please see attached LDG 55-7 program.  | Cleanout & Completion Program by Capuano Engineering Con-  | sultants for the details of this        |
|  | •  |   |
|  |  |   |
|  |  |   |
| -  |  |   |
|  |  |   |
|  |  |   |
|  |  |   |
|  |  |   |
|  | `  |   |
|  |  |   |
|  |  |   |
|  |  |   |
| I hereby certify that the information  | on above is true and complete to the best of my knowledge and belief.  |   |
| Didie L  | MAY PG TITLE Agent for Los Lobos Renewable Power   | r. LLG 2013                             |
| STORE OF THE STORE | THE STATE OF THE S |   |
|  | V  |   |
| APPROVED BY  | TITLE  |   |
| MALWARD BY   |  |   |



# LDG 55-7 Cleanout and Completion Program

# **Designed and Prepared By:**



3883 Airway Drive Suite 210 Santa Rosa, CA 95403 TELEPHONE: (707) 575-8740

| Drilling Program  |   |  |  |
|-------------------|---|--|--|
| Operating Company | Cyrq - Los Lobos Renewable Power, LLC     |  |  |
| Field             | Lightning Dock                            |  |  |
| Well              | LDG 55-7                                  |  |  |
| Location          | Sec 7 Twp 25 S R 19 W: Hidalgo County, NM |  |  |
| Well Type         | Production Well                           |  |  |
| Drilling Engineer | Louis Capuano III                         |  |  |
| Date of Issue     | July 8, 2013                              |  |  |

|          |                   | Signature                       | Date |
|----------|-------------------|---------------------------------|------|
| Prepared | Louis Capuano III |                                 |      |
|          | Drilling Engineer | Capuano Engineering Consultants |      |

# **Table of Contents**

# Section:

- A. General Well Information
- B. Cleanout and Completion Program
- C. Lithology
- D. BOP Diagram

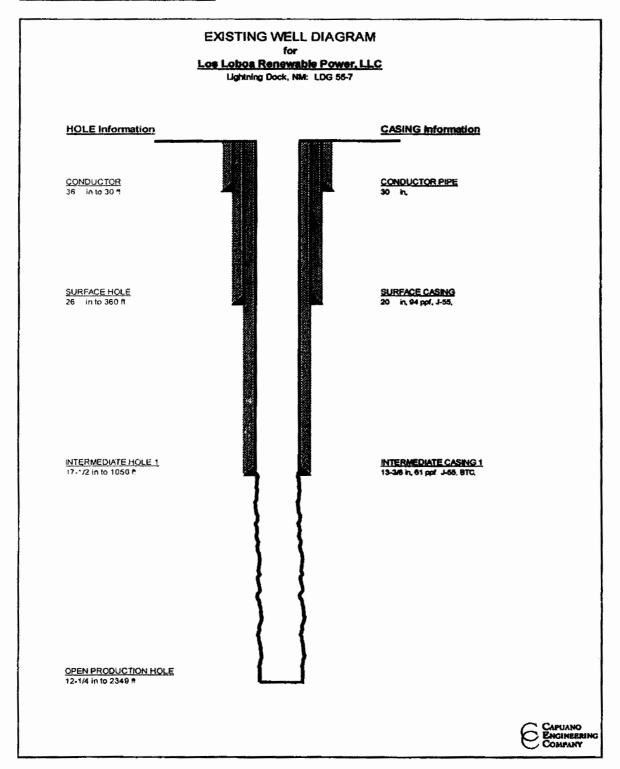
# Section A: General Well Information

| Well Information Table         |  |  |  |
|--------------------------------|--|--|--|
| Los Lobos Renewable Power, LLC | LDG 55-7   |  |  |
| Location                       | Section: 7, Township: 25S, Range: 19W County: Hidalgo County State: NM |  |  |
| Elevation                      | GL: 4208'  |  |  |
|                                | Original KB: 15'   |  |  |
| Original 1985 Total Depth      | 7001' MD   |  |  |
| 2010 Re-Opening Depth          | 2349' MD   |  |  |
| Surface LAT/LONG               | LAT = 32.144311 deg<br>LONG = -108.835941                              |  |  |

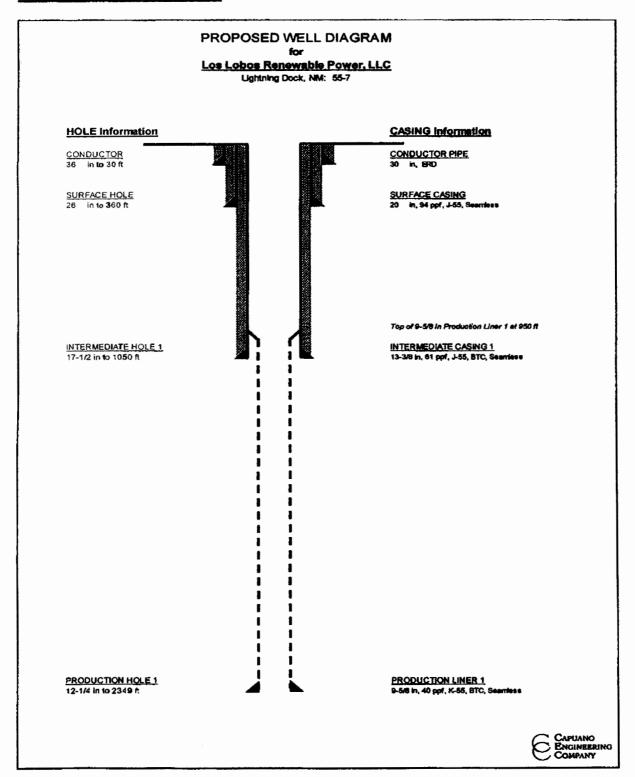
| Section | on Maximum Depth of Section |       | Casing                            |
|---------|-----------------------------|-------|-----------------------------------|
| ОН      | MD                          | TVD   | _                                 |
| 36"     | 30'                         | 30'   | 30", 135 ppf, J-55 BTC Casing     |
| 26"     | 360'                        | 360'  | 20", 94 ppf, J-55, BTC            |
| 17-1/2" | 1050'                       | 1050' | 13-3/8", 61 ppf, J-55, BTC Casing |
| 12-1/4" | 2349'                       | 2349' | Open Hole                         |

| Wellhead Information                                      |            |  |  |
|---|------------|--|--|
| Flange Size Pressure Test (psi)                           |            |  |  |
| 13-3/8" SOW x 12" ANSI 400 Series with two 2" LP outlets. | 250 / 1000 |  |  |
| 12" 300 FE RTJ slab gate valve.                           | 250 / 1000 |  |  |

#### **Existing Wellbore Schematic:**



#### **Proposed Wellbore Schematic:**



#### Section B: Cleanout and Completion Program

#### Safety / Hazards Considerations in This Section:

During the cleanout and completion program, it is imperative to maintain a steady water supply to the rig. The well has shown signs of temperature and artesian flow. During all operations while the well is open, a steady flow of cool water will be introduced to the wellbore at a rate of approximately 10 gallons per minute. This will ensure that the flow from geothermal formations will stay killed. The fresh water will be supplied by fresh water well LDG 14-7. All clean out and subsequent procedure will utilize fresh water to ensure that no formation damage is incurred on the reservoir. Bentonite or clay-like products will not be used during the clean-out and completion program. All cuttings will be managed and disposed of properly.

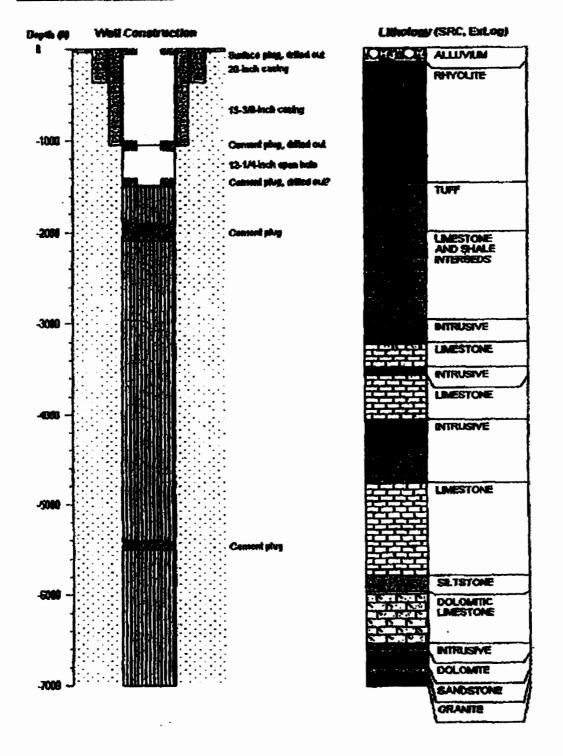
| Bit & Hydraulics Program   |                  |                     | Mud Program                            |  |  |
|--|------------------|---------------------|--|--|--|
| Bit Type   | 12-1/4" Tri-cone | Mud Weight          | 8.33 ppg                               |  |  |
| Nozzles  | 3 x 20,          | Mud Type            | Fresh Water                            |  |  |
| IADC Code  | 3-1-5 to 4-2-7   | Fluid Loss          | N/A                                    |  |  |
| RPM  | 60 – 80 RPM      | YP                  | N/A                                    |  |  |
| Pump Rate  | 400 – 700 gpm    | PH                  | N/A                                    |  |  |
| Run a maximum of 40,000 lbs of WOB. An average of 20,000 lbs to 30,000 lbs will suffice. |                  |                     |  |  |  |
| 12-1/4" BHA  | 12-1/4" Bit      | , Bit Sub, 2 x 8" Γ | OC, 8" Jar, 4 x 8" DC, XO, drill pipe. |  |  |

#### Procedure:

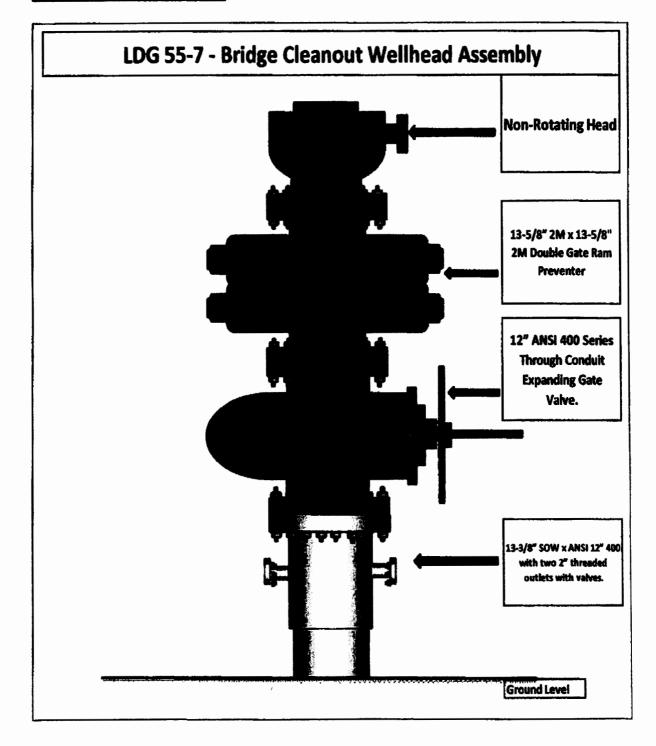
- 1. Move in and rig up on well.
  - 1.1. Nipple up BOP stack on wellhead.
  - 1.2. Move in water tank and fill.
- 2. Pick up and make up 12-1/4" Bottom Hole Assembly.
- 3. Run into well with assembly and drill pipe.
- 4. Tag bridge at approximately 1341'.
- 5. Pull up 5 ft and begin circulating water.
- 6. Begin rotation of bit at 70 rpm.
- 7. Tag and begin to drill out bridge.
  - 7.1. Continue to drill out bridge until clear open hole is reached or well TD is tagged at 2349'.
- 8. At section TD circulate, make a wiper trip to the 13-3/8" casing shoe and POOH.

- 8.1. Circulate and pull out of the hole.
- 8.2. Strap drill pipe, tools and collars to ensure hole depth.
- 9. Run 9-5/8", 40 ppf, K-55, BTC Slotted liner on a 13-3/8" x 9-5/8" liner adapter.
  - 9.1. Plan liner for a 100' liner lap.
  - 9.2. Lower four joints and upper four joints of the liner will be blank.
  - 9.3. Equip liner with a guide shoe.
  - 9.4. Weld the bottom four joints of casing.
  - 9.5. Run liner in the hole on drill pipe.
  - 9.6. Tag bottom.
- 10. Release from liner adapter.
- 11. Pull out of the hole with tool and drill pipe.
- 12. Close master valve and rig down.

# Section C: Lithology



# Section C: BOP Diagram





Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 16, 2013

David Janney
AMEC
8519 Jefferson Street, NE
Albuquerque, NM 87113
TEL: (505) 796-7276

**FAX** 

RE: Lightning Dock Geothermal Water Quality Monitoring

OrderNo.: 1312055

Dear David Janney:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/2/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

# Analytical Report Lab Order 1312055

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: LDG 55-7

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/27/2013 3:00:00 PMLab ID:1312055-001Matrix: AQUEOUSReceived Date: 12/2/2013 3:20:00 PM

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|--------|
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Analyst               | scc    |
| Aroclor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640  |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640  |
| Aroclor 1232                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640  |
| Aroclor 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640  |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640  |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640  |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L  | 1  | 12/8/2013 2:05:14 PM  | 10640  |
| Surr: Decachlorobiphenyl          | 88.4   | 17-123   |      | %REC  | 1  | 12/8/2013 2:05:14 PM  | 10640  |
| Surr: Tetrachloro-m-xylene        | 74.0   | 22.6-113 |      | %REC  | 1  | 12/8/2013 2:05:14 PM  | 10640  |
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst               | SCC    |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Phenanthrene                      | 0.65   | 0.60     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Pyrene                            | 0.71   | 0.30     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | µg/L  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| Surr: Benzo(e)pyrene              | 64.1   | 24.5-139 |      | %REC  | 1  | 12/9/2013 7:15:48 PM  | 10641  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst               | : JRR  |
| Fluoride                          | 9.5    | 2.0      | *    | mg/L  | 20 | 12/3/2013 5:28:52 PM  | R15216 |
| Chloride                          | 140    | 10       |      | mg/L  | 20 | 12/3/2013 5:28:52 PM  | R15216 |
| Bromide                           | 0.46   | 0.10     |      | mg/L  | 1  | 12/3/2013 4:51:39 PM  | R15216 |
| Phosphorus, Orthophosphate (As P) | ND     | 0.50     | Н    | mg/L  | 1  | 12/3/2013 4:51:39 PM  | R15216 |
| Sulfate                           | 630    | 10       | *    | mg/L  | 20 | 12/3/2013 5:28:52 PM  | R15216 |
| Nitrate+Nitrite as N              | ND     | 1.0      |      | mg/L  | 5  | 12/4/2013 10:52:14 PM | R15288 |
| EPA METHOD 200.7: DISSOLVED MI    | ETALS  |          |      |       |    | Analyst               | : JLF  |
| Aluminum                          | 0.080  | 0.020    |      | mg/L  | 1  | 12/3/2013 7:04:41 PM  | R15213 |
|                                   |        |          |      |       |    |                       |        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- Troubling times for preparation of analysis exceede
- ND Not Detected at the Reporting Limit Page 1 of 28
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: LDG 55-7 **CLIENT: AMEC** 

Collection Date: 11/27/2013 3:00:00 PM Project: Lightning Dock Geothermal Water Qualit Matrix: AQUEOUS Lab ID: 1312055-001 Received Date: 12/2/2013 3:20:00 PM

| Analyses                       | Result | RL Qu   | al Units | DF | Date Analyzed          | Batch     |
|--------------------------------|--------|---------|----------|----|------------------------|-----------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |          |    | Analyst                | JLF       |
| Barium                         | 0.094  | 0.0020  | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Boron                          | 0.65   | 0.040   | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Cadmium                        | ND     | 0.0020  | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Calcium                        | 48     | 1.0     | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Chromium                       | ND     | 0.0060  | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Cobalt                         | ND     | 0.0060  | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Copper                         | ND     | 0.0060  | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Iron                           | 0.40   | 0.020   | * mg/L   | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Magnesium                      | ND     | 1.0     | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Manganese                      | 0.13   | 0.0020  | * mg/L   | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Molybdenum                     | 0.046  | 0.0080  | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Nickel                         | ND     | 0.010   | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Potassium                      | 32     | 1.0     | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| Silver                         | ND     | 0.0050  | mg/L     | 1  | 12/10/2013 11:43:56 AM | /I R15389 |
| Sodium                         | 380    | 5.0     | mg/L     | 5  | 12/3/2013 7:06:37 PM   | R15213    |
| Zinc                           | ND     | 0.010   | mg/L     | 1  | 12/3/2013 7:04:41 PM   | R15213    |
| EPA 200.8: DISSOLVED METALS    |        |         |          |    | Analyst                | DBD       |
| Arsenic                        | 0.0074 | 0.0010  | mg/L     | 1  | 12/9/2013 2:28:31 PM   | R15360    |
| Lead                           | ND     | 0.0010  | mg/L     | 1  | 12/9/2013 12:53:57 PM  | R15358    |
| Selenium                       | 0.0038 | 0.0010  | mg/L     | 1  | 12/9/2013 2:28:31 PM   | R15360    |
| Uranium                        | ND     | 0.0010  | mg/L     | 1  | 12/9/2013 12:53:57 PM  | R15358    |
| EPA METHOD 245.1: MERCURY      |        |         |          |    | Analyst                | JML       |
| Mercury                        | ND     | 0.00020 | mg/L     | 1  | 12/8/2013 5:08:28 PM   | 10693     |
| EPA METHOD 8270C: SEMIVOLATIL  | ES     |         |          |    | Analyst                | DAM       |
| Acenaphthene                   | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Acenaphthylene                 | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Aniline                        | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Anthracene                     | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Azobenzene                     | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Benz(a)anthracene              | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Benzo(a)pyrene                 | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Benzo(b)fluoranthene           | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Benzo(g,h,i)perylene           | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Benzo(k)fluoranthene           | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Benzoic acid                   | ND     | 40      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Benzyl alcohol                 | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L     | 1  | 12/4/2013 12:59:42 PM  | 10639     |
|                                |        |         |          |    |                        |           |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 2 of 28 Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

# Analytical Report

Date Reported: 12/16/2013

#### Lab Order 1312055

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: LDG 55-7

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/27/2013 3:00:00 PMLab ID:1312055-001Matrix: AQUEOUSReceived Date: 12/2/2013 3:20:00 PM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed         | Batch |
|-----------------------------|--------|-------|----------|----|-----------------------|-------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  |       |          |    | Analyst               | DAM   |
| Bis(2-chloroisopropyl)ether | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Bis(2-ethylhexyl)phthalate  | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4-Bromophenyl phenyl ether  | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Butyl benzyl phthalate      | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Carbazole                   | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4-Chloro-3-methylphenol     | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4-Chloroaniline             | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2-Chloronaphthalene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2-Chlorophenol              | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4-Chlorophenyl phenyl ether | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Chrysene                    | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Di~n-butyl phthalate        | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Di-n-octyl phthalate        | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Dibenz(a,h)anthracene       | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Dibenzofuran                | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 3,3´-Dichlorobenzidine      | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Diethyl phthalate           | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Dimethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,4-Dichlorophenol          | ND     | 20    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,4-Dimethylphenol          | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4,6-Dinitro-2-methylphenol  | ND     | 20    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,4-Dinitrophenol           | ND     | 20    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,4-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,6-Dinitrotoluene          | ND     | 10    | µg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Fluoranthene                | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Fluorene                    | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Hexachlorobenzene           | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Hexachlorobutadiene         | ND     | 10    | µg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Hexachlorocyclopentadiene   | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Hexachioroethane            | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Indeno(1,2,3-cd)pyrene      | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Isophorone                  | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 1-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2-Methylphenol              | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 3+4-Methylphenol            | ND     | 10    | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### **Analytical Report**

Lab Order 1312055

Date Reported: 12/16/2013

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: LDG 55-7

Project: Lightning Dock Geothermal Water Qualit

Collection Date: 11/27/2013 3:00:00 PM

Lab ID: 1312055-001

Matrix: AQUEOUS Received Date: 12/2/2013 3:20:00 PM

| Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed         | Batch |
|--------------------------------|--------|-----------|----------|----|-----------------------|-------|
| EPA METHOD 8270C: SEMIVOLATILE | S      |           |          |    | Analyst               | DAM   |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Naphthalene                    | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 3-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Nitrobenzene                   | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 4-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Phenol                         | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Pyrene                         | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Pyridine                       | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| 2,4,6-Trichlorophenol          | ND     | 10        | µg/∟     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Surr: 2-Fluorophenol           | 48.5   | 22.7-98   | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Surr: Phenol-d5                | 38.2   | 23.4-74.9 | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Surr: 2,4,6-Tribromophenol     | 79.0   | 23.3-111  | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Surr: Nitrobenzene-d5          | 68.9   | 36.8-111  | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Surr: 2-Fluorobiphenyl         | 73.7   | 38.3-110  | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| Surr: 4-Terphenyl-d14          | 69.0   | 52.1-116  | %REC     | 1  | 12/4/2013 12:59:42 PM | 10639 |
| EPA METHOD 8260B: VOLATILES    |        |           |          |    | Analyst               | cadg  |
| Benzene                        | 1.8    | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| Toluene                        | 3.4    | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| Ethylbenzene                   | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| Naphthalene                    | ND     | 2.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| Acetone                        | 68     | 10        | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| Bromobenzene                   | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |
| Bromodichloromethane           | ND     | 1.0       | μg/L     | 1  | 12/4/2013 6:48:43 PM  | R1522 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 4 of 28

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### **Analytical Report** Lab Order 1312055

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: LDG 55-7

Collection Date: 11/27/2013 3:00:00 PM **Project:** Lightning Dock Geothermal Water Qualit Matrix: AQUEOUS Received Date: 12/2/2013 3:20:00 PM Lab ID: 1312055-001

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed        | Batch  |
|-----------------------------|--------|-------|----------|----|----------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Analyst              | : cadg |
| Bromoform                   | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Bromomethane                | ND     | 3.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 2-Butanone                  | ND     | 10    | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Carbon disulfide            | ND     | 10    | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Carbon Tetrachloride        | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Chlorobenzene               | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Chloroethane                | ND     | 2.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Chloroform                  | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Chloromethane               | ND     | 3.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 2-Chlorotoluene             | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Methylene Chloride          | ND     | 3.0   | µg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Styrene                     | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1  | 12/4/2013 6:48:43 PM | R15228 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 5 of 28 Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

#### **Analytical Report**

#### Lab Order 1312055

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

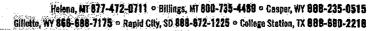
**CLIENT: AMEC** Client Sample ID: LDG 55-7

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/27/2013 3:00:00 PM 1312055-001 Matrix: AQUEOUS Received Date: 12/2/2013 3:20:00 PM Lab ID:

| Analyses                        | Result | RL (   | Qual | Units      | DF | Date Analyzed        | Batch  |
|---------------------------------|--------|--------|------|------------|----|----------------------|--------|
| EPA METHOD 8260B: VOLATILES     |        |        |      |            |    | Analyst              | cadg   |
| Tetrachloroethene (PCE)         | ND     | 1.0    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| trans-1,2-DCE                   | ND     | 1.0    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| trans-1,3-Dichloropropene       | ND     | 1.0    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2,3-Trichlorobenzene          | ND     | 1.0    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2,4-Trichlorobenzene          | ND     | 1.0    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1,1-Trichloroethane           | ND     | 1.0    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,1,2-Trichloroethane           | ND     | 1.0    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Trichloroethene (TCE)           | ND     | 1.0    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Trichlorofluoromethane          | ND     | 1.0    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| 1,2,3-Trichloropropane          | ND     | 2.0    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Vinyl chloride                  | ND     | 1.0    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Xylenes, Total                  | ND     | 1.5    |      | μg/L       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Surr: 1,2-Dichloroethane-d4     | 103    | 70-130 |      | %REC       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Surr: 4-Bromofluorobenzene      | 99.1   | 70-130 |      | %REC       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Surr: Dibromofluoromethane      | 102    | 70-130 |      | %REC       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| Surr: Toluene-d8                | 100    | 70-130 |      | %REC       | 1  | 12/4/2013 6:48:43 PM | R15228 |
| EPA METHOD 418.1: TPH           |        |        |      |            |    | Analyst              | : JME  |
| Petroleum Hydrocarbons, TR      | ND     | 1.0    |      | mg/L       | 1  | 12/3/2013            | 10616  |
| TOTAL PHENOLICS BY SW-846 9067  |        |        |      |            |    | Analyst              | SCC    |
| Phenolics, Total Recoverable    | 25     | 2.5    |      | μg/L       | 1  | 12/9/2013            | 10711  |
| SM2510B: SPECIFIC CONDUCTANCE   |        |        |      |            |    | Analyst              | : JML  |
| Conductivity                    | 2100   | 0.010  |      | µmhos/cm   | 1  | 12/3/2013 7:58:15 PM | R15223 |
| SM4500-H+B: PH                  |        |        |      |            |    | Analyst              | : JML  |
| рН                              | 6.89   | 1.68   | Н    | pH units   | 1  | 12/3/2013 7:58:15 PM | R15223 |
| SM2320B: ALKALINITY             |        |        |      |            |    | Analyst              | : JML  |
| Bicarbonate (As CaCO3)          | 120    | 20     |      | mg/L CaCO3 | 1  | 12/3/2013 7:58:15 PM | R15223 |
| Carbonate (As CaCO3)            | ND     | 2.0    |      | mg/L CaCO3 | 1  | 12/3/2013 7:58:15 PM | R15223 |
| Total Alkalinity (as CaCO3)     | 120    | 20     |      | mg/L CaCO3 | 1  | 12/3/2013 7:58:15 PM | R15223 |
| SM2540C MOD: TOTAL DISSOLVED SO | DLIDS  |        |      |            |    | Analyst              | : KS   |
| Total Dissolved Solids          | 842    | 40.0   | *    | mg/L       | 1  | 12/5/2013 4:51:00 PM | 10626  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits J
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 6 of 28 Sample pH greater than 2 for VOA and TOC only.
- P RL Reporting Detection Limit



#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13120140-001

Client Sample ID: 1312055-001H LDG 55-7

Report Date: 12/13/13

Collection Date: 11/27/13 15:00

DateReceived: 12/04/13

Matrix: Aqueous

| Analyses           | Result Units | Qualifiers | RL  | MCL/<br>QCL Method | Analysis Date / By     |
|--------------------|--------------|------------|-----|--------------------|------------------------|
| METALS - DISSOLVED |              |            |     |                    |                        |
| Lithium            | 0.8 mg/L     |            | 0.1 | E200.7             | 12/09/13 18:40 / eli-b |
| Rubidium           | 0.3 mg/L     |            | 0.1 | E200.8             | 12/13/13 10:50 / eli-b |
| Tungsten           | ND mg/L      |            | 0.2 | E200.8             | 12/13/13 10:50 / eli-b |

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13120140-002

Client Sample ID: 1312055-001J LDG 55-7

Report Date: 12/13/13

Collection Date: 11/27/13 15:00

DateReceived: 12/04/13

Matrix: Aqueous

| Analyses                             | Result Units | Qualifiers F | MCL<br>L QCL |        | Analysis Date / By     |
|--------------------------------------|--------------|--------------|--------------|--------|------------------------|
| MAJOR IONS<br>Phosphorus, Total as P | 0.057 mg/L   | 0.0          | 05           | E365,1 | 12/12/13 10:26 / eli-b |



# **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Report Date: 12/13/13

Project: Not Indicated

Work Order: C13120140

| Analyte    |                   | Count        | Result        | Units              | RL          | %REC | Low Limit  | High Limit | RPD      | RPDLimit     | Qual               |
|------------|-------------------|--------------|---------------|--------------------|-------------|------|------------|------------|----------|--------------|--------------------|
| Method:    | E200.7            |              |               |                    |             | •    |            |            | Analytic | cal Run: SUB | -B216225           |
| Sample ID: | ICV               | Co           | ntinuing Cali | bration Verificati | on Standard |      |            |            |          | 12/09        | /13 11:35          |
| Lithium    |                   |              | 1.29          | mg/L               | 0.10        | 103  | 95         | 105        |          |              |                    |
| Sample ID: | ICSA              | Inte         | erference Ch  | eck Sample A       |             |      |            |            |          | 12/09        | /13 11:47          |
| Lithium    |                   |              | -0.00206      | mg/L               | 0.10        |      |            |            |          |              |                    |
| Sample ID: | ICSAB             | Inte         | erference Ch  | eck Sample AB      |             |      |            |            |          | 12/09        | /13 11:51          |
| Lithium    |                   |              | 1.01          | mg/L               | 0.10        | 101  | 80         | 120        |          |              |                    |
| Method:    | E200.7            |              |               |                    |             |      |            |            |          | Batch: B     | R216225            |
| Sample ID: | MB-6500DIS131209A | Me Me        | thod Blank    |                    |             |      | Run: SUB-E | 3216225    |          | 12/09        | /13 11:59          |
| Lithium    |                   |              | ND            | mg/L               | 0.0003      |      |            |            |          |              |                    |
| Sample ID: | LFB-6500DIS131209 | <b>A</b> Lal | oratory Fort  | ified Blank        |             |      | Run: SUB-F | 3216225    |          | 12/09        | /13 12:03          |
| Lithium    |                   |              | 1.00          | mg/L               | 0.10        | 100  | 85         | 115        |          |              |                    |
| Sample ID: | B13120529-002BMS2 | 2 Sa         | mple Matrix   | Spike              |             |      | Run: SUB-F | 3216225    |          | 12/09        | /13 18:29          |
| Lithium    |                   |              | 2.0           | mg/L               | 0.10        | 100  | 70         | 130        |          |              |                    |
| Sample ID: | B13120529-002BMSI | <b>D2</b> Sa | mple Matrix   | Spike Duplicate    |             |      | Run: SUB-E | 3216225    |          | 12/09        | /1 <b>3 1</b> 8:33 |
| Lithium    |                   |              | 2.0           | mg/L               | 0.10        | 99   | 70         | 130        | 8.0      | 20           |                    |

# **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 12/13/13

Work Order: C13120140

| Analyte    |                  | Coun    | t Result            | Units              | RL.   | %REC | Low Limit  | High Limit | RPD      | RPDLimit    | Qual      |
|------------|------------------|---------|---------------------|--------------------|-------|------|------------|------------|----------|-------------|-----------|
| Method:    | E200.8           |         |                     |                    |       |      |            |            | Analytic | al Run: SUB | -B216493  |
| Sample ID: | QCS              | 2       | Initial Calibration | n Verification Sta | ndard |      |            |            |          | 12/13/      | /13 09:32 |
| Rubidium   |                  |         | 0.0533              | mg/L               | 0.010 | 107  | 90         | 110        |          |             |           |
| Tungsten   |                  |         | 0.0534              | mg/L               | 0.10  | 107  | 90         | 110        |          |             |           |
| Method:    | E200.8           | 113 100 |                     |                    |       |      |            |            |          | Batch: B    | R216493   |
| Sample ID: | LFB              | 2       | Laboratory Forti    | fied Blank         |       |      | Run: SUB-E | 216493     |          | 12/13       | /13 09:34 |
| Rubidium   |                  |         | 0.0476              | mg/L               | 0.010 | 95   | 85         | 115        |          |             |           |
| Tungsten   |                  |         | 0.0487              | mg/L               | 0.10  | 97   | 85         | 115        |          |             |           |
| Sample ID: | LRB              | 2       | Method Blank        |                    |       |      | Run: SUB-E | 3216493    |          | 12/13       | /13 09:56 |
| Rubidium   |                  |         | 0.03                |                    |       |      |            |            |          |             |           |
| Tungsten   |                  |         | 1.0                 |                    |       |      |            |            |          |             |           |
| Sample ID: | B13120270-001CMS | 2       | Sample Matrix S     | Spike              |       |      | Run: SUB-E | 3216493    |          | 12/13       | /13 10:52 |
| Rubidium   |                  |         | 0.713               | mg/L               | 0.010 |      | 70         | 130        |          |             | Α         |
| Tungsten   |                  |         | 0.113               | mg/L               | 0.10  | 120  | 70         | 130        |          |             |           |
| Sample ID: | B13120270-001CMS | 0 2     | Sample Matrix 9     | Spike Duplicate    |       |      | Run: SUB-E | 3216493    |          | 12/13       | /13 10:54 |
| Rubidium   |                  |         | 0.715               | mg/L               | 0.010 |      | 70         | 130        | 0.3      | 20          | Α         |
| Tungsten   |                  |         | 0.113               | mg/L               | 0.10  | 120  | 70         | 130        | 0.0      | 20          |           |



# **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 12/13/13

Work Order: C13120140

| Analyte                    | Count       | Result         | Units              | RL     | %REC | Low Limit  | High Limit       | RPD     | RPDLimit     | Qual                |
|----------------------------|-------------|----------------|--------------------|--------|------|------------|------------------|---------|--------------|---------------------|
| Method: E365.1             |             | *              |                    |        |      |            |                  | Analyti | cal Run: SUE | 3-B216417           |
| Sample ID: ICV             | Init        | ial Calibratio | n Verification Sta | andard |      |            |                  |         | 12/12        | /13 09:56           |
| Phosphorus, Total as P     |             | 0.258          | mg/L               | 0.0050 | 103  | 90         | 110              |         |              |                     |
| Method: E365.1             |             |                |                    |        |      |            |                  | •       | Batch        | : B_76392           |
| Sample ID: MB-76392        | Me          | thod Blank     |                    |        |      | Run: SUB-E | 3216417          |         | 12/12        | 2/13 09:57          |
| Phosphorus, Total as P     |             | ND             | mg/L               | 0.004  |      |            |                  |         |              |                     |
| Sample ID: LCS-76392       | <b>L</b> al | boratory Con   | trol Sample        |        |      | Run: SUB-E | B21641 <b>7</b>  |         | 12/12        | 2/13 0 <b>9</b> :58 |
| Phosphorus, Total as P     |             | 0.208          | mg/L               | 0.0050 | 104  | 90         | 110              |         |              |                     |
| Sample ID: B13120329-001BM | <b>S</b> Sa | mple Matrix    | Spike              |        |      | Run: SUB-  | 3216417          |         | 12/12        | 2/13 10:11          |
| Phosphorus, Total as P     |             | 0.255          | mg/L               | 0.0050 | 104  | 90         | 110              |         |              |                     |
| Sample ID: B13120329-001BM | SD Sa       | mple Matrix    | Spike Duplicate    |        |      | Run: SUB-I | B2 <b>1</b> 6417 |         | 12/12        | 2/13 10:12          |
| Phosphorus, Total as P     |             | 0.255          | mg/L               | 0.0050 | 104  | 90         | 110              | 0.0     | 10           |                     |

# **QC SUMMARY REPORT**

# all Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB   | Samp     | Type: ME | BLK       | Tes         | TestCode: EPA Method 200.7: Dissolved Metals |          |             |      |          |      |
|----------------|----------|----------|-----------|-------------|--|----------|-------------|------|----------|------|
| Client ID: PBW | Bato     | h ID: R1 | 5213      | F           | lunNo:                                       | 15213    |             |      |          |      |
| Prep Date:     | Analysis | Date: 12 | 2/3/2013  | S           | eqNo:  | 438573   | Units: mg/L |      |          |      |
| Analyte        | Result   | PQL      | SPK value | SPK Ref Val | %REC   | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Aluminum       | ND       | 0.020    |           |             |  |          |             |      |          |      |
| Barium         | ND       | 0.0020   |           |             |  |          |             |      |          |      |
| Boron          | ND       | 0.040    |           |             |  |          |             |      |          |      |
| Cadmium        | ND       | 0.0020   |           |             |  |          |             |      |          |      |
| Calcium        | ND       | 1.0      |           |             |  |          |             |      |          |      |
| Chromium       | ND       | 0.0060   |           |             |  |          |             |      |          |      |
| Cobalt         | ND       | 0.0060   |           |             |  |          |             |      |          |      |
| Copper         | ND       | 0.0060   |           |             |  |          |             |      |          |      |
| Iron           | ND       | 0.020    |           |             |  |          |             |      |          |      |
| Magnesium      | ND       | 1.0      |           |             |  |          |             |      |          |      |
| Manganese      | ND       | 0.0020   |           |             |  |          |             |      |          |      |
| Molybdenum     | ND       | 0.0080   |           |             |  |          |             |      |          |      |
| Nickel         | ND       | 0.010    |           |             |  |          |             |      |          |      |
| Potassium      | ND       | 1.0      |           |             |  |          |             |      |          |      |
| Sodium         | ND       | 1.0      |           |             |  |          |             |      |          |      |
| :              | ND       | 0.010    |           |             |  |          |             |      |          |      |

| ample ID LO   | .CS San | SampType: <b>LCS</b>     |           |             | TestCode: EPA Method 200.7: Dissolved Metals |          |           |      |          |      |  |  |
|---------------|---------|--------------------------|-----------|-------------|--|----------|-----------|------|----------|------|--|--|
| Client ID: LC | .csw Ba | Batch ID: R15213         |           |             | RunNo: 15213                                 |          |           |      |          |      |  |  |
| Prep Date:    | Analysi | Analysis Date: 12/3/2013 |           |             | SeqNo: 438574                                |          |           |      |          |      |  |  |
| Analyte       | Resul   | t PQL                    | SPK value | SPK Ref Val | %REC   | LowLimit | HighLimit | %RPD | RPDLimit | Qual |  |  |
| Aluminum      | 0.55    | 5 0.020                  | 0.5000    | 0           | 111  | 85       | 115       |      |          |      |  |  |
| Barium        | 0.50    | 0.0020                   | 0.5000    | 0           | 100  | 85       | 115       |      |          |      |  |  |
| Boron         | 0.51    | 0.040                    | 0.5000    | 0           | 103  | 85       | 115       |      |          |      |  |  |
| Cadmium       | 0.51    | 0.0020                   | 0.5000    | 0           | 101  | 85       | 115       |      |          |      |  |  |
| Calcium       | 50      | 1.0                      | 50.00     | 0           | 100  | 85       | 115       |      |          |      |  |  |
| Chromium      | 0.52    | 0.0060                   | 0.5000    | 0           | 104  | 85       | 115       |      |          |      |  |  |
| Cobalt        | 0.50    | 0.0060                   | 0.5000    | 0           | 99.7   | 85       | 115       |      |          |      |  |  |
| Copper        | 0.49    | 0.0060                   | 0.5000    | 0           | 97.8   | 85       | 115       |      |          |      |  |  |
| Iron          | 0.52    | 0.020                    | 0.5000    | 0           | 104  | 85       | 115       |      |          |      |  |  |
| Magnesium     | 50      | 1.0                      | 50.00     | 0           | 101  | 85       | 115       |      |          |      |  |  |
| Manganese     | 0.51    | 0.0020                   | 0.5000    | 0           | 102  | 85       | 115       |      |          |      |  |  |
| Molybdenum    | 0.51    | 0.0080                   | 0.5000    | 0           | 102  | 85       | 115       |      |          |      |  |  |
| Nickel        | 0.49    | 0.010                    | 0.5000    | 0           | 99.0   | 85       | 115       |      |          |      |  |  |
| Potassium     | 49      | 9 1.0                    | 50.00     | 0           | 98.4   | 85       | 115       |      |          |      |  |  |
| Sodium        | 49      | 9 1.0                    | 50.00     | 0           | 98.6   | 85       | 115       |      |          |      |  |  |
| Zinc          | 0.50    | 0.010                    | 0.5000    | 0           | 99.8   | 85       | 115       |      |          |      |  |  |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level. Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits S
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL

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# **QC SUMMARY REPORT**

#### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055

Qual

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB

SampType: MBLK

TestCode: EPA Method 200.7: Dissolved Metals

LowLimit

Client ID: PBW Batch ID: R15389

RunNo: 15389

Prep Date:

Analysis Date: 12/10/2013

SeqNo: 443342

Units: mg/L HighLimit

Analyte

Silver

Result ND 0.0050

SampType: LCS

TestCode: EPA Method 200.7: Dissolved Metals

Sample ID LCS Client ID: LCSW

Batch ID: R15389

PQL

RunNo: 15389

Prep Date:

Analysis Date: 12/10/2013

Result

SeqNo: 443343

%REC

Units: mg/L

%RPD **RPDLimit** Qual

**RPDLimit** 

HighLimit

%RPD

Analyte Silver

115

0.088 0.0050 0.1000 0 87.6 85

SPK value SPK Ref Val

SPK value SPK Ref Val %REC LowLimit

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit 0 R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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## **OC SUMMARY REPORT**

#### all Environmental Analysis Laboratory, Inc.

WO#: 1312055 16-Dec-13

| Client:<br>Project: |      | AMEC<br>Lightning        | g Dock Ge                | otherm         | al Water Qu               | ality Moni                |          |             |              |      |          |      |
|---------------------|------|--------------------------|--------------------------|----------------|---------------------------|---------------------------|----------|-------------|--------------|------|----------|------|
| Sample ID           | LCS  |                          | SampType: LCS            |                |                           | Tes                       | Code: E  |             |              |      |          |      |
| Client ID:          | LCSW |                          | Batch ID: R15358         |                |                           | RunNo: 15358              |          |             |              |      |          |      |
| Prep Date:          |      |                          | Analysis Date: 12/9/2013 |                |                           | SeqNo: 442393 Units: mg/L |          |             |              |      |          |      |
| Analyte             |      |                          | Result                   | PQL            | SPK value                 | SPK Ref Val               | %REC     | LowLimit    | HighLimit    | %RPD | RPDLimit | Qual |
| Lead                |      |                          | 0.024                    | 0.0010         | 0.02500                   | 0                         | 96.9     | 85          | 115          |      |          |      |
| Uranium             |      |                          | 0.025                    | 0.0010         | 0.02500                   | 0                         | 101      | 85          | 115          |      |          |      |
| Sample ID           | LCS  |                          | SampType: <b>LCS</b>     |                |                           | Tes                       | Code: E  |             |              |      |          |      |
| Client ID:          | LCSW | W Batch ID: R15358       |                          |                | F                         | tunNo: 1                  |          |             |              |      |          |      |
| Prep Date:          |      | Analysis Date: 12/9/2013 |                          |                | SeqNo: 442394 Units: mg/L |                           |          |             |              |      |          |      |
| Analyte             |      |                          | Result                   | PQL            | SPK value                 | SPK Ref Val               | %REC     | LowLimit    | HighLimit    | %RPD | RPDLimit | Qual |
| Lead                |      | .,                       | 0.024                    | 0.0010         | 0.02500                   | 0                         | 97.3     | 85          | 115          |      |          |      |
| Uranium             |      |                          | 0.026                    | 0.0010         | 0.02500                   | 0                         | 105      | 85          | 115          |      |          |      |
| Sample ID           | МВ   |                          | Samp                     | Type: <b>M</b> | BLK                       | Tes                       | tCode: E | PA 200.8: [ | Dissolved Me | tals |          |      |
| Client ID:          | PBW  |                          | Batch ID: R15358         |                |                           | F                         | RunNo: 1 |             |              |      |          |      |
| Prep Date:          |      |                          | Analysis I               | Date: 1        | 2/9/2013                  | 5                         | SeqNo: 4 | 42395       | Units: mg/L  |      |          |      |
| Analyte             |      |                          | Result                   | PQL            | SPK value                 | SPK Ref Val               | %REC     | LowLimit    | HighLimit    | %RPD | RPDLimit | Qual |
|                     | •    |                          | ND                       | 0.0010         |                           |                           |          |             |              |      |          |      |
| nium                |      |                          | ND                       | 0.0010         |                           |                           |          |             |              |      |          |      |
| Sample ID           | МВ   |                          | SampType: MBLK           |                | Tes                       | tCode: E                  |          |             |              |      |          |      |
| Client ID:          | PBW  |                          | Bato                     | h ID: R        | 15358                     | F                         | RunNo: 1 | 5358        |              |      |          |      |
| Prep Date:          |      |                          | Analysis                 | Date: 1        | 2/9/2013                  | Ş                         | SeqNo: 4 | 42396       | Units: mg/L  |      |          |      |
| Analyte             |      |                          | Result                   | PQL            | SPK value                 | SPK Ref Val               | %REC     | LowLimit    | HighLimit    | %RPD | RPDLimit | Qual |
| Lead                |      |                          | ND                       | 0.0010         |                           |                           |          |             |              |      |          |      |
| Uranium             |      |                          | ND                       | 0.0010         |                           |                           |          |             |              |      |          |      |
| Sample ID           | LCS  |                          | Samp                     | Type: L        | cs                        | Tes                       | tCode: E | PA 200.8: I | Dissolved Me | tals |          |      |
| Client ID:          | LCSW |                          | Bato                     | h ID: R        | 15360                     | F                         | RunNo: 1 | 5360        |              |      |          |      |
| Prep Date:          |      |                          | Analysis                 | Date: 1        | 2/9/2013                  | 5                         | SeqNo: 4 | 142459      | Units: mg/L  |      |          |      |

| Qualifi | ers: |
|---------|------|

S

Analyte

Analyte

Sample ID MB

Client ID:

Prep Date:

PBW

Arsenic Selenium

Value exceeds Maximum Contaminant Level.

Result

0.024

0.024

Result

PQL

0.0010

0.0010

Batch ID: R15360

Analysis Date: 12/9/2013

SampType: MBLK

SPK value SPK Ref Val

0

0

SPK value SPK Ref Val %REC LowLimit

0.02500

0.02500

- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Value above quantitation range

Spike Recovery outside accepted recovery limits

- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

%REC

96.4

94.6

RunNo: 15360

SeqNo: 442460

- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit RL
- В Analyte detected in the associated Method Blank

LowLimit

85

85

TestCode: EPA 200.8: Dissolved Metals

HighLimit

115

115

Units: mg/L

HighLimit

%RPD

%RPD

**RPDLimit** 

**RPDLimit** 

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Qual

Qual

# **QC SUMMARY REPORT**

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Client ID:

PBW

Batch ID: R15360

RunNo: 15360

SPK value SPK Ref Val %REC LowLimit

Prep Date: Analysis Date: 12/9/2013 SeqNo: 442460

Analyte

Units: mg/L HighLimit

%RPD

**RPDLimit** Qual

Arsenic

ND 0.0010

Selenium

0.0010 ND

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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#### OC SUMMARY REPORT

# all Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10693

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID:

**PBW** 

Batch ID: 10693

PQL

RunNo: 15327

Prep Date: 12/7/2013

Analysis Date: 12/8/2013

SeqNo: 441675

Units: mg/L HighLimit

%RPD **RPDLimit**  Qual

Analyte Mercury

ND 0.00020

Result

Sample ID LCS-10693

SampType: LCS

TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 10693

RunNo: 15327

Prep Date: 12/7/2013

Analysis Date: 12/8/2013

SeqNo: 441676

Units: mg/L

%RPD

Analyte

Result PQL

SPK value SPK Ref Val

%REC 103

80

Mercury

0.0052 0.00020

120

0.005000

0

SPK value SPK Ref Val %REC LowLimit

LowLimit

HighLimit

**RPDLimit** 

Qual

Qualifiers:

Value exceeds Maximum Contaminant Level. Value above quantitation range

Analyte detected below quantitation limits

0 RSD is greater than RSDlimit

RPD outside accepted recovery limits R Spike Recovery outside accepted recovery limits

Analyte detected in the associated Method Blank В

Η Holding times for preparation or analysis exceeded

Sample pH greater than 2 for VOA and TOC only.

ND Not Detected at the Reporting Limit

RLReporting Detection Limit Page 11 of 28

## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID  | 1312055-001EMS | SampTy      | pe: <b>MS</b> | 3         | Tes         | tCode: El | PA Method | 300.0: Anions | 3    |          |      |
|------------|----------------|-------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: | LDG 55-7       | Batch       | ID: <b>R1</b> | 5216      | 8           | RunNo: 1  | 5216      |               |      |          |      |
| Prep Date: |                | Analysis Da | ite: 12       | 2/3/2013  | S           | SeqNo: 4  | 38864     | Units: mg/L   |      |          |      |
| Analyte    |                | Result      | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Bromide    |                | 2.9         | 0.10          | 2.500     | 0.4605      | 97.9      | 92        | 104           |      |          |      |

| Sample ID  | 1312055-001EMSD | SampTy      | oe: MS       | SD        | Tes         | tCode: E | PA Method | 300.0: Anion | \$    |          |      |
|------------|-----------------|-------------|--------------|-----------|-------------|----------|-----------|--------------|-------|----------|------|
| Client ID: | LDG 55-7        | Batch I     | D: <b>R1</b> | 15216     | F           | RunNo: 1 | 5216      |              |       |          |      |
| Prep Date: |                 | Analysis Da | te: 12       | 2/3/2013  | 9           | SeqNo: 4 | 38865     | Units: mg/L  |       |          |      |
| Analyte    |                 | Result      | PQL          | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit    | %RPD  | RPDLimit | Qual |
| Bromide    |                 | 2.9         | 0.10         | 2.500     | 0.4605      | 97.0     | 92        | 104          | 0.787 | 20       |      |

| Sample ID A6                     | SampT      | ype: CC         | CV_6      | Tes         | tCode: El | PA Method | 300.0: Anion | s    |          |      |
|----------------------------------|------------|-----------------|-----------|-------------|-----------|-----------|--------------|------|----------|------|
| Client ID: BatchQC               | Batch      | n ID: <b>R1</b> | 5216      | F           | RunNo: 1  | 5216      |              |      |          |      |
| Prep Date:                       | Analysis D | )ate: 12        | 2/3/2013  | S           | SeqNo: 4  | 38867     | Units: mg/L  |      |          |      |
| Analyte                          | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Fluoride                         | 2.4        | 0.10            | 2.400     | 0           | 100       | 90        | 110          |      |          |      |
| Chloride                         | 12         | 0.50            | 12.00     | 0           | 102       | 90        | 110          |      |          |      |
| Bromide                          | 12         | 0.10            | 12.00     | 0           | 102       | 90        | 110          |      |          |      |
| Phosphorus, Orthophosphate (As P | 12         | 0.50            | 12.00     | 0           | 99.8      | 90        | 110          |      |          |      |
| Sulfate                          | 31         | 0.50            | 30.00     | 0           | 103       | 90        | 110          |      |          |      |

| Sample ID A4                     | SampT      | ype: CC       | V_4       | Tes         | tCode: El | PA Method | 300.0: Anion | 5    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|--------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5216      | F           | RunNo: 1  | 5216      |              |      |          |      |
| Prep Date:                       | Analysis D | oate: 12      | 2/3/2013  | 9           | SeqNo: 4  | 38879     | Units: mg/L  |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.96       | 0.10          | 1.000     | 0           | 96.1      | 90        | 110          |      |          |      |
| Chloride                         | 4.7        | 0.50          | 5.000     | 0           | 93.3      | 90        | 110          |      |          |      |
| Bromide                          | 4.9        | 0.10          | 5.000     | 0           | 97.8      | 90        | 110          |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.6        | 0.50          | 5.000     | 0           | 92.8      | 90        | 110          |      |          |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0           | 94.9      | 90        | 110          |      |          |      |

| Sample ID A5                     | SampT      | ype: CC         | V_5       | TestCode: EPA Method 300.0: Anions |          |          |             |      |          |      |
|----------------------------------|------------|-----------------|-----------|------------------------------------|----------|----------|-------------|------|----------|------|
| Client ID: BatchQC               | Batch      | h ID: <b>R1</b> | 5216      | F                                  | RunNo: 1 | 5216     |             |      |          |      |
| Prep Date:                       | Analysis D | Date: 12        | 2/3/2013  | S                                  | SeqNo: 4 | 38891    | Units: mg/L |      |          |      |
| Analyte                          | Result     | PQL             | SPK value | SPK Ref Val                        | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.5        | 0.10            | 1.600     | 0                                  | 96.6     | 90       | 110         |      |          |      |
| Chloride                         | 7.7        | 0.50            | 8.000     | 0                                  | 96.5     | 90       | 110         |      |          |      |
| Bromide                          | 7.9        | 0.10            | 8.000     | 0                                  | 99.3     | 90       | 110         |      |          |      |
| Phosphorus, Orthophosphate (As P | 7.6        | 0.50            | 8.000     | 0 .                                | 95.3     | 90       | 110         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

|   |               |                          |               |                          |                  |          |          | 10-200-13 |
|---|---------------|--------------------------|---------------|--------------------------|------------------|----------|----------|-----------|
| Client: AMEC                                |               |                          |               |                          |                  |          |          |           |
| Project: Lightning                          | g Dock Geoth  | ermal Water Qu           | ality Moni    |                          |                  |          |          |           |
| Sample ID A5                                | SampType      | e: CCV 5                 | Test          | Code: EPA Method         | 300.0: Anions    |          |          |           |
| Client ID: BatchQC                          |               | ): R15216                | R             | unNo: <b>15216</b>       |                  |          |          |           |
| Prep Date:                                  | Analysis Date | e: 12/3/2013             |               | egNo: <b>438891</b>      | Units: mg/L      |          |          |           |
| •   | •             |                          |               | •                        | _                | %RPD     | RPDLimit | Oval      |
| Analyte<br>Sulfate                          |               | 0.50 SPK value 20.00     | SPK Ref Val   | %REC LowLimit<br>97.9 90 | HighLimit<br>110 | %RPD     | RPDLIMIL | Qual      |
|   |               |                          |               |                          |                  |          |          |           |
| Sample ID A4                                | SampType      | e: CCV_4                 |               | Code: EPA Method         | 1 300.0: Anions  | <b>S</b> |          |           |
| Client ID: BatchQC                          | Batch ID      | D: R15216                | R             | unNo: 15216              |                  |          |          |           |
| Prep Date:                                  | Analysis Date | e: 12/4/2013             | S             | eqNo: <b>438903</b>      | Units: mg/L      |          |          |           |
| Analyte                                     | Result F      | PQL SPK value            | SPK Ref Val   | %REC LowLimit            | HighLimit        | %RPD     | RPDLimit | Qual      |
| Fluoride                                    |               | 0.10 1.000               | 0             | 94.5 90                  |                  |          |          |           |
| Chloride                                    |               | 0.50 5.000               | 0             | 92.9 90                  |                  |          |          |           |
| Bromide                                     |               | 0.10 5.000<br>0.50 5.000 | 0<br>0        | 96.8 90<br>92.8 90       |                  |          |          |           |
| Phosphorus, Orthophosphate (As P<br>Sulfate |               | 0.50 5.000               | 0             | 94.3 90                  |                  |          |          |           |
| Sunate                                      | 12            | 0.30 12.30               |               | 54.0                     |                  |          |          |           |
| Sample ID A4                                | SampType      | e: CCV_4                 | Tes           | tCode: EPA Method        | 300.0: Anions    | 3        |          |           |
| Client ID: BatchQC                          | Batch ID      | D: <b>R15288</b>         | F             | RunNo: <b>15288</b>      |                  |          |          |           |
| ep Date:                                    | Analysis Date | e: <b>12/4/2013</b>      | S             | SeqNo: <b>440664</b>     | Units: mg/L      |          |          |           |
| ıalyte                                      | Result F      | PQL SPK value            | SPK Ref Val   | %REC LowLimit            | HighLimit        | %RPD     | RPDLimit | Qual      |
| Nitrate+Nitrite as N                        | 4.8           | 0.20 5.000               | 0             | 96.4 90                  | 110              |          |          |           |
| Sample ID A5                                | SampType      | e: CCV_5                 | Tes           | tCode: EPA Metho         | d 300.0: Anions  | 5        |          |           |
| Client ID: BatchQC                          | Batch ID      | D: R15288                | F             | RunNo: <b>15288</b>      |                  |          |          |           |
| Prep Date:                                  | Analysis Date | e: <b>12/4/2013</b>      | S             | SeqNo: <b>440676</b>     | Units: mg/L      |          |          |           |
| Analyte                                     | Result F      | PQL SPK value            | SPK Ref Val   | %REC LowLimit            | HighLimit        | %RPD     | RPDLimit | Qual      |
| Nitrate+Nitrite as N                        | 8.0           | 0.20 8.000               | 0             | 101 90                   | 110              |          |          |           |
| Sample ID A6                                | SampTyp       | e: CCV 6                 | Tes           | tCode: EPA Metho         | d 300.0: Anion   | s        |          |           |
| Client ID: BatchQC                          | • • •         | D: <b>R15288</b>         | F             | RunNo: <b>15288</b>      |                  |          |          |           |
| Prep Date:                                  | Analysis Date | e: <b>12/4/2013</b>      | 5             | SeqNo: <b>440688</b>     | Units: mg/L      |          |          |           |
| Analyte                                     | Result F      | PQL SPK value            | SPK Ref Val   | %REC LowLimit            | t HighLimit      | %RPD     | RPDLimit | Qual      |
| Nitrate+Nitrite as N                        |               | 0.20 12.00               | 0             | 105 90                   |                  |          |          |           |
| Sample ID A4                                | SampTvp       | e: CCV_4                 | Tes           | tCode: EPA Metho         | d 300.0: Anion   | s        |          |           |
| Client ID: BatchQC                          |               | D: R15288                |               | RunNo: <b>15288</b>      |                  |          |          |           |
| Prep Date:                                  |               | e: 12/4/2013             |               | SeqNo: <b>440700</b>     | Units: mg/L      |          |          |           |
| Analyte                                     | -             |                          | SPK Ref Val   |                          |                  | %RPD     | RPDLimit | Qual      |
| Analyte                                     | ACOUNT 1      | - CL OI II TAILLE        | C. 1(1(C) VGI | 70.120 20.12             | - Ingilemin      |          |          |           |

#### Qualifiers:

Nitrate+Nitrite as N

Value exceeds Maximum Contaminant Level.
 Value above quantitation range

4.8

0.20

5.000

- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

110

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

95.9

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WO#:

1312055

16-Dec-13

## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055 16-Dec-13

Client:

**AMEC** 

| Project:             | Lightning Dock Geothermal Water Quality Moni                                |
|----------------------|---|
| Sample ID A5         | SampType: CCV_5 TestCode: EPA Method 300.0: Anions                          |
| Client ID: Batch     | QC Batch ID: R15288 RunNo: 15288  |
| Prep Date:           | Analysis Date: 12/4/2013 SeqNo: 440707 Units: mg/L                          |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | 8.0 0.20 8.000 0 99.9 90 110  |
| Sample ID A5         | SampType: CCV_5 TestCode: EPA Method 300.0: Anions                          |
| Client ID: Batch     | QC Batch ID: R15288 RunNo: 15288  |
| Prep Date:           | Analysis Date: 12/4/2013 SeqNo: 440711 Units: mg/L                          |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | 8.0 0.20 8.000 0 100 90 110   |
| Sample ID MB         | SampType: MBLK TestCode: EPA Method 300.0: Anions                           |
| Client ID: PBW       | Batch ID: <b>R15288</b> RunNo: <b>15288</b>                                 |
| Prep Date:           | Analysis Date: 12/4/2013 SeqNo: 440712 Units: mg/L                          |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | ND 0.20   |
| Sample ID LCS        | SampType: LCS TestCode: EPA Method 300.0: Anions                            |
| Client ID: LCSW      | Batch ID: <b>R15288</b> RunNo: <b>15288</b>                                 |
| Prep Date:           | Analysis Date: 12/4/2013 SeqNo: 440713 Units: mg/L                          |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | 3.4 0.20 3.500 0 97.5 90 110  |
| Sample ID A6         | SampType: CCV_6 TestCode: EPA Method 300.0: Anions                          |
| Client ID: Batch     | QC Batch ID: R15288 RunNo: 15288  |
| Prep Date:           | Analysis Date: 12/4/2013 SeqNo: 440722 Units: mg/L                          |
| Analyte              | Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Nitrate+Nitrite as N | 13 0.20 12.00 0 105 90 110  |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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## "all Environmental Analysis Laboratory, Inc.

WO#: 1312055 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-10616         | SampTy      | ype: ME | BLK       | Test        | Code: E  | PA Method | 418.1: TPH  |      |          |      |
|----------------------------|-------------|---------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: PBW             | Batch       | ID: 10  | 616       | R           | lunNo: 1 | 5202      |             |      |          |      |
| Prep Date: 12/3/2013       | Analysis Da | ate: 12 | 2/3/2013  | S           | eqNo: 4  | 38249     | Units: mg/L |      |          |      |
| Analyte                    | Result      | PQL     | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Petroleum Hydrocarbons, TR | ND          | 1.0     |           |             |          |           |             |      |          |      |

| Sample ID LCS-10616        | SampType: LCS          | TestCo              | de: EPA Method 41   | 8.1: TPH       |            |      |
|----------------------------|------------------------|---------------------|---------------------|----------------|------------|------|
| Client ID: LCSW            | Batch ID: 10616        | Runl                | No: <b>15202</b>    |                |            |      |
| Prep Date: 12/3/2013       | Analysis Date: 12/3/20 | 13 Seql             | No: <b>438250</b> U | nits: mg/L     |            |      |
| Analyte                    | Result PQL SPK         | value SPK Ref Val % | REC LowLimit H      | HighLimit %RPD | RPDLimit Q | ual_ |
| Petroleum Hydrocarbons, TR | 4.6 1.0                | 5.000 0             | 92.4 80             | 120            |            |      |

| Sample ID LCSD-10616       | SampT      | ype: LC | SD        | Test        | Code: El | PA Method | 418.1: TPH  |      |          |      |
|----------------------------|------------|---------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSS02          | Batch      | 1D: 10  | 616       | R           | unNo: 1  | 5202      |             |      |          |      |
| Prep Date: 12/3/2013       | Analysis D | ate: 12 | 2/3/2013  | S           | eaNo: 4  | 38251     | Units: mg/L |      |          |      |
| Analyte                    | Result     | PQL     | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Petroleum Hydrocarbons, TR | 4.6        | 1.0     | 5.000     | 0           | 91.2     | 80        | 120         | 1.31 | 20       |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-10640         | SampT      | ype: ME         | BLK       | Tes         | tCode: El | PA Method | 8082: PCB's |      |          |      |
|----------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: PBW             | Batch      | ı ID: <b>10</b> | 640       | F           | RunNo: 1  | 5318      |             |      |          |      |
| Prep Date: 12/4/2013       | Analysis D | ate: 12         | 2/8/2013  | S           | SeqNo: 4  | 41621     | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | ND         | 1.0             |           |             |           |           |             |      |          |      |
| Aroclor 1221               | ND         | 1.0             |           |             |           |           |             |      |          |      |
| Aroclor 1232               | ND         | 1.0             |           |             |           |           |             |      |          |      |
| Aroclor 1242               | ND         | 1.0             |           |             |           |           |             |      |          |      |
| Aroclor 1248               | ND         | 1.0             |           |             |           |           |             |      |          |      |
| Aroclor 1254               | NĐ         | 1.0             |           |             |           |           |             |      |          |      |
| Aroclor 1260               | ND         | 1.0             |           |             |           |           |             |      |          |      |
| Surr: Decachlorobiphenyl   | 2.4        |                 | 2.500     |             | 97.6      | 17        | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 2.2        |                 | 2.500     |             | 86.0      | 22.6      | 113         |      |          |      |

| Sample ID LCS-10640        | SampT      | ype: <b>LC</b> | S         | Tes         | Code: El | PA Method | 8082: PCB's |      |          |      |
|----------------------------|------------|----------------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSW            | Batch      | 1D: <b>10</b>  | 640       | F           | lunNo: 1 | 5318      |             |      |          |      |
| Prep Date: 12/4/2013       | Analysis D | ate: 12        | 2/8/2013  | S           | SeqNo: 4 | 41622     | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | 3.5        | 1.0            | 5.000     | 0           | 69.6     | 18.6      | 134         |      |          |      |
| Aroclor 1260               | 4.7        | 1.0            | 5.000     | 0           | 94.8     | 35.7      | 137         |      |          |      |
| Surr: Decachlorobiphenyl   | 2.2        |                | 2.500     |             | 88.0     | 17        | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 2.0        |                | 2.500     |             | 78.0     | 22.6      | 113         |      |          |      |

| Sample ID 1312055-001LMS   | SampT      | ype: <b>MS</b> | 3         | Tes         | tCode: El | PA Method |             |      |          |      |
|----------------------------|------------|----------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: LDG 55-7        | Batch      | 1D: <b>10</b>  | 640       | F           | RunNo: 1  | 5318      |             |      |          |      |
| Prep Date: 12/4/2013       | Analysis D | ate: 12        | 2/8/2013  | 9           | SeqNo: 4  | 41776     | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | 3.7        | 1.0            | 5.000     | 0           | 74.4      | 70        | 130         |      |          |      |
| Arodor 1260                | 3.0        | 1.0            | 5.000     | 0           | 60.6      | 61.1      | 129         |      |          | S    |
| Surr: Decachlorobiphenyl   | 1.9        |                | 2.500     |             | 77.6      | 17        | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 1.6        |                | 2.500     |             | 66.0      | 22.6      | 113         |      |          |      |

| Sample ID 1312055-001LMSE  | ) SampT    | ype: <b>M</b> \$ | SD        | Tes         | tCode: El |          |             |      |          |      |
|----------------------------|------------|------------------|-----------|-------------|-----------|----------|-------------|------|----------|------|
| Client ID: LDG 55-7        | Batch      | ID: <b>10</b>    | 640       | F           | RunNo: 1  | 5318     |             |      |          |      |
| Prep Date: 12/4/2013       | Analysis D | ate: 12          | 2/8/2013  | S           | SeqNo: 4  | 41777    | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL              | SPK value | SPK Ref Val | %REC      | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | 3.9        | 1.0              | 5.000     | 0           | 77.5      | 70       | 130         | 4.03 | 20       |      |
| Aroclor 1260               | 3.2        | 1.0              | 5.000     | 0           | 64.0      | 61.1     | 129         | 5.52 | 12.9     |      |
| Surr: Decachlorobiphenyl   | 2.1        |                  | 2.500     |             | 83.2      | 17       | 123         | 0    | 0        |      |
| Surr: Tetrachloro-m-xylene | 1.8        |                  | 2.500     |             | 70.0      | 22.6     | 113         | 0    | 0        |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## "Il Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb               | SampT      | ype: MI          | BLK       | Tes         | tCode: E | PA Method | 8260B: VOL  | ATILES |          |      |
|--------------------------------|------------|------------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: PBW                 | Batch      | 1D: <b>R</b> 1   | 5195      | F           | lunNo: 1 | 5195      |             |        |          |      |
| Prep Date:                     | Analysis D | ate: 1           | 2/3/2013  | S           | eqNo: 4  | 38387     | Units: %RE  | c      |          |      |
| Analyte                        | Result     | PQL              | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Surr: 1,2-Dichloroethane-d4    | 9.6        |                  | 10.00     |             | 96.4     | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene     | 10         |                  | 10.00     |             | 105      | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane     | 9.8        |                  | 10.00     |             | 97.8     | 70        | 130         |        |          |      |
| Surr: Toluene-d8               | 9,9        |                  | 10.00     |             | 98.7     | 70        | 130         |        |          |      |
| Sample ID 100ng Ics            | SampT      | ype: LC          | S         | Tes         | Code: E  | PA Method | 8260B: VOL  | ATILES |          |      |
| Client ID: LCSW                | Batch      | 1D: <b>R</b> 1   | 15195     | F           | lunNo: 1 | 5195      |             |        |          |      |
| Prep Date:                     | Analysis D | ate: 1           | 2/3/2013  | S           | eqNo: 4  | 38389     | Units: %RE  | :C     |          |      |
| Analyte                        | Result     | PQL              | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Surr: 1,2-Dichloroethane-d4    | 10         |                  | 10.00     |             | 101      | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene     | 10         |                  | 10.00     |             | 103      | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane     | 10         |                  | 10.00     |             | 99.5     | 70        | 130         |        |          |      |
| Surr: Toluene-d8               | 9.8        |                  | 10.00     |             | 97.9     | 70        | 130         |        |          |      |
| Sample ID 5mL rb               | SampT      | ype: <b>M</b> I  | BLK       | Tes         | Code: E  | PA Method | 8260B: VOL  | ATILES |          |      |
| Ciient ID: PBW                 | Batch      | Batch ID: R15228 |           |             | RunNo: 1 | 5228      |             |        |          |      |
| ب Date:                        | Analysis D | ate: 1:          | 2/4/2013  | 9           | SeqNo: 4 | 39397     | Units: µg/L |        |          |      |
| Analyte                        | Result     | PQL              | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND         | 1.0              |           |             |          |           |             |        |          |      |
| Toluene                        | ND         | 1.0              |           |             |          |           |             |        |          |      |
| Ethylbenzene                   | ND         | 1.0              |           |             |          |           |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND         | 1.0              |           |             |          |           |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND         | 1.0              |           |             |          |           |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND         | 1.0              |           |             |          |           |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND         | 1.0              |           |             |          |           |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND         | 1.0              |           |             |          |           |             |        |          |      |
| Naphthalene                    | ND         | 2.0              |           |             |          |           |             |        |          |      |
| 1-Methylnaphthalene            | ND         | 4.0              |           |             |          |           |             |        |          |      |
| 2-Methylnaphthalene            | ND         | 4.0              |           |             |          |           |             |        |          |      |
| Acetone                        | ND         | 10               |           |             |          |           |             |        |          |      |
| Bromobenzene                   | ND         | 1.0              |           |             |          |           |             |        |          |      |
| Bromodichloromethane           | ND         | 1.0              |           |             |          |           |             |        |          |      |
| Bromoform                      | ND         | 1.0              |           |             |          |           |             |        |          |      |
| Bromomethane                   | ND         | 3.0              |           |             |          |           |             |        |          |      |
| 2-Butanone                     | ND         | 10               |           |             |          |           |             |        |          |      |
| Carbon disulfide               | ND         | 10               |           |             |          |           |             |        |          |      |
|                                |            |                  |           |             |          |           |             |        |          |      |
| Carbon Tetrachloride           | ND         | 1.0              |           |             |          |           |             |        |          |      |

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range
 Analyte detected below quantitation limits

RSD is greater than RSDlimit

- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client:

AMEC

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb            | SampT      | ype: ME | BLK       | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|---------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch      | ID: R1  | 5228      | F           | RunNo: 1  | 5228      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 12 | 2/4/2013  | S           | SeqNo: 4  | 39397     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Chloroethane                | ND         | 2.0     | _         |             |           |           |             |        |          |      |
| Chloroform                  | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Chloromethane               | ND         | 3.0     |           |             |           |           |             |        |          |      |
| 2-Chlorotoluene             | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 4-Chlorotoluene             | ND         | 1.0     |           |             |           |           |             |        |          |      |
| cis-1,2-DCE                 | ND         | 1.0     |           |             |           |           |             |        |          |      |
| cis-1,3-Dichloropropene     | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2-Dibromo-3-chloropropane | ND         | 2.0     |           |             |           |           |             |        |          |      |
| Dibromochloromethane        | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Dibromomethane              | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2-Dichlorobenzene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,3-Dichlorobenzene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,4-Dichlorobenzene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Dichlorodifluoromethane     | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethane          | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethene          | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2-Dichloropropane         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,3-Dichloropropane         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 2,2-Dichloropropane         | ND         | 2.0     |           |             |           |           |             |        |          |      |
| 1,1-Dichloropropene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Hexachlorobutadiene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 2-Hexanone                  | ND         | 10      |           |             |           |           |             |        |          |      |
| Isopropylbenzene            | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 4-Isopropyltoluene          | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 4-Methyl-2-pentanone        | ND         | 10      |           |             |           |           |             |        |          |      |
| Methylene Chloride          | ND         | 3.0     |           |             |           |           |             |        |          |      |
| n-Butylbenzene              | ND         | 3.0     |           |             |           |           |             |        |          |      |
| n-Propylbenzene             | ND         | 1.0     |           |             |           |           |             |        |          |      |
| sec-Butylbenzene            | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Styrene                     | ND         | 1.0     |           |             |           |           |             |        |          |      |
| tert-Butylbenzene           | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND         | 2.0     |           |             |           |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND         | 1.0     |           |             |           |           |             |        |          |      |
| trans-1,2-DCE               | ND         | 1.0     |           |             |           |           |             |        |          |      |
| trans-1,3-Dichloropropene   | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2,3-Trichlorobenzene      | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND         | 1.0     |           |             |           |           |             |        |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## "all Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb            | SampT      | SampType: MBLK           |           |             | TestCode: EPA Method 8260B: VOLATILES |          |             |      |          |      |
|-----------------------------|------------|--------------------------|-----------|-------------|---------------------------------------|----------|-------------|------|----------|------|
| Client ID: PBW              | Batch      | iD: <b>R1</b>            | 5228      | R           | tunNo: 1                              | 5228     |             |      |          |      |
| Prep Date:                  | Analysis D | Analysis Date: 12/4/2013 |           |             | eqNo: 4                               | 39397    | Units: μg/L |      |          |      |
| Analyte                     | Result     | PQL                      | SPK value | SPK Ref Val | %REC                                  | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| 1,1,2-Trichloroethane       | ND         | 1.0                      |           |             |                                       |          |             |      |          |      |
| Trichloroethene (TCE)       | ND         | 1.0                      |           |             |                                       |          |             |      |          |      |
| Trichlorofluoromethane      | ND         | 1.0                      |           |             |                                       |          |             |      |          |      |
| 1,2,3-Trichloropropane      | ND         | 2.0                      |           |             |                                       |          |             |      |          |      |
| Vinyl chloride              | ND         | 1.0                      |           |             |                                       |          |             |      |          |      |
| Xylenes, Total              | ND         | 1.5                      |           |             |                                       |          |             |      |          |      |
| Surr: 1,2-Dichloroethane-d4 | 10         |                          | 10.00     |             | 100                                   | 70       | 130         |      |          |      |
| Surr: 4-Bromofluorobenzene  | 11         |                          | 10.00     |             | 105                                   | 70       | 130         |      |          |      |
| Surr: Dibromofluoromethane  | 9.9        |                          | 10.00     |             | 99.3                                  | 70       | 130         |      |          |      |
| Surr: Toluene-d8            | 9.7        |                          | 10.00     |             | 96.6                                  | 70       | 130         |      |          |      |

| Sample ID 100ng Ics         | SampT      | ype: LC       | S         | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|---------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: LCSW             | Batch      | 1D: <b>R1</b> | 5228      | F           | RunNo: 1  | 5228      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 12       | 2/4/2013  | S           | SeqNo: 4  | 39399     | Units: μg/L |        |          |      |
| Analyte                     | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| nzene                       | 20         | 1.0           | 20.00     | 0           | 101       | 70        | 130         |        |          |      |
| ene                         | 19         | 1.0           | 20.00     | 0           | 97.3      | 82.2      | 124         |        |          |      |
| iorobenzene                 | 18         | 1.0           | 20.00     | 0           | 92.3      | 70        | 130         |        |          |      |
| 1,1-Dichloroethene          | 22         | 1.0           | 20.00     | 0           | 109       | 83.5      | 155         |        |          |      |
| Trichloroethene (TCE)       | 18         | 1.0           | 20.00     | 0           | 87.6      | 70        | 130         |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.8        |               | 10.00     |             | 98.2      | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 11         |               | 10.00     |             | 109       | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 9.8        |               | 10.00     |             | 98.2      | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 10         |               | 10.00     |             | 101       | 70        | 130         |        |          |      |

#### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

Value above quantitation range
 Analyte detected below quantitation limits

RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Client ID: PBW   Batch ID: 10639   RunNo: 15239     Prep Date: 12/4/2013   Analysis Date: 12/4/2013   SeqNo: 439467   Units: µg/L     Analyte   Result   PQL   SPK value   SPK Ref Val   %REC   LowLimit   HighLimit   %RPD   RPDLimit     Acenaphthele   ND   10     Acenaphthylene   ND   10     Aniline   ND   10     Aniline   ND   10     Aniline   ND   10     Azobenzene   ND   10     Benzo(a)pyrene   ND   10     Benzo(b)fluoranthene   ND   10     Benzo(b)fluoranthene   ND   10     Benzo(b)fluoranthene   ND   10     Benzo(b)fluoranthene   ND   10     Benzo(b)fluoranthene   ND   10     Benzo(acid   ND   40     Benzo(acid   ND   40     Bis(2-chloroethoxy)methane   ND   10     Bis(2-chloroethyl)ether   ND   10     Bis(2-chlorospropyl)ether   ND   10     Carbazole   ND   10     C |        |
|--|--------|
| Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit           Acenaphthene         ND         10         Acenaphthylene         ND         10         Acenaphtylene         ND  |        |
| Acenaphthene         ND         10           Acenaphthylene         ND         10           Aniline         ND         10           Anthracene         ND         10           Azobenzene         ND         10           Benz(a)anthracene         ND         10           Benzo(a)pyrene         ND         10           Benzo(g)filoranthene         ND         10           Benzo(g,fi,i)perylene         ND         10           Benzo(k)fluoranthene         ND         10           Benzoic acid         ND         40           Benzoit alcohol         ND         10           Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroethyl)ether         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-chlyflexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloro-aniline   |        |
| Acenaphthylene         ND         10           Aniline         ND         10           Anthracene         ND         10           Azobenzene         ND         10           Benzo(a)anthracene         ND         10           Benzo(a)pyrene         ND         10           Benzo(g)fluoranthene         ND         10           Benzo(k)fluoranthene         ND         10           Benzo(k)fluoranthene         ND         10           Benzo(a caid         ND         40           Benzola alcohol         ND         10           Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroethyl)ether         ND         10           Bis(2-chloroethyl)ether         ND         10           Bis(2-chloroethyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10  | t Qual |
| Aniline         ND         10           Anthracene         ND         10           Azobenzene         ND         10           Benza(a)anthracene         ND         10           Benzo(a)pyrene         ND         10           Benzo(g,h,i)perylene         ND         10           Benzo(k)fluoranthene         ND         10           Benzo(a caid         ND         40           Benzyl alcohol         ND         10           Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-ethyihexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloro-aniline         ND         10   |        |
| Anthracene         ND         10           Azobenzene         ND         10           Benz(a)anthracene         ND         10           Benzo(a)pyrene         ND         10           Benzo(b)fluoranthene         ND         10           Benzo(g,h,i)perylene         ND         10           Benzo(k)fluoranthene         ND         10           Benzoic acid         ND         40           Benzyl alcohol         ND         10           Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroethyl)ether         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-ethylhexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloro-illine         ND         10  |        |
| Azobenzene         ND         10           Benz(a)anthracene         ND         10           Benzo(a)pyrene         ND         10           Benzo(g,hi)perylene         ND         10           Benzo(k)fluoranthene         ND         10           Benzoic acid         ND         40           Benzyl alcohol         ND         10           Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroethyl)ether         ND         10           Bis(2-ethylnexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloro-aniline         ND         10  |        |
| Benz(a)anthracene         ND         10           Benzo(a)pyrene         ND         10           Benzo(b)fluoranthene         ND         10           Benzo(k)fluoranthene         ND         10           Benzoic k)fluoranthene         ND         10           Benzoic acid         ND         40           Benzyl alcohol         ND         10           Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroethyl)ether         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-ethylhexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloroa-3-methylphenol         ND         10           4-Chloroaniline         ND         10   |        |
| Benzo(a)pyrene         ND         10           Benzo(b)fluoranthene         ND         10           Benzo(k)fluoranthene         ND         10           Benzoic acid         ND         40           Benzył alcohol         ND         10           Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroethyl)ether         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-ethylhexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10   |        |
| Benzo(b)fluoranthene         ND         10           Benzo(k)fluoranthene         ND         10           Benzo(k)fluoranthene         ND         10           Benzoic acid         ND         40           Benzyl alcohol         ND         10           Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroethyl)ether         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-ethylhexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10   |        |
| Benzo(g,h,i)perylene         ND         10           Benzoic (k)fluoranthene         ND         10           Benzoic acid         ND         40           Benzyl alcohol         ND         10           Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroethyl)ether         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-ethylhexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10   |        |
| Benzo (k)fluoranthene         ND         10           Benzoic acid         ND         40           Benzyl alcohol         ND         10           Bis (2-chloroethoxy)methane         ND         10           Bis (2-chloroethyl)ether         ND         10           Bis (2-chloroisopropyl)ether         ND         10           Bis (2-ethylhexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10  |        |
| Benzoic acid         ND         40           Benzyl alcohol         ND         10           Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-ethylhexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10  |        |
| Benzyl alcohol         ND         10           Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroethyl)ether         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-ethylhexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10   |        |
| Bis(2-chloroethoxy)methane         ND         10           Bis(2-chloroethyl)ether         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-ethylhexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10  |        |
| Bis(2-chloroethyl)ether         ND         10           Bis(2-chloroisopropyl)ether         ND         10           Bis(2-ethylhexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10   |        |
| Bis(2-chloroisopropyl)ether         ND         10           Bis(2-ethylhexyl)phthalate         ND         10           4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10   |        |
| Bis(2-ethylhexyl)phthalate ND 10 4-Bromophenyl phenyl ether ND 10 Butyl benzyl phthalate ND 10 Carbazole ND 10 4-Chloro-3-methylphenol ND 10 4-Chloroaniline ND 10   |        |
| 4-Bromophenyl phenyl ether         ND         10           Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10  |        |
| Butyl benzyl phthalate         ND         10           Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10   |        |
| Carbazole         ND         10           4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10  |        |
| 4-Chloro-3-methylphenol         ND         10           4-Chloroaniline         ND         10  |        |
| 4-Chloroaniline ND 10  |        |
|  |        |
|  |        |
| 2-Chloronaphthalene ND 10  |        |
| 2-Chlorophenol ND 10   |        |
| 4-Chlorophenyl phenyl ether ND 10  |        |
| Chrysene ND 10   |        |
| Di-n-butyl phthalate ND 10   |        |
| Di-n-octyl phthalate N□ 10   |        |
| Dibenz(a,h)anthracene ND 10  |        |
| Dibenzofuran ND 10   |        |
| 1,2-Dichlorobenzene ND 10  |        |
| 1,3-Dichlorobenzene ND 10  |        |
| 1,4-Dichlorobenzene ND 10  |        |
| 3,3´-Dichlorobenzidine ND 10   |        |
| Diethyl phthalate ND 10  |        |
| Dimethyl phthalate ND 10   |        |
| 2,4-Dichlorophenol ND 20   |        |
| 2,4-Dimethylphenol ND 10   |        |
| 4,6-Dinitro-2-methylphenol ND 20   |        |
| 2,4-Dinitrophenol ND 20  |        |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Tall Environmental Analysis Laboratory, Inc.

WO#: 1312055 16-Dec-13

client:

AMEC

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID mb-10639         | SampTyp       | e: MBLK             | Test        | Code: <b>EPA M</b>   | ethod  | 8270C: Semi | volatiles |          |      |
|----------------------------|---------------|---------------------|-------------|----------------------|--------|-------------|-----------|----------|------|
| Client ID: PBW             | Batch II      | D: 10639            | R           | unNo: <b>15239</b>   |        |             |           |          |      |
| Prep Date: 12/4/2013       | Analysis Date | e: <b>12/4/2013</b> | S           | eqNo: <b>43946</b> 7 | 7      | Units: µg/L |           |          |      |
| Analyte                    |               |                     | SPK Ref Val | %REC Low             | vLimit | HighLimit   | %RPD      | RPDLimit | Qual |
| 2,4-Dinitrotoluene         | ND            | 10                  |             |                      |        |             |           |          |      |
| 2,6-Dinitrotoluene         | ND            | 10                  |             |                      |        |             |           |          |      |
| Fluoranthene               | ND            | 10                  |             |                      |        |             |           |          |      |
| Fluorene                   | ND            | 10                  |             |                      |        |             |           |          |      |
| Hexachlorobenzene          | ND            | 10                  |             |                      |        |             |           |          |      |
| Hexachlorobutadiene        | ND            | 10                  |             |                      |        |             |           |          |      |
| Hexachlorocyclopentadiene  | ND            | 10                  |             |                      |        |             |           |          |      |
| Hexachloroethane           | ND            | 10                  |             |                      |        |             |           |          |      |
| Indeno(1,2,3-cd)pyrene     | ND            | 10                  |             |                      |        |             |           |          |      |
| Isophorone                 | ND            | 10                  |             |                      |        |             |           |          |      |
| 1-Methylnaphthalene        | ND            | 10                  |             |                      |        |             |           |          |      |
| 2-Methylnaphthalene        | ND            | 10                  |             |                      |        |             |           |          |      |
| 2-Methylphenol             | ND            | 10                  |             |                      |        |             |           |          |      |
| 3+4-Methylphenol           | ND            | 10                  |             |                      |        |             |           |          |      |
| N-Nitrosodi-n-propylamine  | ND            | 10                  |             |                      |        |             |           |          |      |
| N-Nitrosodimethylamine     | ND            | 10                  |             |                      |        |             |           |          |      |
| "trosodiphenylamine        | ND            | 10                  |             |                      |        |             |           |          |      |
| nthalene                   | ND            | 10                  |             |                      |        |             |           |          |      |
| .vitroaniline              | ND            | 10                  |             |                      |        |             |           |          |      |
| 3-Nitroaniline             | ND            | 10                  |             |                      |        |             |           |          |      |
| 4-Nitroaniline             | ND            | 10                  |             |                      |        |             |           |          |      |
| Nitrobenzene               | ND            | 10                  |             |                      |        |             |           |          |      |
| 2-Nitrophenol              | ND            | 10                  |             |                      |        |             |           |          |      |
| 4-Nitrophenol              | ND            | 10                  |             |                      |        |             |           |          |      |
| Pentachlorophenol          | ND            | 20                  |             |                      |        |             |           |          |      |
| Phenanthrene               | ND            | 10                  |             |                      |        |             |           |          |      |
| Phenol                     | ND            | 10                  |             |                      |        |             |           |          |      |
| Pyrene                     | ND            | 10                  |             |                      |        |             |           |          |      |
| Pyridine                   | ND            | 10                  |             |                      |        |             |           |          |      |
| 1,2,4-Trichlorobenzene     | ND            | 10                  |             |                      |        |             |           |          |      |
| 2,4,5-Trichlorophenol      | ND            | 10                  |             |                      |        |             |           |          |      |
| 2,4,6-Trichlorophenol      | ND            | 10                  |             |                      |        |             |           |          |      |
| Surr: 2-Fluorophenol       | 120           | 200.0               | )           | 59.1                 | 22.7   | 98          |           |          |      |
| Surr: Phenol-d5            | 89            | 200.0               | }           | 44.5                 | 23.4   | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 170           | 200.0               | 1           | 82.6                 | 23.3   | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 76            | 100.0               | }           | 76.5                 | 36.8   | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 77            | 100.0               |             | 76.5                 | 38.3   | 110         |           |          |      |
| Surr: 4-Terphenyl-d14      | 88            | 100.0               | }           | 88.1                 | 52.1   | 116         |           |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Value above quantitation range
   Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055 16-Dec-13

**Client:** 

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID Ics-10639        | SampT      | ype: <b>LC</b> | S         | Tes         |           |          |             |      |          |      |
|----------------------------|------------|----------------|-----------|-------------|-----------|----------|-------------|------|----------|------|
| Client ID: LCSW            | Batch      | 1D: <b>10</b>  | 639       | F           | RunNo: 1  | 5239     |             |      |          |      |
| Prep Date: 12/4/2013       | Analysis D | ate: 12        | 2/4/2013  | S           | SeqNo: 4: | 39468    | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Acenaphthene               | 88         | 10             | 100.0     | 0           | 88.2      | 48       | 101         |      |          |      |
| 4-Chloro-3-methylphenol    | 170        | 10             | 200.0     | 0           | 84.2      | 47.9     | 109         |      |          |      |
| 2-Chlorophenol             | 160        | 10             | 200.0     | 0           | 80.9      | 40       | 105         |      |          |      |
| 1,4-Dichlorobenzene        | 77         | 10             | 100.0     | 0           | 77.2      | 40.8     | 94.3        |      |          |      |
| 2,4-Dinitrotoluene         | 80         | 10             | 100.0     | 0           | 79.7      | 28.3     | 131         |      |          |      |
| N-Nitrosodi-n-propylamine  | 87         | 10             | 100.0     | 0           | 87.1      | 46.2     | 119         |      |          |      |
| 4-Nitrophenol              | 86         | 10             | 200.0     | 0           | 42.9      | 10.5     | 67.9        |      |          |      |
| Pentachlorophenol          | 120        | 20             | 200.0     | 0           | 61.1      | 22.4     | 81.1        |      |          |      |
| Phenol                     | 97         | 10             | 200.0     | 0           | 48.7      | 21.4     | 72.9        |      |          |      |
| Pyrene                     | 79         | 10             | 100.0     | 0           | 79.4      | 46.9     | 109         |      |          |      |
| 1,2,4-Trichlorobenzene     | 76         | 10             | 100.0     | 0           | 76.5      | 43.1     | 98.4        |      |          |      |
| Surr: 2-Fluorophenol       | 110        |                | 200.0     |             | 57.4      | 22.7     | 98          |      |          |      |
| Surr: Phenol-d5            | 96         |                | 200.0     |             | 47.8      | 23.4     | 74.9        |      |          |      |
| Surr: 2,4,6-Tribromophenol | 180        |                | 200.0     |             | 90.0      | 23.3     | 111         |      |          |      |
| Surr: Nitrobenzene-d5      | 77         |                | 100.0     |             | 77.0      | 36.8     | 111         |      |          |      |
| Surr: 2-Fluorobiphenyl     | 80         |                | 100.0     |             | 79.7      | 38.3     | 110         |      |          |      |
| Surr: 4-Terphenyl-d14      | 92         |                | 100.0     |             | 91.9      | 52.1     | 116         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID LCS-10641   | SampTy      | mpType: LCS TestCode: EPA Method 8310: |           |             |          |           |             |      |          |      |
|-----------------------|-------------|--|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSW       | Batch       | ID: 106                                | 641       | R           | tunNo: 1 | 5357      |             |      |          |      |
| Prep Date: 12/4/2013  | Analysis Da | ate: 12                                | /9/2013   | S           | eqNo: 4  | 42493     | Units: µg/L |      |          |      |
| Analyte               | Result      | PQL                                    | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 52          | 2.0                                    | 80.00     | 0           | 64.9     | 43.8      | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 37          | 2.0                                    | 80.20     | 0           | 46.1     | 41.3      | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 33          | 2.0                                    | 80.00     | 0           | 41.2     | 36.6      | 89.6        |      |          |      |
| Acenaphthylene        | 52          | 2.5                                    | 80.20     | 0           | 64.2     | 43.6      | 103         |      |          |      |
| Acenaphthene          | 37          | 5.0                                    | 80.00     | 0           | 46.0     | 42.4      | 87.6        |      |          |      |
| Fluorene              | 4.0         | 0.80                                   | 8.020     | 0           | 49.6     | 40.5      | 93.6        |      |          |      |
| Phenanthrene          | 2.6         | 0.60                                   | 4.020     | 0           | 63.4     | 43.9      | 111         |      |          |      |
| Anthracene            | 2.6         | 0.60                                   | 4.020     | 0           | 64.4     | 44.3      | 103         |      |          |      |
| Fluoranthene          | 5.4         | 0.30                                   | 8.020     | 0           | 68.0     | 43.5      | 109         |      |          |      |
| Pyrene                | 5.2         | 0.30                                   | 8.020     | 0           | 64.5     | 32.6      | 103         |      |          |      |
| Benz(a)anthracene     | 0.48        | 0.070                                  | 0.8020    | 0           | 59.9     | 43        | 114         |      |          |      |
| Chrysene              | 2.4         | 0.20                                   | 4.020     | 0           | 59.7     | 40.2      | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.65        | 0.10                                   | 1.002     | 0           | 64.9     | 44.4      | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.32        | 0.070                                  | 0.5000    | 0           | 64.0     | 41.5      | 120         |      |          |      |
| Benzo(a)pyrene        | 0.29        | 0.070                                  | 0.5020    | 0           | 57.8     | 34.5      | 118         |      |          |      |
| Dibenz(a,h)anthracene | 0.62        | 0.12                                   | 1.002     | 0           | 61.9     | 38.3      | 107         |      |          |      |
| zo(g,h,i)perylene     | 0.54        | 0.12                                   | 1.000     | 0           | 54.0     | 38.4      | 110         |      |          |      |
| .no(1,2,3-cd)pyrene   | 1.4         | 0.25                                   | 2.004     | 0           | 72.4     | 42.4      | 113         |      |          |      |
| Surr: Benzo(e)pyrene  | 24          |  | 20.00     |             | 121      | 24.5      | 139         |      |          |      |
| Sample ID MB-10641    | SampT       | ype: MB                                | LK        | Tes         | tCode: E | PA Method | 8310: PAHs  |      |          |      |
| Client ID: PBW        | Batch       | ID: 106                                | 641       | F           | RunNo: 1 | 5357      |             |      |          |      |
| Prep Date: 12/4/2013  | Analysis D  | ate: 12                                | /9/2013   | S           | SeqNo: 4 | 42494     | Units: µg/L |      |          |      |
| Analyte               | Result      | PQL                                    | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | ND          | 2.0                                    |           |             |          |           |             |      |          |      |
| 1-Methylnaphthalene   | ND          | 2.0                                    |           |             |          |           |             |      |          |      |
| 2-Methylnaphthalene   | ND          | 2.0                                    |           |             |          |           |             |      |          |      |

#### Qualifiers:

Acenaphthylene

Acenaphthene Fluorene

Phenanthrene

Benz(a)anthracene

Benzo(b)fluoranthene

Benzo(k)fluoranthene

Anthracene Fluoranthene

Pyrene

Chrysene

\* Value exceeds Maximum Contaminant Level.

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

2.5

5.0

0.80

0.60

0.60

0.30

0.070

0.20

0.10

0.070

- S Value above quantitation range Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-10641     | SampT      | ype: ME                 | BLK       | Tes         | tCode: El     | PA Method | 8310: PAHs |      |          |      |
|------------------------|------------|-------------------------|-----------|-------------|---------------|-----------|------------|------|----------|------|
| Client ID: PBW         | Batch      | ID: 10                  | 641       | F           | RunNo: 1      | 5357      |            |      |          |      |
| Prep Date: 12/4/2013   | Analysis D | nalysis Date: 12/9/2013 |           |             | SeqNo: 442494 |           |            |      |          |      |
| Analyte                | Result     | PQL                     | SPK value | SPK Ref Val | %REC          | LowLimit  | HighLimit  | %RPD | RPDLimit | Qual |
| Benzo(a)pyrene         | ND         | 0.070                   |           |             |               |           |            |      |          |      |
| Dibenz(a,h)anthracene  | ND         | 0.12                    |           |             |               |           |            |      |          |      |
| Benzo(g,h,i)perylene   | ND         | 0.12                    |           |             |               |           |            |      |          |      |
| Indeno(1,2,3-cd)pyrene | ND         | 0.25                    |           |             |               |           |            |      |          |      |
| Surr: Benzo(e)pyrene   | 17         |                         | 20.00     |             | 86.4          | 24.5      | 139        |      |          |      |

| Sample ID 1312055-001CMS | SampT      | SampType: MS TestCode: EPA Method 8310: PAHs |           |             |          |          |             |      |          |      |
|--------------------------|------------|--|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: LDG 55-7      | Batch      | 1D: 10                                       | 641       | F           | RunNo: 1 | 5357     |             |      |          |      |
| Prep Date: 12/4/2013     | Analysis D | )ate: 12                                     | 2/9/2013  | S           | SeqNo: 4 | 42956    | Units: µg/L |      |          |      |
| Analyte                  | Result     | PQL  | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene              | 43         | 2.0  | 80.00     | 1.140       | 52.4     | 70       | 130         |      |          | S    |
| 1-Methylnaphthalene      | 31         | 2.0  | 80.20     | 0           | 38.1     | 70       | 130         |      |          | S    |
| 2-Methylnaphthalene      | 28         | 2.0  | 80.00     | 0           | 35.6     | 70       | 130         |      |          | S    |
| Acenaphthylene           | 65         | 2.5  | 80.20     | 10.28       | 68.8     | 70       | 130         |      |          | S    |
| Acenaphthene             | 30         | 5.0  | 80.00     | 0           | 37.4     | 70       | 130         |      |          | S    |
| Fluorene                 | 3.5        | 0.80   | 8.020     | 0           | 43.4     | 70       | 130         |      |          | S    |
| Phenanthrene             | 2.8        | 0.60   | 4.020     | 0.6500      | 53.7     | 70       | 130         |      |          | S    |
| Anthracene               | 2.1        | 0.60   | 4.020     | 0           | 53.0     | 70       | 130         |      |          | S    |
| Fluoranthene             | 4.3        | 0.30   | 8.020     | 0           | 53.6     | 70       | 130         |      |          | S    |
| Pyrene                   | 4.4        | 0.30   | 8.020     | 0.7100      | 46.5     | 70       | 130         |      |          | S    |
| Benz(a)anthracene        | 0.39       | 0.070  | 0.8020    | 0           | 48.6     | 70       | 130         |      |          | S    |
| Chrysene                 | 2.0        | 0.20   | 4.020     | 0.08000     | 46.8     | 70       | 130         |      |          | S    |
| Benzo(b)fluoranthene     | 0.48       | 0.10   | 1.002     | 0           | 47.9     | 70       | 130         |      |          | S    |
| Benzo(k)fluoranthene     | 0.22       | 0.070  | 0.5000    | 0           | 44.0     | 70       | 130         |      |          | S    |
| Benzo(a)pyrene           | 0.24       | 0.070  | 0.5020    | 0           | 47.8     | 70       | 130         |      |          | S    |
| Dibenz(a,h)anthracene    | 0.50       | 0.12   | 1.002     | 0           | 49.9     | 70       | 130         |      |          | S    |
| Benzo(g,h,i)perylene     | 0.90       | 0.12   | 1.000     | 0.4400      | 46.0     | 70       | 130         |      |          | S    |
| Indeno(1,2,3-cd)pyrene   | 1.2        | 0.25   | 2.004     | 0.1000      | 52.4     | 70       | 130         |      |          | S    |
| Surr: Benzo(e)pyrene     | 13         |  | 20.00     |             | 67.2     | 24.5     | 139         |      |          |      |

| Sample ID 1312055-001CMS | SampT      | ype: MS | D         | Tes                              | Code: El | PA Method | 8310: PAHs |       |          |      |
|--------------------------|------------|---------|-----------|----------------------------------|----------|-----------|------------|-------|----------|------|
| Client ID: LDG 55-7      | Batch      | ID: 10  | 541       | R                                | tunNo: 1 | 5357      |            |       |          |      |
| Prep Date: 12/4/2013     | Analysis D | ate: 12 | 2/9/2013  | SeqNo: <b>442957</b> Units: μg/L |          |           |            |       |          |      |
| Analyte                  | Result     | PQL     | SPK value | SPK Ref Val                      | %REC     | LowLimit  | HighLimit  | %RPD  | RPDLimit | Qual |
| Naphthalene              | 46         | 2.0     | 80.00     | 1.140                            | 56.3     | 70        | 130        | 7.02  | 20       | S    |
| 1-Methylnaphthalene      | 32         | 2.0     | 80.20     | 0                                | 39.3     | 70        | 130        | 3.13  | 20       | S    |
| 2-Methylnaphthalene      | 28         | 2.0     | 80.00     | 0                                | 35.5     | 70        | 130        | 0.457 | 20       | S    |
| Acenaphthylene           | 72         | 2.5     | 80.20     | 10.28                            | 77.3     | 70        | 130        | 9.95  | 20       |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 1312055-001CMSD SampType: MSD TestCode: EPA Method 8310: PAHs |            |                 |           |             |                               |          |             |      |          |      |  |
|---|------------|-----------------|-----------|-------------|-------------------------------|----------|-------------|------|----------|------|--|
| Client ID: LDG 55-7   | Batch      | n ID: <b>10</b> | 641       | R           | RunNo: <b>15357</b>           |          |             |      |          |      |  |
| Prep Date: 12/4/2013  | Analysis D | Date: 12        | 2/9/2013  | S           | SeqNo: <b>442957</b> Units: μ |          |             |      |          |      |  |
| Analyte   | Result     | PQL             | SPK value | SPK Ref Val | %REC                          | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |  |
| Acenaphthene  | 31         | 5.0             | 80.00     | 0           | 38.3                          | 70       | 130         | 2.18 | 20       | S    |  |
| Fluorene  | 3.6        | 0.80            | 8.020     | 0           | 45.3                          | 70       | 130         | 4.22 | 20       | S    |  |
| Phenanthrene  | 3.0        | 0.60            | 4.020     | 0.6500      | 5 <b>7</b> .2                 | 70       | <b>1</b> 30 | 4.86 | 20       | S    |  |
| Anthracene  | 2.2        | 0.60            | 4.020     | 0           | 55.7                          | 70       | 130         | 5.03 | 20       | S    |  |
| Fluoranthene  | 4.5        | 0.30            | 8.020     | 0           | 55.7                          | 70       | 130         | 3.88 | 20       | S    |  |
| Pyrene  | 4.7        | 0.30            | 8.020     | 0.7100      | 49.3                          | 70       | 130         | 4.84 | 20       | S    |  |
| Benz(a)anthracene   | 0.42       | 0.070           | 0.8020    | 0           | 52.4                          | 70       | 130         | 7.41 | 20       | S    |  |
| Chrysene  | 2.1        | 0.20            | 4.020     | 0.08000     | 50.5                          | 70       | 130         | 7.37 | 20       | S    |  |
| Benzo(b)fluoranthene  | 0.52       | 0.10            | 1.002     | 0           | 51.9                          | 70       | 130         | 8.00 | 20       | S    |  |
| Benzo(k)fluoranthene  | 0.25       | 0.070           | 0.5000    | 0           | 50.0                          | 70       | 130         | 12.8 | 20       | S    |  |
| Benzo(a)pyrene  | 0.27       | 0.070           | 0.5020    | 0           | 53.8                          | 70       | 130         | 11.8 | 20       | S    |  |
| Dibenz(a,h)anthracene   | 0.54       | 0.12            | 1.002     | 0           | 53.9                          | 70       | 130         | 7.69 | 20       | S    |  |
| Benzo(g,h,i)perylene  | 1.2        | 0.12            | 1.000     | 0.4400      | 71.0                          | 70       | 130         | 24.4 | 20       | R    |  |
| Indeno(1,2,3-cd)pyrene  | 1.2        | 0.25            | 2.004     | 0.1000      | 57.4                          | 70       | 130         | 8.33 | 20       | S    |  |
| Surr: Benzo(e)pyrene  | 14         |                 | 20.00     |             | 72.4                          | 24.5     | 139         | 0    |          |      |  |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Value above quantitation range
   Analyte detected below quantitation limits
- NSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#:

1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10711

SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 10711

RunNo: 15336

Prep Date: 12/9/2013

Sample ID LCS-10711

Prep Date: 12/9/2013

Analysis Date: 12/9/2013

**PQL** 

2.5

SeqNo: 441860 Units: µg/L

%RPD

**RPDLimit** Qual

Analyte Phenolics, Total Recoverable

Client ID: LCSW

Result ND

SampType: LCS

TestCode: Total Phenolics by SW-846 9067

Batch ID: 10711 Analysis Date: 12/9/2013

RunNo: 15336

Units: µg/L

HighLimit

SeqNo: 441861

Result **PQL** SPK value SPK Ref Val %REC LowLimit Analyte 23 2.5

HighLimit

**RPDLimit** Qual

%RPD

74.1

Phenolics, Total Recoverable

20.00

0

SPK value SPK Ref Val %REC LowLimit

113

125

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Ε
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit  $\mathbf{O}$
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

PQL

PQL

20

Sample ID mb-2

SampType: mblk Batch ID: R15223 TestCode: SM2320B: Alkalinity

Client ID:

PBW

RunNo: 15223

Prep Date: Analyte

Analysis Date: 12/3/2013

SeqNo: 439031

Units: mg/L CaCO3

HighLimit

**RPDLimit** 

Qual

Total Alkalinity (as CaCO3)

ND

Result

20

TestCode: SM2320B: Alkalinity

%RPD

Sample ID Ics-2

SampType: Ics

Batch ID: R15223

RunNo: 15223

Prep Date:

Client ID: LCSW

Analysis Date: 12/3/2013

SeqNo: 439032

Units: mg/L CaCO3

%RPD

Qual

Analyte

79

Result

80.00

0

SPK value SPK Ref Val %REC LowLimit

98.1

90

LowLimit

**RPDLimit** 

Total Alkalinity (as CaCO3)

SPK value SPK Ref Val %REC

HighLimit 110

Qualifiers:

Value exceeds Maximum Contaminant Level.

Analyte detected below quantitation limits J

Value above quantitation range

- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit RL

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#### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10626

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID:

Analyte

PBW

Batch ID: 10626

RunNo: 15274

Prep Date: 12/3/2013 Analysis Date: 12/5/2013

SeqNo: 440340

Units: mg/L

**RPDLimit** Qual

Total Dissolved Solids

Result

SPK value SPK Ref Val %REC LowLimit PQL 20.0

SPK value SPK Ref Val

HighLimit

%RPD

ND

SampType: LCS

RunNo: 15274

%REC

Client ID: LCSW

Sample ID LCS-10626

Prep Date: 12/3/2013

Batch ID: 10626 Analysis Date: 12/5/2013

SeqNo: 440341

Units: mg/L

%RPD **RPDLimit** 

Qual

Analyte

Result

**PQL** 

80

HighLimit

1020 0 102 Total Dissolved Solids 20.0 1000

LowLimit

120

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range E

Analyte detected below quantitation limits J

RSD is greater than RSDlimit 0

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits S

В Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded Η

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

RLReporting Detection Limit Page 28 of 28



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

## Sample Log-In Check List

|  | Work Older No  | imber: 13            | 312055                 |             |             | RcptNo: 1                  |  |
|--|--|----------------------|------------------------|-------------|-------------|----------------------------|--|
| Received by/date:   12   | 102/13   |                      |                        |             |             |                            |  |
| Logged By: Anne Thorne   | 12/2/2013 3:20:0   | 00 PM                |                        | ann ,       | A           |                            |  |
| Completed By: Anne Thorne  | 12/3/2013  |                      |                        | Anne ,      | 1           | _                          |  |
| Reviewed By: 12/63,  | 113  |                      |                        | ana ,       | <i>g</i> ,  |                            | !  |
| Chain of Custody   |  |                      |                        | A.#1.#1     |             |                            |  |
| Custody seals intact on sample bottles?  |  | ,                    | res .                  | No          |             | Not Present ✔              |  |
| 2. Is Chain of Custody complete?   |  | ,                    | ∕es ✓                  | No          |             | Not Present                |  |
| 3. How was the sample delivered?   |  | 2                    | Client                 |             |             |                            |  |
| Log In   |  |                      |                        |             |             |                            |  |
| 4. Was an attempt made to cool the sample  | es?  | ,                    | Yes 🗸                  | No          |             | NA Ĺ                       |  |
| Were all samples received at a temperal  | ture of >0° C to 6.0°C   | ) Y                  | es 🗹                   | No          |             | NA 🗀                       |  |
| 6. Sample(s) in proper container(s)?   |  | ,                    | Yes 🗸                  | No          | ! .         |                            |  |
| 7. Sufficient sample volume for indicated te   | est(s)?  | ,                    | ∕es ✓                  | No          |             |                            |  |
| Are samples (except VOA and ONG) pro   | . ,  | ,                    | ⁄es                    | No          | <b>~</b>    |                            |  |
| 9. Was preservative added to bottles?  |  | ,                    | res 🗸                  | No          | : 1         | NA                         |  |
|  |  |                      | ( **)                  |             | · >         | HNO3, HNO3                 |  |
| 10.VOA vials have zero headspace?  |  |                      | res [                  | No          |             | No VOA Vials               |  |
| 11. Were any sample containers received b  | roken?   | ,                    | Yes L                  | No          | Y           | # of preserved             |  |
| 12. Does paperwork match bottle labels?  |  | ,                    | Yes 🗸                  | No          | 1.1         | bottles checked<br>for pH: | 7  |
| (Note discrepancies on chain of custody  | )  |                      |                        |             |             |                            | >12 unless noted                           |
| 13. Are matrices correctly identified on Chair   | •  | `                    | res 🗸                  | No          |             | Adjusted?                  |  |
| 14. Is it clear what analyses were requested   | ?  |                      | Yes ✓                  | No          |             | Checked by:                | F 12/0                                     |
| 15. Were all holding times able to be met?<br>(If no, notify customer for authorization.)  |  | ·                    | Yes                    | No          |             | Checked by. 7)             | , , ,                                      |
| A CONTRACTOR OF THE STATE OF TH |  |                      |                        |             |             |                            |  |
| Special Handling (if applicable)   | We will a suite of   |                      | ,                      | <b>*</b> 1- | <u>;</u> =7 | NA 🗸                       |  |
| 16. Was client notified of all discrepancies w   | ith this order?  |                      | Yes 📋                  | No          | J           | NA 🖭                       |  |
| Person Notified:   | A A STATE OF THE PARTY OF THE P | Date                 |                        |             |             |                            |  |
| By Whom:   |  | /ia:                 | eMail                  | Phone       | Fax         | In Person                  |  |
| Regarding:   |  | ta Milana para ann a | CANADA SECURIO COMO CO |             | ********    |                            |  |
| Client Instructions:   |  |                      |                        |             |             |                            |  |
| 17. Additional remarks:  |  |                      |                        |             |             |                            |  |
| SAMPLE POURED OFF FOR RAI<br>FILTERED AND PRESERVED IN   |  | DON OUT              | OF HOL                 | .D) DISSOLV | ED MI       | ETALS SAMPLE POUF          | RED OFF,                                   |
| 18. Cooler Information   |  |                      |                        |             | ,           |                            |  |
|  | Rado   | in S                 | Samp                   | de bro      | ke,         | during shi                 | ome to                                     |
|  |  |                      |                        |             |             |                            | are distanced by the state of the state of |



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

## Sample Log-In Check List

Client Name:

AMEC

Work Order Number: 1312055

RcptNo: 1

| Cooler No | Temp ℃ | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|-----------|--------|-----------|-------------|---------|-----------|-----------|
| 1         | 4.7    | Good      | Not Present |         |           |           |

| Chain-of-Custody Record  | Turn-Around Time:  | HALL ENVIRONMENTAL  |
|--|--|---|
| Client: AMEC Ehvironments  | Standard □ Rush  | ANALYSIS LABORATORY   |
| The fraction to the  | Project Name: wafer  | www.hallenvironmental.com   |
| In frastructure, Inc. Mailing Address: 8519 Jefferson St NE      | Lightning Dock Cothernal montoring   | 4901 Hawkins NE - Albuque/rque, NM 87109  |
| ABQ, NM 87113  | Project #  | Tel. 505-345-3975 Fax \$05-345-4107   |
| Phone #: (503) 821-1801  | 11-517-00102,05  | Analysis Request  |
| email or Fax#: david. janney Bamec.co                            | Project Manager:   | 21) only) lieset) 804)  |
| QA/QC Package:   | David Janey  |   |
| ★ Standard □ Level 4 (Full Validation)                           | ,  |   |
| Accreditation  | Sampler: Eric Kuehia   |   |
| □ NELAP □ Other  | Onice: XYes IIINO  | 8 8 8 118 8 14 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1  |
| EDD (Type) Excel 12/6/6/15                                       | Sample Temperature: 4  | D W S (V S S S S S S S S S S S S S S S S S  |
| Date Time Matrix Sample Request ID                               | Container Type and # Preservative HEAL No.                                 | BTEX + MTBE + TMB' BTEX + MTBE + TMB' BTEX + MTBE + TPH or TPH (Method 8015B (GOT)) EDB (Method 504.1) EDB (Method 504.1) EDB (Method 504.1) EDB (Method 504.1) EDB (Method 604.1) EDB (Method 8015B (SOB2 8260B (VOA))  RCRA 8 Metals Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> , 8260B (VOA)  RCRA 8 Metals Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> , 8260B (VOA)  Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> )  Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> )  Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> )  Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> )  Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> )  Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> )  Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> )  Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ) |
| 124/12 MW-17   |  | KKKKK KKK   |
| 1/27/13 1500 Water LDG 55-7                                      | 0 -00  | XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX   |
| 172711 13 DO WARE LOG 33 F                                       | 10   31  |   |
|  |  |   |
|  |  |   |
|  |  | <del>                                     </del>  |
|  |  | <del></del>   |
|  |  |   |
|  |  |   |
|  |  |   |
|  |  |   |
|  |  |   |
|  |  |   |
| Date: Time: Relinquished by:                                     | Received by: Viz/02/13 Time  | Remarks: Netals Not Eilterechorheserved   |
| 2/2/13 15:20 Em D. Keny<br>Date: Time: Relinquished by:          | Went ti 1560   | See Attached for full analytes  |
| Date: Time: Relinquished by:                                     | Received by: Date Time   | Remarks: Metals Not Filtered or Preserved<br>See Attached For Full analytes<br>list. Please generate a separate<br>report for this sample involve CYROFFILM   |
| If necessary, samples submitted to Hall Environmental may be sub | contracted to other accredited laboratories. This serves as notice of this | s possibility. Any sub-contracted data will be clearly notated on the analytical report.  |

....



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 22, 2014

David Janney Cyrq Energy Inc PO Box 86 Animas, NM 88020

TEL: (505) 796-7276

FAX

RE: Lightning Dock CYRQ ENERGY OrderNo.: 1312666

Dear David Janney:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/16/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

## **Analytical Report**

Lab Order 1312666 Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: 53-7

Project: Lightning Dock CYRQ ENERGY Collection Date: 12/13/2013 2:00:00 PM

1312666-001 Matrix: AQUEOUS Lab ID: Received Date: 12/16/2013 9:03:00 AM

| Analyses                          | Result | RL       | Qual | Units | DF | Date Analyzed Batch           |
|-----------------------------------|--------|----------|------|-------|----|-------------------------------|
| EPA METHOD 8011/504.1: EDB        |        |          |      |       |    | Analyst: <b>LRW</b>           |
| 1,2-Dibromoethane                 | ND     | 0.010    |      | μg/L  | 1  | 12/16/2013 9:59:38 PM 10822   |
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Analyst: SCC                  |
| Aroclor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 10796   |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 10796   |
| Aroclor 1232                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 10796   |
| Aroclor 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 10796   |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 10796   |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 10796   |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 5:01:00 AM 10796   |
| Surr: Decachlorobiphenyl          | 86.0   | 17-123   |      | %REC  | 1  | 12/18/2013 5:01:00 AM 10796   |
| Surr: Tetrachloro-m-xylene        | 66.4   | 22.6-113 |      | %REC  | 1  | 12/18/2013 5:01:00 AM 10796   |
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst: SCC                  |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | µg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Fluorene                          | ND     | 0.80     |      | µg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/17/2013 10:29:26 PM 10797  |
| Surr: Benzo(e)pyrene              | 42.4   | 24.5-139 |      | %REC  | 1  | 12/17/2013 10:29:26 PM 10797  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst: JRR                  |
| Fluoride                          | 1.4    | 0.10     |      | mg/L  | 1  | 12/16/2013 10:09:50 PM R15551 |
| Chloride                          | 33     | 10       |      | mg/L  | 20 | 12/16/2013 10:22:15 PM R15551 |
| Phosphorus, Orthophosphate (As P) | ND     | 0.50     | Н    | mg/L  | 1  | 12/16/2013 10:09:50 PM R15551 |
| Sulfate                           | 120    | 10       |      | mg/L  | 20 | 12/16/2013 10:22:15 PM R15551 |
| Nitrate+Nitrite as N              | ND     | 1.0      |      | mg/L  | 5  | 12/17/2013 4:59:32 AM R15551  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### **Analytical Report** Lab Order 1312666

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/22/2014

CLIENT: Cyrq Energy Inc

Client Sample ID: 53-7

Project: Lightning Dock CYRQ ENERGY

Collection Date: 12/13/2013 2:00:00 PM

Lab ID: 1312666-001 Matrix: AQUEOUS

Received Date: 12/16/2013 9:03:00 AM

| Analyses                       | Result | RL Qu   | al Units | DF | Date Analyzed         | Batch         |
|--------------------------------|--------|---------|----------|----|-----------------------|---------------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |          |    | Analys                | t: JLF        |
| Aluminum                       | ND     | 0.020   | mg/L     | 1  | 12/19/2013 5:40:30 PM | / R15612      |
| Barium                         | 0.038  | 0.0020  | mg/L     | 1  | 12/19/2013 5:40:30 PM | / R15612      |
| Boron                          | 0.12   | 0.040   | mg/L     | 1  | 12/19/2013 5:40:30 PM | /I R15612     |
| Cadmium                        | ND     | 0.0020  | mg/L     | 1  | 12/19/2013 5:40:30 PM | A R15612      |
| Calcium                        | 26     | 1.0     | mg/L     | 1  | 12/19/2013 5:40:30 PM | A R15612      |
| Chromium                       | ND     | 0.0060  | mg/L     | 1  | 12/19/2013 5:40:30 PM | / R15612      |
| Cobalt                         | ND     | 0.0060  | mg/L     | 1  | 12/19/2013 5:40:30 PM | и R15612      |
| Copper                         | ND     | 0.0060  | mg/L     | 1  | 12/19/2013 5:40:30 PM | A R15612      |
| Iron                           | ND     | 0.020   | mg/L     | 1  | 12/19/2013 5:40:30 PM | / R15612      |
| Magnesium                      | 1.9    | 1.0     | mg/L     | 1  | 12/19/2013 5:40:30 PM | И R15612      |
| Manganese                      | 0.067  | 0.0020  | * mg/L   | 1  | 12/19/2013 5:40:30 PM | M R15612      |
| Molybdenum                     | ND     | 0.0080  | mg/L     | 1  | 12/19/2013 5:40:30 PM | И R15612      |
| Nickel                         | ND     | 0.010   | mg/L     | 1  | 12/19/2013 5:40:30 PM | A R15612      |
| Potassium                      | 3.9    | 1.0     | mg/L     | 1  | 12/19/2013 5:40:30 PM | M R15612      |
| Silver                         | ND     | 0.0050  | mg/L     | 1  | 12/19/2013 5:40:30 PM | M R15612      |
| Sodium                         | 72     | 1.0     | mg/L     | 1  | 12/19/2013 5:40:30 PM | M R15612      |
| Zinc                           | 0.049  | 0.010   | mg/L     | 1  | 12/19/2013 5:40:30 PM | √1 R15612     |
| EPA 200.8: DISSOLVED METALS    |        |         |          |    | Analys                | t: DBD        |
| Arsenic                        | ND     | 0.0010  | mg/L     | 1  | 1/6/2014 5:09:54 PM   | R15909        |
| Lead                           | ND     | 0.0010  | mg/L     | 1  | 1/6/2014 5:09:54 PM   | R15909        |
| Uranium                        | ND     | 0.0010  | mg/L     | 1  | 1/7/2014 6:07:19 PM   | R15934        |
| EPA METHOD 245.1: MERCURY      |        |         |          |    | Analys                | st: IDC       |
| Mercury                        | ND     | 0.00020 | mg/L     | 1  | 1/3/2014 3:52:08 PM   | 11064         |
| EPA METHOD 8270C: SEMIVOLATIL  | ES     |         |          |    | Analys                | t: <b>DAM</b> |
| Acenaphthene                   | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 A | M 10800       |
| Acenaphthylene                 | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 A | M 10800       |
| Aniline                        | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 A | M 10800       |
| Anthracene                     | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 A | M 10800       |
| Azobenzene                     | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 A | M 10800       |
| Benz(a)anthracene              | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 A | AM 10800      |
| Benzo(a)pyrene                 | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 A | AM 10800      |
| Benzo(b)fluoranthene           | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 A | NM 10800      |
| Benzo(g,h,i)perylene           | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 / | AM 10800      |
| Benzo(k)fluoranthene           | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 / | AM 10800      |
| Benzoic acid                   | ND     | 40      | µg/L     | 1  | 12/18/2013 10:03:31   | AM 10800      |
| Benzyl alcohol                 | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 / | AM 10800      |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/Ł     | 1  | 12/18/2013 10:03:31 / | AM 10800      |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L     | 1  | 12/18/2013 10:03:31 / | AM 10800      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- Page 2 of 28 P
  - Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

#### Analytical Report Lab Order 1312666

Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: 53-7

Project:Lightning Dock CYRQ ENERGYCollection Date: 12/13/2013 2:00:00 PMLab ID:1312666-001Matrix: AQUEOUSReceived Date: 12/16/2013 9:03:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed       | Batch           |
|-----------------------------|--------|-------|----------|----|---------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  |       | _        |    | Anal                | yst: <b>DAM</b> |
| Bis(2-chloroisopropyl)ether | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Bis(2-ethylhexyl)phthalate  | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 4-Bromophenyl phenyl ether  | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Butyl benzyl phthalate      | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Carbazole                   | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 4-Chloro-3-methylphenol     | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 4-Chloroaniline             | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2-Chloronaphthalene         | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2-Chlorophenol              | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 4-Chlorophenyl phenyl ether | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Chrysene                    | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Di-n-butyl phthalate        | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Di-n-octyl phthalate        | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Dibenz(a,h)anthracene       | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Dibenzofuran                | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 3,3'-Dichlorobenzidine      | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Diethyl phthalate           | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Dimethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2,4-Dichlorophenol          | ND     | 20    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2,4-Dimethylphenol          | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 4,6-Dinitro-2-methylphenol  | ND     | 20    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2,4-Dinitrophenol           | ND     | 20    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2,4-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2,6-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Fluoranthene                | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Fluorene                    | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Hexachlorobenzene           | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Hexachlorobutadiene         | ND     | 10    | µg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Hexachlorocyclopentadiene   | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | I AM 10800      |
| Hexachloroethane            | ND     | 10    | µg/L     | 1  | 12/18/2013 10:03:31 | I AM 10800      |
| Indeno(1,2,3-cd)pyrene      | ND     | 10    | µg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Isophorone                  | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 1-Methylnaphthalene         | ND     | 10    | µg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2-Methylnaphthalene         | ND     | 10    | µg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2-Methylphenol              | ND     | 10    | µg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 3+4-Methylphenol            | ND     | 10    | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/22/2014

CLIENT: Cyrq Energy Inc

Client Sample ID: 53-7

Lightning Dock CYRQ ENERGY Project:

Collection Date: 12/13/2013 2:00:00 PM

Lab ID: 1312666-001

Matrix: AQUEOUS

Received Date: 12/16/2013 9:03:00 AM

| Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed       | Batch           |
|--------------------------------|--------|-----------|----------|----|---------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLATIL  | .ES    |           |          |    | Anal                | yst: <b>DAM</b> |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Naphthalene                    | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 3-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 4-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Nitrobenzene                   | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 4-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Phenol                         | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Pyrene                         | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Pyridine                       | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Surr: 2-Fluorophenol           | 49.9   | 22.7-98   | %REC     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Surr: Phenol-d5                | 40.5   | 23.4-74.9 | %REC     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Surr: 2,4,6-Tribromophenol     | 90.1   | 23.3-111  | %REC     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Surr: Nitrobenzene-d5          | 80.1   | 36.8-111  | %REC     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Surr: 2-Fluorobiphenyl         | 95.9   | 38.3-110  | %REC     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| Surr: 4-Terphenyl-d14          | 91.6   | 52.1-116  | %REC     | 1  | 12/18/2013 10:03:31 | AM 10800        |
| EPA METHOD 8260B: VOLATILES    |        |           |          |    | Anal                | yst: <b>JMP</b> |
| Benzene                        | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| Toluene                        | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| Ethylbenzene                   | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| Naphthalene                    | ND     | 2.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R155         |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| Acetone                        | ND     | 10        | µg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| Bromobenzene                   | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |
| Bromodichloromethane           | ND     | 1.0       | μg/L     | 1  | 12/16/2013 5:06:55  | PM R1552        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 4 of 28 Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

#### **Analytical Report**

Lab Order 1312666

Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: 53-7

Project:Lightning Dock CYRQ ENERGYCollection Date: 12/13/2013 2:00:00 PMLab ID:1312666-001Matrix: AQUEOUSReceived Date: 12/16/2013 9:03:00 AM

| Analyses                    | Result | RL Qu | al Units | DF Date Analyzed Ba        | itch  |
|-----------------------------|--------|-------|----------|----------------------------|-------|
| EPA METHOD 8260B: VOLATILES |        |       |          | Analyst: <b>JM</b>         | /IP   |
| Bromoform                   | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 5529  |
| Bromomethane                | ND     | 3.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 2-Butanone                  | ND     | 10    | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 5529  |
| Carbon disulfide            | ND     | 10    | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| Carbon Tetrachloride        | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 5529  |
| Chlorobenzene               | ND     | 1.0   | µg/L     | 1 12/16/2013 5:06:55 PM R1 | 5529  |
| Chloroethane                | ND     | 2.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 5529  |
| Chloroform                  | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| Chloromethane               | ND     | 3.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 2-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 5529  |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 2,2-Dichloropropane         | ND     | 2.0   | µg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| Isopropylbenzene            | ND     | 1.0   | µg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| Styrene                     | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1 12/16/2013 5:06:55 PM R1 | 15529 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### **Analytical Report**

#### Lab Order 1312666

Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc

Client Sample ID: 53-7

Lightning Dock CYRQ ENERGY Project:

Collection Date: 12/13/2013 2:00:00 PM

1312666-001 Matrix: AQUEOUS Lab ID: Received Date: 12/16/2013 9:03:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed         | Batch        |
|--------------------------------|--------|--------|------|------------|----|-----------------------|--------------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analyst               | : JMP        |
| Tetrachloroethene (PCE)        | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| trans-1,2-DCE                  | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| trans-1,3-Dichloropropene      | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| 1,2,3-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| 1,2,4-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| 1,1,1-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| 1,1,2-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| Trichloroethene (TCE)          | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| Trichlorofluoromethane         | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| 1,2,3-Trichloropropane         | ND     | 2.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| Vinyl chloride                 | ND     | 1.0    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| Xylenes, Total                 | ND     | 1.5    |      | μg/L       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| Surr: 1,2-Dichloroethane-d4    | 90.1   | 70-130 |      | %REC       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| Surr: 4-Bromofluorobenzene     | 97.4   | 70-130 |      | %REC       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| Surr: Dibromofluoromethane     | 91.6   | 70-130 |      | %REC       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| Surr: Toluene-d8               | 93.2   | 70-130 |      | %REC       | 1  | 12/16/2013 5:06:55 PM | R15529       |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analyst               | :: BCN       |
| Petroleum Hydrocarbons, TR     | ND     | 1.0    |      | mg/L       | 1  | 12/17/2013            | 10820        |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |            |    | Analyst               | t: SCC       |
| Phenolics, Total Recoverable   | 7.6    | 2.5    |      | μg/L       | 1  | 12/19/2013            | 10891        |
| SM4500-H+B: PH                 |        |        |      |            |    | Analyst               | t: SRM       |
| рН                             | 7.53   | 1.68   | Н    | pH units   | 1  | 12/16/2013 6:15:25 PM | 1 R15528     |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analyst               | t: SRM       |
| Bicarbonate (As CaCO3)         | 53     | 20     |      | mg/L CaCO3 | 1  | 12/16/2013 6:15:25 PM | 1 R15528     |
| Carbonate (As CaCO3)           | ND     | 2.0    |      | mg/L CaCO3 | 1  | 12/16/2013 6:15:25 PM | 1 R15528     |
| Total Alkalinity (as CaCO3)    | 53     | 20     |      | mg/L CaCO3 | 1  | 12/16/2013 6:15:25 PM | R15528       |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analys                | t: <b>KS</b> |
| Total Dissolved Solids         | 321    | 20.0   |      | mg/L       | 1  | 12/19/2013 8:53:00 PM | 1 10881      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Not Detected at the Reporting Limit Page 6 of 28 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131218047

Address:

4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109

**Project Name:** 

1312666

Attn:

ANDY FREEMAN

#### **Analytical Results Report**

Sample Number

131218047-001

12/13/2013 Sampling Date

Date/Time Received 12/17/2013 12:36 PM

Client Sample ID

1312666-001K / 53-7

Sampling Time 2:00 PM

Matrix

Water

Comments

Metals samples received unfiltered and preserved with HNO3.

| Parameter          | Result | Units | PQL   | Analysis Date | Analyst | Method    | Qualifier |
|--------------------|--------|-------|-------|---------------|---------|-----------|-----------|
| Dissolved Lithium  | 0.0887 | mg/L  | 0.001 | 1/21/2014     | ETL     | EPA 200.8 |           |
| Dissolved Rubidium | 0.0127 | mg/L  | 0.001 | 1/21/2014     | ETL     | EPA 200.8 |           |
| Dissolved Tungsten | ND     | mg/L  | 0.01  | 1/21/2014     | ETL     | EPA 200.8 |           |

Sample Number

131218047-002

Sampling Date 12/13/2013 Date/Time Received 12/17/2013 12:36 PM

Client Sample ID Matrix

1312666-001L / 53-7

Sampling Time 2:00 PM

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 12/23/2013    | ETL     | EPA 335.4 |           |

Gertifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CC:ID00013; FL(NELAP):E87883; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095

Tuesday, January 21, 2014 Page 1 of 2

# Anatek Labs, Inc.

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Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131218047

Address:

4901 HAWKINS NE SUITE D

Project Name:

1312666

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

#### **Analytical Results Report**

Sample Number

131218047-003

Sampling Date

12/13/2013

Date/Time Received 12/17/2013 12:36 PM

Client Sample ID

Total P

1312666-001M / 53-7

Sampling Time

2:00 PM

Matrix Comments Water

Parameter

Result 0.0131 Units PQL 0.01 mg/L

Analysis Date 1/7/2014

Analyst CRW

Method Qualifler

SM4500PF

Authorized Signature

John Coddington, Lab Manager

MCL

EPA's Maximum Contaminant Level

ND

Not Detected

POL

**Practical Quantitation Limit** 

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The results reported relate only to the samples indicated.

Soil/solid results are reported on a dry-weight basis unless otherwise noted.



Helena, MT 877-472-0711 · Billings, MT 800-735-4489 · Casper, WY 888-235-0515 Gillette, WY 888-666-7175 . Repid City, SD 888-672-1225 . College Station, TX 888-698-2218

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13120621-001

Client Sample ID: 1312666-001O 53-7

Report Date: 12/23/13

Collection Date: 12/13/13 14:00

DateReceived: 12/18/13

Matrix: Aqueous

| Analyses                | Result Units | Qualifiers | RL | MCL/<br>QCL Method | Analysis Date / By   |
|-------------------------|--------------|------------|----|--------------------|----------------------|
| RADIONUCLIDES - TOTAL   |              |            |    |                    |                      |
| Radon 222               | -67.8 pCi/L  | U          |    | D5072-92           | 12/18/13 18:01 / dpb |
| Radon 222 precision (±) | 74.1 pCi/L   |            |    | D5072-92           | 12/18/13 18:01 / dpb |
| Radon 222 MDC           | 130 pCi/L    |            |    | D5072-92           | 12/18/13 18:01 / dpb |



### **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Report Date: 12/23/13

Project: Not Indicated Work Order: C13120621

| Analyte  | Count         | Result        | Units         | RL    | %REC | Low Limit | High Limit  | RPD     | RPDLImit | Qual      |
|--|---------------|---------------|---------------|-------|------|-----------|-------------|---------|----------|-----------|
| Method: D5072-92                                       |               |               |               |       |      |           |             |         | Batch:   | R181914   |
| Sample ID: C13120621-001ADUF                           | 3 Sar         | mple Duplica  | te            |       |      | Run: PACK | ARD 3100TR_ | 131218A | 12/18    | /13 18:01 |
| Radon 222  |               | 1.6           | pCi/L         |       |      |           |             | 210     | 20       | UR        |
| Radon 222 precision (±)                                |               | 75.1          | pCi/L         |       |      |           |             |         |          |           |
| Radon 222 MDC  |               | 130           | pCi/L         |       |      |           |             |         |          |           |
| <ul> <li>The Sample and the Duplicate are t</li> </ul> | ooth below th | ne MDC. The   | RPD is accept | able. |      |           |             |         |          |           |
| Sample ID: MB-R181914                                  | 3 Me          | thod Blank    |               |       |      | Run: PACK | ARD 3100TR_ | 131218A | 12/18    | /13 18:01 |
| Radon 222  |               | 7             | pCi/L         |       |      |           |             |         |          | U         |
| Radon 222 precision (±)                                |               | 30            | pCi/L         |       |      |           |             |         |          |           |
| Radon 222 MDC  |               | 50            | pCi/L         |       |      |           |             |         |          |           |
| Sample ID: LCS-R181914                                 | Lab           | poratory Cont | trol Sample   |       |      | Run: PACK | ARD 3100TR_ | 131218A | 12/18    | /13 18:01 |
| Radon 222  |               | 552           | pCi/L         |       | 96   | 80        | 120         |         |          |           |



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

#### **ANALYTICAL RESULTS**

Project:

1312666

Pace Project No.: 30109791

Sample: 1312666-001 53-7

Lab ID: 30109791001

Collected: 12/13/13 14:00 Received: 12/17/13 11:00 Matrix: Water

| PWS:       | Site ID:  | Sample Type:          |       |                |            |      |
|------------|-----------|-----------------------|-------|----------------|------------|------|
| Parameters | Method    | Act ± Unc (MDC)       | Units | Analyzed       | CAS No.    | Qual |
| Radium-226 | EPA 903.1 | 0.166 ± 0.380 (0.225) | pCi/L | 12/23/13 12:34 | 13982-63-3 |      |
| Radium-228 | EPA 904.0 | 0.414 ± 0.460 (0.931) | pCi/L | 01/02/14 16:27 | 15262-20-1 |      |



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#### **QUALITY CONTROL DATA**

Project:

1312666

Pace Project No.:

30109791

QC Batch:

RADC/18124

Analysis Method:

EPA 903.1

QC Batch Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples:

30109791001

Matrix: Water

METHOD BLANK: 671631
Associated Lab Samples:

Parameter

30109791001

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-226

 $-0.536 \pm 0.648$  (0.960)

pCi/L

12/23/13 10:50

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#### **QUALITY CONTROL DATA**

Project:

1312666

Pace Project No.:

30109791

QC Batch:

RADC/18128

Analysis Method:

EPA 904.0

QC Batch Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples:

METHOD BLANK: 671635

s: 30109791001

Matrix: Water

Associated Lab Samples:

30109791001

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-228

 $0.134 \pm 0.301$  (0.670)

pCi/L

01/02/14 13:25

**REPORT OF LABORATORY ANALYSIS** 

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### all Environmental Analysis Laboratory, Inc.

WO#: **1312666** 

22-Jan-14

Client:

Cyrq Energy Inc

Project: L

Lightning Dock CYRQ ENERGY

| Sample ID MB   | SampType: MBLK TestCode: EPA Method |                 |           |             | 200.7: Dissol | ved Meta | ls          |      |          |      |
|----------------|-------------------------------------|-----------------|-----------|-------------|---------------|----------|-------------|------|----------|------|
| Client ID: PBW | Bato                                | h ID: <b>R1</b> | 5612      | F           | RunNo:        | 15612    |             |      |          |      |
| Prep Date:     | Analysis                            | Date: 12        | 2/19/2013 | 8           | SeqNo:        | 449740   | Units: mg/L |      |          |      |
| Analyte        | Result                              | PQL             | SPK value | SPK Ref Val | %REC          | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Aluminum       | ND                                  | 0.020           |           |             |               |          |             |      |          |      |
| Barium         | ND                                  | 0.0020          |           |             |               |          |             |      |          |      |
| Boron          | ND                                  | 0.040           |           |             |               |          |             |      |          |      |
| Cadmium        | ND                                  | 0.0020          |           |             |               |          |             |      |          |      |
| Calcium        | ND                                  | 1.0             |           |             |               |          |             |      |          |      |
| Chromium       | ND                                  | 0.0060          |           |             |               |          |             |      |          |      |
| Cobalt         | ND                                  | 0.0060          |           |             |               |          |             |      |          |      |
| Copper         | ND                                  | 0.0060          |           |             |               |          |             |      |          |      |
| Iron           | ND                                  | 0.020           |           |             |               |          |             |      |          |      |
| Magnesium      | ND                                  | 1.0             |           |             |               |          |             |      |          |      |
| Manganese      | ND                                  | 0.0020          |           |             |               |          |             |      |          |      |
| Molybdenum     | ND                                  | 0.0080          |           |             |               |          |             |      |          |      |
| Nickel         | ND                                  | 0.010           |           |             |               |          |             |      |          |      |
| Potassium      | ND                                  | 1.0             |           |             |               |          |             |      |          |      |
| Silver         | ND                                  | 0.0050          |           |             |               |          |             |      |          |      |
| 'ium           | ND                                  | 1.0             |           |             |               |          |             |      |          |      |
| ,              | ND                                  | 0.010           |           |             |               |          |             |      |          |      |

| Sample ID LCS   | Samp     | SampType: LCS |           |               | TestCode: EPA Method 200.7: Dissolved Metals |          |             |      |          |      |
|-----------------|----------|---------------|-----------|---------------|--|----------|-------------|------|----------|------|
| Client ID: LCSW | Bato     | h ID: R1      | 5612      | F             | RunNo: 1                                     | 5612     |             |      |          |      |
| Prep Date:      | Analysis | Date: 12      | 2/19/2013 | SeqNo: 449741 |  |          | Units: mg/L |      |          |      |
| Analyte         | Result   | PQL           | SPK value | SPK Ref Val   | %REC   | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Aluminum        | 0.54     | 0.020         | 0.5000    | 0             | 109  | 85       | 115         |      |          |      |
| Barium          | 0.49     | 0.0020        | 0.5000    | 0             | 98.4   | 85       | 115         |      |          |      |
| Boron           | 0.52     | 0.040         | 0.5000    | 0             | 104  | 85       | 115         |      |          |      |
| Cadmium         | 0.51     | 0.0020        | 0.5000    | 0             | 101  | 85       | 115         |      |          |      |
| Calcium         | 49       | 1.0           | 50.00     | 0             | 97.2   | 85       | 115         |      |          |      |
| Chromium        | 0.52     | 0.0060        | 0.5000    | 0             | 104  | 85       | 115         |      |          |      |
| Cobalt          | 0.49     | 0.0060        | 0.5000    | 0             | 98.4   | 85       | 115         |      |          |      |
| Copper          | 0.48     | 0.0060        | 0.5000    | 0             | 96.7   | 85       | 115         |      |          |      |
| Iron            | 0.49     | 0.020         | 0.5000    | 0             | 98.4   | 85       | 115         |      |          |      |
| Magnesium       | 49       | 1.0           | 50.00     | 0             | 98.0   | 85       | 115         |      |          |      |
| Manganese       | 0.50     | 0.0020        | 0.5000    | 0             | 100  | 85       | 115         |      |          |      |
| Molybdenum      | 0.51     | 0.0080        | 0.5000    | 0             | 102  | 85       | 115         |      |          |      |
| Nickel          | 0.51     | 0.010         | 0.5000    | 0             | 102  | 85       | 115         |      |          |      |
| Potassium       | 48       | 1.0           | 50.00     | 0             | 95.1   | 85       | 115         |      |          |      |
| Silver          | 0.10     | 0.0050        | 0.1000    | 0             | 103  | 85       | 115         |      |          |      |
| Sodium          | 48       | 1.0           | 50.00     | 0             | 95.2   | 85       | 115         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
   Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Page 7 of 28

### Hall Environmental Analysis Laboratory, Inc.

WO#:

1312666 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID LCS

SampType: LCS

TestCode: EPA Method 200.7: Dissolved Metals

Client ID: LCSW

Batch ID: R15612

RunNo: 15612

Prep Date:

Analysis Date: 12/19/2013

SeqNo: 449741

Units: mg/L

Result

SPK value SPK Ref Val %REC LowLimit 0.010

99.2

HighLimit

%RPD

**RPDLimit** 

Zinc

Analyte

0.50

0.5000

ō

Qual

Qualifiers:

S

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

E Value above quantitation range

Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

RPD outside accepted recovery limits R

В Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

Page 8 of 28

### all Environmental Analysis Laboratory, Inc.

| all Er              | iviro                                 | nmental Analysis Laborator                    | ry, Inc.  | 22-Jan-1 |
|---------------------|---------------------------------------|---|---|----------|
| Client:<br>Project: |                                       | Cyrq Energy Inc<br>Lightning Dock CYRQ ENERGY |   |          |
| Sample ID           | LCS                                   | SampType: LCS                                 | TestCode: EPA 200.8: Dissolved Metals             |          |
| Client ID:          | LCSW                                  | Batch ID: R15909                              | RunNo: 15909                                      |          |
| Prep Date:          |                                       | Analysis Date: 1/6/2014                       | SeqNo: 458860 Units: mg/L                         |          |
| Analyte             |                                       | Result PQL SPK value S                        | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual     |
| Arsenic             | · · · · · · · · · · · · · · · · · · · | 0.026 0.0010 0.02500                          | 0 103 85 115                                      |          |
| _ead                |                                       | 0.027 0.0010 0.02500                          | 0 106 85 115                                      |          |
| Sample ID           | LCS                                   | SampType: LCS                                 | TestCode: EPA 200.8: Dissolved Metals             |          |
| Client ID:          | LCSW                                  | Batch ID: R15909                              | RunNo: 15909                                      |          |
| Prep Date:          |                                       | Analysis Date: 1/6/2014                       | SeqNo: 458861 Units: mg/L                         |          |
| Analyte             |                                       | Result PQL SPK value S                        | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual     |
| Arsenic             |                                       | 0.025 0.0010 0.02500                          | 0 99.4 85 115                                     |          |
| Lead                |                                       | 0.026 0.0010 0.02500                          | 0 105 85 115                                      |          |
| Sample ID           | МВ                                    | SampType: <b>MBLK</b>                         | TestCode: EPA 200.8: Dissolved Metals             |          |
| Client ID:          | PBW                                   | Batch ID: R15909                              | RunNo: 15909                                      |          |
| Prep Date:          |                                       | Analysis Date: 1/6/2014                       | SeqNo: 458863 Units: mg/L                         |          |
| △nalyte             |                                       | Result PQL SPK value S                        | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual     |
| nic                 |                                       | ND 0.0010                                     |   |          |
| bt                  |                                       | ND 0.0010                                     |   |          |
| Sample ID           | МВ                                    | SampType: MBLK                                | TestCode: EPA 200.8: Dissolved Metals             |          |
| Client ID:          | PBW                                   | Batch ID: R15909                              | RunNo: 15909                                      |          |
| Prep Date:          |                                       | Analysis Date: 1/6/2014                       | SeqNo: 458864 Units: mg/L                         |          |
| Analyte             |                                       | Result PQL SPK value S                        | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual     |
| Arsenic             |                                       | ND 0.0010                                     |   |          |
| _ead                |                                       | ND 0.0010                                     |   |          |
| Sample ID           | LCS                                   | SampType: LCS                                 | TestCode: EPA 200.8: Dissolved Metals             |          |
| Client ID:          | LCSW                                  | Batch ID: R15934                              | RunNo: 15934                                      |          |
| Prep Date:          |                                       | Analysis Date: 1/7/2014                       | SeqNo: 459484 Units: mg/L                         |          |
| Analyte             |                                       | Result PQL SPK value S                        | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual     |
| Jranium             |                                       | 0.028 0.0010 0.02500                          | 0 111 85 115                                      |          |
| Sample ID           | LCS                                   | SampType: <b>LCS</b>                          | TestCode: EPA 200.8: Dissolved Metals             |          |
| Client ID:          | LCSW                                  | Batch ID: R15934                              | RunNo: <b>15934</b>                               |          |
| Prep Date:          |                                       | Analysis Date: 1/7/2014                       | SeqNo: 459485 Units: mg/L                         |          |
| Analyte             |                                       | Result PQL SPK value S                        | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit | Qual     |

#### Qualifiers:

Uranium

Value exceeds Maximum Contaminant Level. Value above quantitation range

0.0010

0.027

0.02500

- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank

85

115

109

- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. P
- RLReporting Detection Limit

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WO#:

1312666

### Hall Environmental Analysis Laboratory, Inc.

WO#:

1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: R15934

RunNo: 15934

SPK value SPK Ref Val %REC LowLimit

SPK value SPK Ref Val %REC LowLimit

Prep Date:

Analysis Date: 1/7/2014

SeqNo: 459486

Units: mg/L

HighLimit

%RPD **RPDLimit** 

Qual

Analyte Uranium

**PQL** 0.0010

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Client ID: **PBW** 

Batch ID: R15934 Analysis Date: 1/7/2014 RunNo: 15934 SeqNo: 459487

Units: mg/L

HighLimit

**RPDLimit** 

%RPD

Qual

Analyte Uranium

Prep Date:

ND 0.0010

Qualifiers:

Value exceeds Maximum Contaminant Level.

Е Value above quantitation range

Analyte detected below quantitation limits

0 RSD is greater than RSDlimit

RPD outside accepted recovery limits R

Spike Recovery outside accepted recovery limits

Analyte detected in the associated Method Blank В

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

RLReporting Detection Limit Page 10 of 28

### all Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-11064

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID:

**PBW** 

Batch ID: 11064

RunNo: 15897

Prep Date: 1/3/2014

Analysis Date: 1/3/2014

Result

SeqNo: 458393

Units: mg/L HighLimit

%RPD **RPDLimit** 

Qual

Analyte Mercury

ND 0.00020

Sample ID LCS-11064

SampType: LCS

TestCode: EPA Method 245.1: Mercury

%REC LowLimit

Client ID: LCSW

Batch ID: 11064

RunNo: 15897

Prep Date: 1/3/2014

Analysis Date: 1/3/2014

SeqNo: 458394

Units: mg/L

Analyte

PQL SPK value SPK Ref Val

%REC 97.9

LowLimit HighLimit %RPD **RPDLimit**  Qual

SPK value SPK Ref Val

Mercury

0.0049 0.00020 0.005000

0

120

S

Qualifiers: Value exceeds Maximum Contaminant Level. Value above quantitation range

Analyte detected below quantitation limits J

0 RSD is greater than RSDlimit

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded Η

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only. P

RLReporting Detection Limit Page 11 of 28

# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312666 22-Jan-14

Client:

Cyrq Energy Inc

| Project: Lightning               | g Dock CY  | RQ EN           | ERGY          |             |           |              |               |      |          |      |
|----------------------------------|------------|-----------------|---------------|-------------|-----------|--------------|---------------|------|----------|------|
| Sample ID MB                     | SampT      | ype: ME         | BLK           | Test        | Code: EF  | PA Method    | 300.0: Anions | 3    |          |      |
| Client ID: PBW                   | Batch      | n ID: <b>R1</b> | 5551          | R           | unNo: 15  | 5551         |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12         | 2/16/2013     | S           | eqNo: 44  | <b>17258</b> | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value     | SPK Ref Val | %REC      | LowLimit     | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | ND         | 0.10            | 2 200 200 200 |             |           |              |               |      |          | -    |
| Chloride                         | ND         | 0.50            |               |             |           |              |               |      |          |      |
| Phosphorus, Orthophosphate (As P | ND         | 0.50            |               |             |           |              |               |      |          |      |
| Sulfate                          | ND         | 0.50            |               |             |           |              |               |      |          |      |
| Nitrate+Nitrite as N             | ND         | 0.20            |               |             |           |              |               |      |          |      |
| Sample ID LCS                    | SampT      | ype: LC         | S             | Test        | Code: EF  | PA Method    | 300.0: Anions | 5    |          |      |
| Client ID: LCSW                  | Batch      | n ID: <b>R1</b> | 5551          | F           | tunNo: 1  |              |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12         | 2/16/2013     | S           | eqNo: 4   | 47259        | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value     | SPK Ref Val | %REC      | LowLimit     | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.49       | 0.10            | 0.5000        | 0           | 98.7      | 90           | 110           |      |          |      |
| Chloride                         | 4.7        | 0.50            | 5.000         | 0           | 93.2      | 90           | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50            | 5.000         | 0           | 94.4      | 90           | 110           |      |          |      |
| Sulfate                          | 9.5        | 0.50            | 10.00         | 0           | 95.4      | 90           | 110           |      |          |      |
| Nitrate+Nitrite as N             | 3.4        | 0.20            | 3.500         | 0           | 97.2      | 90           | 110           |      |          |      |
| Sample ID A4                     | Samp       | Гуре: СС        | V_4           | Tes         | tCode: El | PA Method    | 300.0: Anion  | s    |          |      |
| Client ID: BatchQC               | Batcl      | h ID: <b>R1</b> | 5551          | F           | RunNo: 1  | 5551         |               |      |          |      |
| Prep Date:                       | Analysis [ | Date: 12        | 2/16/2013     | 9           | SeqNo: 4  | 47268        | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value     | SPK Ref Val | %REC      | LowLimit     | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.97       | 0.10            | 1.000         | 0           | 97.2      | 90           | 110           |      |          |      |
| Chloride                         | 4.6        | 0.50            | 5.000         | 0           | 92.6      | 90           | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50            | 5.000         | 0           | 93.4      | 90           | 110           |      |          |      |
| Sulfate                          | 12         | 0.50            | 12.50         | 0           | 93.9      | 90           | 110           |      |          |      |
| Nitrate+Nitrite as N             | 4.8        | 0.20            | 5.000         | 0           | 95.8      | 90           | 110           |      |          |      |
| Sample ID A5                     | Samp       | Гуре: СС        | CV_5          | Tes         | tCode: El | PA Method    | 300.0: Anion  | s    |          |      |
| Client ID: BatchQC               | Batc       | h ID: <b>R1</b> | 5551          | F           | RunNo: 1  | 5551         |               |      |          |      |
| Prep Date:                       | Analysis [ | Date: 12        | 2/16/2013     | 5           | SeqNo: 4  | 47280        | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value     | SPK Ref Val | %REC      | LowLimit     | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.6        | 0.10            | 1.600         | 0           | 97.6      | 90           | 110           |      |          |      |
| Chloride                         | 7.7        | 0.50            | 8.000         | 0           | 96.8      | 90           | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 7.8        | 0.50            | 8.000         | 0           | 97.2      | 90           | 110           |      |          |      |
| Sulfate                          | 20         | 0.50            | 20.00         | 0           | 98.5      | 90           | 110           |      |          |      |
| Nitrate+Nitrite as N             | 8.0        | 0.20            | 8.000         | 0           | 101       | 90           | 110           |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project.

Lightning Dock CYRO ENERGY

| Project: Lightnin                            | g Dock CY  | RQ EN         | ERGY           |             |                                    |           |              |      |          |      |  |
|--|------------|---------------|----------------|-------------|------------------------------------|-----------|--------------|------|----------|------|--|
| Sample ID A6                                 | SampT      | ype: CC       | V_6            | Tes         | tCode: El                          | PA Method | 300.0: Anion | s    |          |      |  |
| Client ID: BatchQC                           | Batch      | iD: R1        | 5551           | F           | RunNo: 1                           | 5551      |              |      |          |      |  |
| Prep Date:                                   | Analysis D | ate: 12       | 2/16/2013      | S           | SeqNo: 4                           | 47292     | Units: mg/L  |      |          |      |  |
| Analyte                                      | Result     | PQL           | SPK value      | SPK Ref Val | %REC                               | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |  |
| Fluoride                                     | 2.4        | 0.10          | 2.400          | 0           | 98.4                               | 90        | 110          |      |          |      |  |
| Chloride                                     | 12         | 0.50          | 12.00          | 0           | 101                                | 90        | 110          |      |          |      |  |
| Phosphorus, Orthophosphate (As P             | 12         | 0.50          | 12.00          | 0           | 100                                | 90        | 110          |      |          |      |  |
| Sulfate                                      | 31         | 0.50          | 30.00          | 0           | 102                                | 90        | 110          |      |          |      |  |
| Nitrate+Nitrite as N                         | 13         | 0.20          | 12.00          | 0           | 105                                | 90        | 110          |      |          |      |  |
| Sample ID A4                                 | SampT      | ype: CC       | V_4            | Tes         | TestCode: EPA Method 300.0: Anions |           |              |      |          |      |  |
| Client ID: BatchQC                           | Batch      | 1D: <b>R1</b> | 5551           | F           | RunNo: 1                           | 5551      |              |      |          |      |  |
| Prep Date:                                   | Analysis D | ate: 12       | 2/17/2013      | S           | SeqNo: 4                           | 47304     | Units: mg/L  |      |          |      |  |
| Analyte                                      | Result     | PQL           | SPK value      | SPK Ref Val | %REC                               | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |  |
| Fluoride                                     | 0.94       | 0.10          | 1.000          | 0           | 93.6                               | 90        | 110          |      | ,        |      |  |
| Chloride                                     | 4.6        | 0.50          | 5.000          | 0           | 92.5                               | 90        | 110          |      |          |      |  |
| Phosphorus, Orthophosphate (As P             | 4.7        | 0.50          | 5.000          | 0           | 93.2                               | 90        | 110          |      |          |      |  |
| Sulfate                                      | 12         | 0.50          | 12.50          | 0           | 94.1                               | 90        | 110          |      |          |      |  |
| · "rate+Nitrite as N                         | 4.8        | 0.20          | 5.000          | 0           | 95.4                               | 90        | 110          |      |          |      |  |
| ample ID A5                                  | SampT      | ype: CC       | CV_5           | Tes         | tCode: E                           | PA Method | 300.0: Anion | s    |          | 11.0 |  |
| Client ID: BatchQC                           | Batch      | 1D: <b>R1</b> | 5551           | F           | RunNo: 1                           | 5551      |              |      |          |      |  |
| Prep Date:                                   | Analysis D | )ate: 12      | 2/17/2013      | 5           | SeqNo: 4                           | 47316     | Units: mg/L  |      |          |      |  |
| Analyte                                      | Result     | PQL           | SPK value      | SPK Ref Val | %REC                               | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |  |
| Fluoride                                     | 1.6        | 0.10          | 1.600          | 0           | 96.9                               | 90        | 110          |      |          |      |  |
| Chloride                                     | 7.7        | 0.50          | 8.000          | 0           | 96.8                               | 90        | 110          |      |          |      |  |
| Phosphorus, Orthophosphate (As P             | 7.8        | 0.50          | 8.000          | 0           | 97.3                               | 90        | 110          |      |          |      |  |
| Sulfate                                      | 20         | 0.50          | 20.00          | 0           | 98.1                               | 90        | 110          |      |          |      |  |
| Nitrate+Nitrite as N                         | 8.0        | 0.20          | 8.000          | 0           | 100                                | 90        | 110          |      |          |      |  |
| Sample ID A4                                 | SampT      | ype: CC       | CV_4           | Tes         | tCode: E                           | PA Method | 300.0: Anion | s    |          |      |  |
| Client ID: BatchQC                           | Batch      | 1D: <b>R1</b> | 5551           | F           | RunNo: 1                           | 5551      |              |      |          |      |  |
| Prep Date:                                   | Analysis D | ate: 12       | 2/17/2013      | 5           | SeqNo: 4                           | 47327     | Units: mg/L  |      |          |      |  |
| Analyte                                      | Result     | PQL           | SPK value      | SPK Ref Val | %REC                               | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |  |
|  | 0.05       | 0.10          | 1.000          | 0           | 95.2                               | 90        | 110          |      |          |      |  |
| Fluoride                                     | 0.95       | 0.10          |                |             |                                    |           |              |      |          |      |  |
| Fluoride<br>Chloride                         | 4.6        | 0.50          | 5.000          | 0           | 92.9                               | 90        | 110          |      |          |      |  |
|  |            |               | 5.000<br>5.000 | 0<br>0      | 92.9<br>93.2                       | 90<br>90  | 110<br>110   |      |          |      |  |
| Chloride                                     | 4.6        | 0.50          |                |             |                                    |           |              |      |          |      |  |
| Chloride<br>Phosphorus, Orthophosphate (As P | 4.6<br>4.7 | 0.50<br>0.50  | 5.000          | 0           | 93.2                               | 90        | 110          |      |          |      |  |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
  - Value above quantitation range
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- P Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666 22-Jan-14

Client:

Cyrq Energy Inc

Analyte

Petroleum Hydrocarbons, TR

Result

4.7

PQL

1.0

| Project: Lightni           | ing Dock CYRQ ENERGY      |  |
|----------------------------|---------------------------|--|
| Sample ID MB-10820         | SampType: MBLK            | TestCode: EPA Method 418.1: TPH                        |
| Client ID: PBW             | Batch ID: 10820           | RunNo: 15560   |
| Prep Date: 12/16/2013      | Analysis Date: 12/17/2013 | SeqNo: 447701 Units: mg/L                              |
| Analyte                    | Result PQL SPK value      | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Petroleum Hydrocarbons, TR | ND 1.0                    |  |
| Sample ID LCS-10820        | SampType: <b>LCS</b>      | TestCode: EPA Method 418.1: TPH                        |
| Client ID: LCSW            | Batch ID: 10820           | RunNo: <b>15560</b>                                    |
| Prep Date: 12/16/2013      | Analysis Date: 12/17/2013 | SeqNo: <b>447702</b> Units: <b>mg/L</b>                |
| Analyte                    | Result PQL SPK value      | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Petroleum Hydrocarbons, TR | 5.0 1.0 5.000             | 0 99.8 80 120  |
| Sample ID LCSD-10820       | SampType: <b>LCSD</b>     | TestCode: EPA Method 418.1: TPH                        |
| Client ID: LCSS02          | Batch ID: 10820           | RunNo: <b>15560</b>                                    |
| Prep Date: 12/16/2013      | Analysis Date: 12/17/2013 | SeqNo: <b>447704</b> Units: <b>mg/L</b>                |
| i e                        |                           |  |

0

%REC

94.8

LowLimit

80

HighLimit

120

%RPD

5.14

**RPDLimit** 

20

Qual

SPK value SPK Ref Val

5.000

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1312666 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-10822

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

LowLimit

Client ID:

Analyte

PBW

Batch ID: 10822

RunNo: 15527

%REC

Prep Date: 12/16/2013

Sample ID LCS-10822

Analysis Date: 12/16/2013

Result

SeqNo: 447079

Units: µg/L HighLimit

%RPD **RPDLimit** 

Qual

1,2-Dibromoethane

ND 0.010

**PQL** 

SampType: LCS

TestCode: EPA Method 8011/504.1: EDB

RunNo: 15527

Prep Date: 12/16/2013

Batch ID: 10822

Client ID: LCSW

Analysis Date: 12/16/2013

SeqNo: 447080

Units: µg/L

Analyte

Result **PQL** 0.010 0.11

Result

0.11

0.1000

SPK value SPK Ref Val %REC

LowLimit

%RPD **RPDLimit** HighLimit

Qual

1,2-Dibromoethane

SampType: LCSD

SPK value SPK Ref Val

TestCode: EPA Method 8011/504.1: EDB

113

130

Client ID: LCSS02

Sample ID LCSD-10822

Batch ID: 10822

RunNo: 15527

Prep Date: 12/16/2013

Analysis Date: 12/16/2013

SeqNo: 447081 %REC

Units: µg/L HighLimit

%RPD

**RPDLimit** 

Qual

Analyte 1,2-Dibromoethane **PQL** SPK value SPK Ref Val 0.010 0.1000

108

70

130

4.52

20

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits J
- O RSD is greater than RSDlimit RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В
- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit RL

Analyte detected in the associated Method Blank

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# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB-10796         | SampType: MBLK            |     |               | Test        | tCode: El | PA Method   | 8082: PCB's |      |          |      |
|----------------------------|---------------------------|-----|---------------|-------------|-----------|-------------|-------------|------|----------|------|
| Client ID: PBW             | Batch ID: 10796           |     |               | R           | RunNo: 1  | 5544        |             |      |          |      |
| Prep Date: 12/16/2013      | Analysis Date: 12/17/2013 |     | SeqNo: 447133 |             |           | Units: µg/L |             |      |          |      |
| Analyte                    | Result                    | PQL | SPK value     | SPK Ref Val | %REC      | LowLimit    | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | ND                        | 1.0 |               |             |           |             |             |      |          |      |
| Aroclor 1221               | ND                        | 1.0 |               |             |           |             |             |      |          |      |
| Aroclor 1232               | ND                        | 1.0 |               |             |           |             |             |      |          |      |
| Aroclor 1242               | ND                        | 1.0 |               |             |           |             |             |      |          |      |
| Aroclor 1248               | ND                        | 1.0 |               |             |           |             |             |      |          |      |
| Aroclor 1254               | ND                        | 1.0 |               |             |           |             |             |      |          |      |
| Aroclor 1260               | ND                        | 1.0 |               |             |           |             |             |      |          |      |
| Surr: Decachlorobiphenyl   | 1.8                       |     | 2.500         |             | 73.2      | 17          | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 1.8                       |     | 2.500         |             | 74.0      | 22.6        | 113         |      |          |      |

| Sample ID LCS-10796                  | SampT      | ype: <b>LC</b> | S         | Test        | tCode: El | PA Method   | 8082: PCB's |      |          |      |
|--------------------------------------|------------|----------------|-----------|-------------|-----------|-------------|-------------|------|----------|------|
| Client ID: LCSW                      | Batch      | ID: 10         | 796       | F           | RunNo: 1  | 5544        |             |      |          |      |
| Prep Date: 12/16/2013                | Analysis D | 2/17/2013      | S         | SeqNo: 4    | 47135     | Units: µg/L |             |      |          |      |
| Analyte                              | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit    | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016                         | 3.2        | 1.0            | 5.000     | 0           | 63.8      | 18.6        | 134         |      |          |      |
| Aroclor 1260                         | 3.8        | 1.0            | 5.000     | 0           | 75.7      | 35.7        | 137         |      |          |      |
| Surr: Decachlorobiphenyl             | 1.7        |                | 2.500     |             | 68.8      | 17          | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene 1.6 2.500 |            |                | 64.4      | 22.6        | 113       |             |             |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#:

1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID 5mL rb               | SampType: <b>MBLK</b> |                |           | TestCode: EPA Method 8260B: VOLATILES |         |          |             |      |          |      |
|--------------------------------|-----------------------|----------------|-----------|---------------------------------------|---------|----------|-------------|------|----------|------|
| Client ID: PBW                 | Batch                 | ID: <b>R15</b> | 5529      | R                                     | unNo: 1 | 15529    |             |      |          |      |
| Prep Date:                     | Analysis Da           | ate: 12        | /16/2013  | S                                     | eqNo: 4 | 146644   | Units: µg/L |      |          |      |
| Analyte                        | Result                | PQL            | SPK value | SPK Ref Val                           | %REC    | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene                        | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| Toluene                        | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| Ethylbenzene                   | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| Methyl tert-butyl ether (MTBE) | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,2,4-Trimethylbenzene         | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,3,5-Trimethylbenzene         | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,2-Dichloroethane (EDC)       | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,2-Dibromoethane (EDB)        | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| Naphthalene                    | ND                    | 2.0            |           |                                       |         |          |             |      |          |      |
| 1-Methylnaphthalene            | ND                    | 4.0            |           |                                       |         |          |             |      |          |      |
| 2-Methylnaphthalene            | ND                    | 4.0            |           |                                       |         |          |             |      |          |      |
| Acetone                        | ND                    | 10             |           |                                       |         |          |             |      |          |      |
| Bromobenzene                   | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| Bromodichloromethane           | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| Bromoform                      | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| momethane                      | ND                    | 3.0            |           |                                       |         |          |             |      |          |      |
| utanone                        | ND                    | 10             |           |                                       |         |          |             |      |          |      |
| arbon disulfide                | ND                    | 10             |           |                                       |         |          |             |      |          |      |
| Carbon Tetrachloride           | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| Chlorobenzene                  | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| Chloroethane                   | ND                    | 2.0            |           |                                       |         |          |             |      |          |      |
| Chloroform                     | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| Chloromethane                  | ND                    | 3.0            |           |                                       |         |          |             |      |          |      |
| 2-Chlorotoluene                | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 4-Chlorotoluene                | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| cis-1,2-DCE                    | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| cis-1,3-Dichloropropene        | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,2-Dibromo-3-chloropropane    | ND                    | 2.0            |           |                                       |         |          |             |      |          |      |
| Dibromochloromethane           | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| Dibromomethane                 | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,2-Dichlorobenzene            | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,3-Dichlorobenzene            | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,4-Dichlorobenzene            | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| Dichlorodifluoromethane        | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,1-Dichloroethane             | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,1-Dichloroethene             | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,2-Dichloropropane            | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 1,3-Dichloropropane            | ND                    | 1.0            |           |                                       |         |          |             |      |          |      |
| 2,2-Dichloropropane            | ND                    | 2.0            |           |                                       |         |          |             |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
   Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Page 17 of 28

# Hall Environmental Analysis Laboratory, Inc.

WO#: 1

1312666 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID 5mL rb            | SampTy      | /pe: <b>ME</b> | BLK       | TestCode: EPA Method 8260B: VOLATILES |          |          |             |      |          |      |
|-----------------------------|-------------|----------------|-----------|---------------------------------------|----------|----------|-------------|------|----------|------|
| Client ID: PBW              | Batch       | ID: R1         | 5529      | R                                     | RunNo: 1 | 5529     |             |      |          |      |
| Prep Date:                  | Analysis Da | ate: 12        | 2/16/2013 | S                                     | SeqNo: 4 | 46644    | Units: µg/L |      |          |      |
| Analyte                     | Result      | PQL            | SPK value | SPK Ref Val                           | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| 1,1-Dichloropropene         | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| Hexachlorobutadiene         | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| 2-Hexanone                  | ND          | 10             |           |                                       |          |          |             |      |          |      |
| Isopropylbenzene            | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| 4-Isopropyltoluene          | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| 4-Methyl-2-pentanone        | ND          | 10             |           |                                       |          |          |             |      |          |      |
| Methylene Chloride          | ND          | 3.0            |           |                                       |          |          |             |      |          |      |
| n-Butylbenzene              | ND          | 3.0            |           |                                       |          |          |             |      |          |      |
| n-Propylbenzene             | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| sec-Butylbenzene            | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| Styrene                     | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| tert-Butylbenzene           | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| 1,1,1,2-Tetrachloroethane   | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| 1,1,2,2-Tetrachloroethane   | ND          | 2.0            |           |                                       |          |          |             |      |          |      |
| Tetrachloroethene (PCE)     | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| trans-1,2-DCE               | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| trans-1,3-Dichloropropene   | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| 1,2,3-Trichlorobenzene      | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| 1,2,4-Trichlorobenzene      | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| 1,1,1-Trichloroethane       | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| 1,1,2-Trichloroethane       | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| Trichloroethene (TCE)       | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| Trichlorofluoromethane      | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| 1,2,3-Trichloropropane      | ND          | 2.0            |           |                                       |          |          |             |      |          |      |
| Vinyl chloride              | ND          | 1.0            |           |                                       |          |          |             |      |          |      |
| Xylenes, Total              | ND          | 1.5            |           |                                       |          |          |             |      |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.0         |                | 10.00     |                                       | 90.4     | 70       | 130         |      |          |      |
| Surr: 4-Bromofluorobenzene  | 9.6         |                | 10.00     |                                       | 96.4     | 70       | 130         |      |          |      |
| Surr: Dibromofluoromethane  | 9.4         |                | 10.00     |                                       | 93.8     | 70       | 130         |      |          |      |
| Surr: Toluene-d8            | 9.7         |                | 10.00     |                                       | 96.9     | 70       | 130         |      |          |      |

| Sample ID     | 100ng Ics200ng aca | SampTyp      | oe: LC       | s         | Test        |          |          |             |      |          |      |
|---------------|--------------------|--------------|--------------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID:    | LCSW               | Batch I      | D: <b>R1</b> | 5529      | R           | tunNo: 1 | 5529     |             |      |          |      |
| Prep Date:    | Α                  | inalysis Dat | te: 12       | 2/16/2013 | S           | SeqNo: 4 | 46646    | Units: µg/L |      |          |      |
| Analyte       |                    | Result       | PQL          | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene       |                    | 20           | 1.0          | 20.00     | 0           | 100      | 70       | 130         |      |          |      |
| Toluene       |                    | 20           | 1.0          | 20.00     | 0           | 102      | 82.2     | 124         |      |          |      |
| Chlorobenzene |                    | 20           | 1.0          | 20.00     | 0           | 99.9     | 70       | 130         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID 100ng lcs200ng    | Sample ID 100ng Ics200ng aca SampType: LCS |         |           |             |          |                     | TestCode: EPA Method 8260B: VOLATILES |      |          |      |  |  |  |  |
|-----------------------------|--|---------|-----------|-------------|----------|---------------------|---------------------------------------|------|----------|------|--|--|--|--|
| Client ID: LCSW             | ient ID: LCSW Batch ID: R15529             |         |           |             |          | RunNo: <b>15529</b> |                                       |      |          |      |  |  |  |  |
| Prep Date:                  | Analysis D                                 | ate: 12 | 2/16/2013 | S           | SeqNo: 4 | 46646               | Units: µg/L                           |      |          |      |  |  |  |  |
| Analyte                     | Result                                     | PQL     | SPK value | SPK Ref Val | %REC     | LowLimit            | HighLimit                             | %RPD | RPDLimit | Qual |  |  |  |  |
| 1,1-Dichloroethene          | 21   | 1.0     | 20.00     | 0           | 107      | 83.5                | 155                                   |      |          |      |  |  |  |  |
| Trichloroethene (TCE)       | 19   | 1.0     | 20.00     | 0           | 95.6     | 70                  | 130                                   |      |          |      |  |  |  |  |
| Surr: 1,2-Dichloroethane-d4 | 9.0  |         | 10.00     |             | 90.3     | 70                  | 130                                   |      |          |      |  |  |  |  |
| Surr: 4-Bromofluorobenzene  | 9.7  |         | 10.00     |             | 97.4     | 70                  | 130                                   |      |          |      |  |  |  |  |
| Surr: Dibromofluoromethane  | 9.0  |         | 10.00     |             | 90.3     | 70                  | 130                                   |      |          |      |  |  |  |  |
| Surr: Toluene-d8            | 9.4  |         | 10.00     |             | 94.1     | 70                  | 130                                   |      |          |      |  |  |  |  |

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

- Analyte detected below quantitation limits
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- S Spike Recovery outside accepted recovery limits
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- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID mb-10800          | SampTyp       | e: MI        | BLK       | Tes         | tCode: El | PA Method | 8270C: Semi | volatiles |          |      |
|-----------------------------|---------------|--------------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: PBW              | Batch II      | D: <b>10</b> | 800       | F           | RunNo: 1  | 5530      |             |           |          |      |
| Prep Date: 12/16/2013       | Analysis Date | e: 1         | 2/16/2013 | S           | SeqNo: 4  | 46854     | Units: µg/L |           |          |      |
| Analyte                     |               | PQL          | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene                | ND            | 10           |           |             |           |           |             |           |          |      |
| Acenaphthylene              | ND            | 10           |           |             |           |           |             |           |          |      |
| Aniline                     | ND            | 10           |           |             |           |           |             |           |          |      |
| Anthracene                  | ND            | 10           |           |             |           |           |             |           |          |      |
| Azobenzene                  | ND            | 10           |           |             |           |           |             |           |          |      |
| Benz(a)anthracene           | ND            | 10           |           |             |           |           |             |           |          |      |
| Benzo(a)pyrene              | ND            | 10           |           |             |           |           |             |           |          |      |
| Benzo(b)fluoranthene        | ND            | 10           |           |             |           |           |             |           |          |      |
| Benzo(g,h,i)perylene        | ND            | 10           |           |             |           |           |             |           |          |      |
| Benzo(k)fluoranthene        | ND            | 10           |           |             |           |           |             |           |          |      |
| Benzoic acid                | ND            | 40           |           |             |           |           |             |           |          |      |
| Benzyl alcohol              | ND            | 10           |           |             |           |           |             |           |          |      |
| Bis(2-chloroethoxy)methane  | ND            | 10           |           |             |           |           |             |           |          |      |
| Bis(2-chloroethyl)ether     | ND            | 10           |           |             |           |           |             |           |          |      |
| Bis(2-chloroisopropyl)ether | ND            | 10           |           |             |           |           |             |           |          |      |
| Bis(2-ethylhexyl)phthalate  | ND            | 10           |           |             |           |           |             |           |          |      |
| 4-Bromophenyl phenyl ether  | ND            | 10           |           |             |           |           |             |           |          |      |
| Butyl benzyl phthalate      | ND            | 10           |           |             |           |           |             |           |          |      |
| Carbazole                   | ND            | 10           |           |             |           |           |             |           |          |      |
| 4-Chloro-3-methylphenol     | ND            | 10           |           |             |           |           |             |           |          |      |
| 4-Chloroaniline             | ND            | 10           |           |             |           |           |             |           |          |      |
| 2-Chloronaphthalene         | ND            | 10           |           |             |           |           |             |           |          |      |
| 2-Chlorophenol              | ND            | 10           |           |             |           |           |             |           |          |      |
| 4-Chlorophenyl phenyl ether | ND            | 10           |           |             |           |           |             |           |          |      |
| Chrysene                    | ND            | 10           |           |             |           |           |             |           |          |      |
| Di-n-butyl phthalate        | ND            | 10           |           |             |           |           |             |           |          |      |
| Di-n-octyl phthalate        | ND            | 10           |           |             |           |           |             |           |          |      |
| Dibenz(a,h)anthracene       | ND            | 10           |           |             |           |           |             |           |          |      |
| Dibenzofuran                | ND            | 10           |           |             |           |           |             |           |          |      |
| 1,2-Dichlorobenzene         | ND            | 10           |           |             |           |           |             |           |          |      |
| 1,3-Dichlorobenzene         | ND            | 10           |           |             |           |           |             |           |          |      |
| 1,4-Dichlorobenzene         | ND            | 10           |           |             |           |           |             |           |          |      |
| 3,3'-Dichlorobenzidine      | ND            | 10           |           |             |           |           |             |           |          |      |
| Diethyl phthalate           | ND            | 10           |           |             |           |           |             |           |          |      |
| Dimethyl phthalate          | ND            | 10           |           |             |           |           |             |           |          |      |
| 2,4-Dichlorophenol          | ND            | 20           |           |             |           |           |             |           |          |      |
| 2,4-Dimethylphenol          | ND            | 10           |           |             |           |           |             |           |          |      |
| 4,6-Dinitro-2-methylphenol  | ND            | 20           |           |             |           |           |             |           |          |      |
| 2,4-Dinitrophenol           | ND            | 20           |           |             |           |           |             |           |          |      |
|                             |               |              |           |             |           |           |             |           |          |      |

#### Qualifiers:

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- E Value above quantitation range
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- O RSD is greater than RSDlimit
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- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID mb-10800         | SampTyp      | pe: MBLK       | Tes         | tCode: EPA Met       | thod 8270C: Semi | volatiles |          |      |
|----------------------------|--------------|----------------|-------------|----------------------|------------------|-----------|----------|------|
| Client ID: PBW             | Batch I      | D: 10800       | F           | RunNo: 1 <b>5530</b> |                  |           |          |      |
| Prep Date: 12/16/2013      | Analysis Dat | te: 12/16/2013 | S           | SeqNo: <b>446854</b> | Units: µg/L      |           |          |      |
| Analyte                    | Result       | PQL SPK value  | SPK Ref Val | %REC LowL            | imit HighLimit   | %RPD      | RPDLimit | Qual |
| 2,4-Dinitrotoluene         | ND           | 10             |             |                      |                  |           |          |      |
| 2,6-Dinitrotoluene         | ND           | 10             |             |                      |                  |           |          |      |
| Fluoranthene               | ND           | 10             |             |                      |                  |           |          |      |
| Fluorene                   | ND           | 10             |             |                      |                  |           |          |      |
| Hexachlorobenzene          | ND           | 10             |             |                      |                  |           |          |      |
| Hexachlorobutadiene        | ND           | 10             |             |                      |                  |           |          |      |
| Hexachlorocyclopentadiene  | ND           | 10             |             |                      |                  |           |          |      |
| Hexachloroethane           | ND           | 10             |             |                      |                  |           |          |      |
| Indeno(1,2,3-cd)pyrene     | ND           | 10             |             |                      |                  |           |          |      |
| Isophorone                 | ND           | 10             |             |                      |                  |           |          |      |
| 1-Methylnaphthalene        | ND           | 10             |             |                      |                  |           |          |      |
| 2-Methylnaphthalene        | ND           | 10             |             |                      |                  |           |          |      |
| 2-Methylphenol             | ND           | 10             |             |                      |                  |           |          |      |
| 3+4-Methylphenol           | ND           | 10             |             |                      |                  |           |          |      |
| N-Nitrosodi-n-propylamine  | ND           | 10             |             |                      |                  |           |          |      |
| trosodimethylamine         | ND           | 10             |             |                      |                  |           |          |      |
| trosodiphenylamine         | ND           | 10             |             |                      |                  |           |          |      |
| _phthalene                 | ND           | 10             |             |                      |                  |           |          |      |
| 2-Nitroaniline             | ND           | 10             |             |                      |                  |           |          |      |
| 3-Nitroanifine             | ND           | 10             |             |                      |                  |           |          |      |
| 4-Nitroaniline             | ND           | 10             |             |                      |                  |           |          |      |
| Nitrobenzene               | ND           | 10             |             |                      |                  |           |          |      |
| 2-Nitrophenol              | ND           | 10             |             |                      |                  |           |          |      |
| 4-Nitrophenol              | ND           | 10             |             |                      |                  |           |          |      |
| Pentachlorophenol          | ND           | 20             |             |                      |                  |           |          |      |
| Phenanthrene               | ND           | 10             |             |                      |                  |           |          |      |
| Phenol                     | ND           | 10             |             |                      |                  |           |          |      |
| Pyrene                     | ND           | 10             |             |                      |                  |           |          |      |
| Pyridine                   | ND           | 10             |             |                      |                  |           |          |      |
| 1,2,4-Trichlorobenzene     | ND           | 10             |             |                      |                  |           |          |      |
| 2,4,5-Trichlorophenol      | ND           | 10             |             |                      |                  |           |          |      |
| 2,4,6-Trichlorophenol      | ND           | 10             |             |                      |                  |           |          |      |
| Surr: 2-Fluorophenol       | 90           | 200.0          |             |                      | 22.7 98          |           |          |      |
| Surr: Phenol-d5            | 79           | 200.0          |             |                      | 23.4 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 130          | 200.0          |             | 63.8                 | 23.3 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 64           | 100.0          |             |                      | 36.8 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 68           | 100.0          |             | 68.2                 | 38.3 110         |           |          |      |
| Surr: 4-Terphenyl-d14      | 75           | 100.0          |             | 74.7                 | 52.1 116         |           |          |      |

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

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- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
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- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID Ics-10800        | SampT      | ype: <b>LC</b>  | s         | Tes         | tCode: EF | PA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: LCSW            | Batch      | 1D: <b>10</b> 8 | 800       | F           | RunNo: 1  | 5530      |             |           |          |      |
| Prep Date: 12/16/2013      | Analysis D | ate: 12         | 2/16/2013 | S           | SeqNo: 4  | 46855     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 89         | 10              | 100.0     | 0           | 89.4      | 48        | 101         |           |          |      |
| 4-Chloro-3-methylphenol    | 190        | 10              | 200.0     | 0           | 94.8      | 47.9      | 109         |           |          |      |
| 2-Chlorophenol             | 180        | 10              | 200.0     | 0           | 92.5      | 40        | 105         |           |          |      |
| 1,4-Dichlorobenzene        | 96         | 10              | 100.0     | 0           | 96.4      | 40.8      | 94.3        |           |          | S    |
| 2,4-Dinitrotoluene         | 87         | 10              | 100.0     | 0           | 86.8      | 28.3      | 131         |           |          |      |
| N-Nitrosodi-n-propylamine  | 100        | 10              | 100.0     | 0           | 101       | 46.2      | 119         |           |          |      |
| 4-Nitrophenol              | 88         | 10              | 200.0     | 0           | 43.8      | 10.5      | 67.9        |           |          |      |
| Pentachlorophenol          | 130        | 20              | 200.0     | 0           | 65.2      | 22.4      | 81.1        |           |          |      |
| Phenoi                     | 110        | 10              | 200.0     | 0           | 54.2      | 21.4      | 72.9        |           |          |      |
| Pyrene                     | 83         | 10              | 100.0     | 0           | 83.0      | 46.9      | <b>1</b> 09 |           |          |      |
| 1,2,4-Trichlorobenzene     | 93         | 10              | 100.0     | 0           | 93.3      | 43.1      | 98.4        |           |          |      |
| Surr: 2-Fluorophenol       | 120        |                 | 200.0     |             | 59.7      | 22.7      | 98          |           |          |      |
| Surr: Phenol-d5            | 110        |                 | 200.0     |             | 53.4      | 23.4      | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 180        |                 | 200.0     |             | 91.9      | 23.3      | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 81         |                 | 100.0     |             | 81.5      | 36.8      | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 85         |                 | 100.0     |             | 84.8      | 38.3      | 110         |           |          |      |
| Surr: 4-Terphenyl-d14      | 88         |                 | 100.0     |             | 87.8      | 52.1      | 116         |           |          |      |

| Sample ID Icsd-10800       | SampT      | ype: <b>LC</b> | SD        | Tes         | tCode: El | PA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|----------------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: LCSS02          | Batch      | ID: <b>10</b>  | B00       | F           | RunNo: 1  | 5530      |             |           |          |      |
| Prep Date: 12/16/2013      | Analysis D | ate: 12        | 2/16/2013 | S           | SeqNo: 4  | 46856     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 90         | 10             | 100.0     | 0           | 89.9      | 48        | 101         | 0.558     | 25       |      |
| 4-Chloro-3-methylphenol    | 180        | 10             | 200.0     | 0           | 92.1      | 47.9      | 109         | 2.84      | 32.7     |      |
| 2-Chlorophenol             | 170        | 10             | 200.0     | 0           | 83.9      | 40        | 105         | 9.78      | 20       |      |
| 1,4-Dichlorobenzene        | 83         | 10             | 100.0     | 0           | 82.6      | 40.8      | 94.3        | 15.4      | 20       |      |
| 2,4-Dinitrotoluene         | 81         | 10             | 100.0     | 0           | 80.8      | 28.3      | 131         | 7.11      | 29.9     |      |
| N-Nitrosodi-n-propylamine  | 90         | 10             | 100.0     | 0           | 90.4      | 46.2      | 119         | 10.9      | 23.1     |      |
| 4-Nitrophenol              | 78         | 10             | 200.0     | 0           | 39.0      | 10.5      | 67.9        | 11.6      | 40.5     |      |
| Pentachlorophenol          | 110        | 20             | 200.0     | 0           | 54.5      | 22.4      | 81.1        | 17.8      | 37.3     |      |
| Phenol                     | 92         | 10             | 200.0     | 0           | 46.2      | 21.4      | 72.9        | 15.9      | 20       |      |
| Pyrene                     | 83         | 10             | 100.0     | 0           | 83.1      | 46.9      | 109         | 0.193     | 26.5     |      |
| 1,2,4-Trichlorobenzene     | 84         | 10             | 100.0     | 0           | 83.8      | 43.1      | 98.4        | 10.7      | 27.2     |      |
| Surr: 2-Fluorophenol       | 110        |                | 200.0     |             | 55.0      | 22.7      | 98          | 0         | 0        |      |
| Surr: Phenol-d5            | 93         |                | 200.0     |             | 46.5      | 23.4      | 74.9        | 0         | 0        |      |
| Surr: 2,4,6-Tribromophenol | 160        |                | 200.0     |             | 79.0      | 23.3      | 111         | 0         | 0        |      |
| Surr: Nitrobenzene-d5      | 81         |                | 100.0     |             | 80.8      | 36.8      | 111         | 0         | 0        |      |
| Surr: 2-Fluorobiphenyl     | 83         |                | 100.0     |             | 82.9      | 38.3      | 110         | 0         | 0        |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID Icsd-10800

SampType: LCSD

TestCode: EPA Method 8270C: Semivolatiles

Client ID: LCSS02

Analyte

Batch ID: 10800

RunNo: 15530

Prep Date: 12/16/2013

Analysis Date: 12/16/2013

**PQL** 

SeqNo: 446856

%REC LowLimit

Units: µg/L HighLimit

%RPD **RPDLimit** 

Qual

Surr: 4-Terphenyl-d14

Result

82.9

116

0

83

100.0

SPK value SPK Ref Val

52.1

0

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#:

1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB-10797     | SampT      | ype: MB          | LK        | Tes         | tCode: El | PA Method | 8310: PAHs  |      |          |      |
|------------------------|------------|------------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: PBW         | Batch      | n ID: <b>107</b> | 97        | F           | RunNo: 1  | 5541      |             |      |          |      |
| Prep Date: 12/16/2013  | Analysis D | ate: 12          | /17/2013  | 5           | SeqNo: 4  | 47054     | Units: µg/L |      |          |      |
| Analyte                | Result     | PQL              | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene            | ND         | 2.0              |           |             |           |           |             |      |          |      |
| 1-Methylnaphthalene    | ND         | 2.0              |           |             |           |           |             |      |          |      |
| 2-Methylnaphthalene    | ND         | 2.0              |           |             |           |           |             |      |          |      |
| Acenaphthylene         | ND         | 2.5              |           |             |           |           |             |      |          |      |
| Acenaphthene           | ND         | 5.0              |           |             |           |           |             |      |          |      |
| Fluorene               | ND         | 0.80             |           |             |           |           |             |      |          |      |
| Phenanthrene           | ND         | 0.60             |           |             |           |           |             |      |          |      |
| Anthracene             | ND         | 0.60             |           |             |           |           |             |      |          |      |
| Fluoranthene           | ND         | 0.30             |           |             |           |           |             |      |          |      |
| Pyrene                 | ND         | 0.30             |           |             |           |           |             |      |          |      |
| Benz(a)anthracene      | ND         | 0.070            |           |             |           |           |             |      |          |      |
| Chrysene               | ND         | 0.20             |           |             |           |           |             |      |          |      |
| Benzo(b)fluoranthene   | ND         | 0.10             |           |             |           |           |             |      |          |      |
| Benzo(k)fluoranthene   | ND         | 0.070            |           |             |           |           |             |      |          |      |
| Benzo(a)pyrene         | ND         | 0.070            |           |             |           |           |             |      |          |      |
| Dibenz(a,h)anthracene  | ND         | 0.12             |           |             |           |           |             |      |          |      |
| Benzo(g,h,i)perylene   | ND         | 0.12             |           |             |           |           |             |      |          |      |
| Indeno(1,2,3-cd)pyrene | ND         | 0.25             |           |             |           |           |             |      |          |      |
| Surr: Benzo(e)pyrene   | 21         |                  | 20.00     |             | 104       | 24.5      | 139         |      |          |      |

| Sample ID LCS-10797   | SampT      | ype: <b>LC</b> | S         | Test        | Code: El | PA Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|----------------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSW       | Batch      | n ID: 10       | 797       | R           | tunNo: 1 | 5541      |             |      |          |      |
| Prep Date: 12/16/2013 | Analysis D | Date: 12       | 2/17/2013 | S           | eqNo: 4  | 47058     | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 41         | 2.0            | 80.00     | 0           | 51.6     | 43.8      | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 36         | 2.0            | 80.20     | 0           | 44.8     | 41.3      | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 34         | 2.0            | 80.00     | 0           | 42.0     | 36.6      | 89.6        |      |          |      |
| Acenaphthylene        | 46         | 2.5            | 80.20     | 0           | 57.7     | 43.6      | 103         |      |          |      |
| Acenaphthene          | 37         | 5.0            | 80.00     | 0           | 46.1     | 42.4      | 87.6        |      |          |      |
| Fluorene              | 3.9        | 0.80           | 8.020     | 0           | 48.1     | 40.5      | 93.6        |      |          |      |
| Phenanthrene          | 2.2        | 0.60           | 4.020     | 0           | 53.7     | 43.9      | 111         |      |          |      |
| Anthracene            | 2.2        | 0.60           | 4.020     | 0           | 56.0     | 44.3      | 103         |      |          |      |
| Fluoranthene          | 4.6        | 0.30           | 8.020     | 0           | 57.5     | 43.5      | 109         |      |          |      |
| Pyrene                | 4.8        | 0.30           | 8.020     | 0           | 59.7     | 32.6      | 103         |      |          |      |
| Benz(a)anthracene     | 0.46       | 0.070          | 0.8020    | 0           | 57.4     | 43        | 114         |      |          |      |
| Chrysene              | 2.2        | 0.20           | 4.020     | 0           | 54.0     | 40.2      | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.57       | 0.10           | 1.002     | 0           | 56.9     | 44.4      | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.29       | 0.070          | 0.5000    | 0           | 58.0     | 41.5      | 120         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1312666 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID LCS-10797    | SampT      | ype: LC         | s         | Tes         | tCode: El | PA Method |              |      |          |      |
|------------------------|------------|-----------------|-----------|-------------|-----------|-----------|--------------|------|----------|------|
| Client ID: LCSW        | Batch      | n ID: <b>10</b> | 797       | R           | RunNo: 1  | 5541      |              |      |          |      |
| Prep Date: 12/16/2013  | Analysis D | ate: 12         | 2/17/2013 | S           | SeqNo: 4  | 47058     | Units: µg/L  |      |          |      |
| Analyte                | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Benzo(a)pyrene         | 0.28       | 0.070           | 0.5020    | 0           | 55.8      | 34.5      | 1 <b>1</b> 8 |      |          |      |
| Dibenz(a,h)anthracene  | 0.59       | 0.12            | 1.002     | 0           | 58.9      | 38.3      | 107          |      |          |      |
| Benzo(g,h,i)perylene   | 0.55       | 0.12            | 1.000     | 0           | 55.0      | 38.4      | 110          |      |          |      |
| Indeno(1,2,3-cd)pyrene | 1.3        | 0.25            | 2.004     | 0           | 64.4      | 42.4      | 113          |      |          |      |
| Surr: Benzo(e)pyrene   | 15         |                 | 20.00     |             | 74.8      | 24.5      | 139          |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
   Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#:

1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-10891

SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Prep Date:

Batch ID: 10891

2.5

RunNo: 15597 SeqNo: 449210

Units: µg/L

Qual

Analyte

12/19/2013

Analysis Date: 12/19/2013 Result

SPK value SPK Ref Val %REC LowLimit **PQL** 

HighLimit

%RPD

**RPDLimit** 

Phenolics, Total Recoverable

Sample ID LCS-10891

SampType: LCS Batch ID: 10891 TestCode: Total Phenolics by SW-846 9067 RunNo: 15597

%REC

103

Prep Date: 12/19/2013

Client ID:

LCSW

Analysis Date: 12/19/2013

ND

0

SeqNo: 449211

Units: µg/L

%RPD **RPDLimit** 

Analyte Phenolics, Total Recoverable Result 21

PQL 2.5

20.00

SPK value SPK Ref Val

LowLimit 73.7

HighLimit

Qual

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

Analyte detected below quantitation limits J

Spike Recovery outside accepted recovery limits

0 RSD is greater than RSDlimit

R RPD outside accepted recovery limits В

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

Analyte detected in the associated Method Blank

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# all Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client:

Cyrq Energy Inc

| Project:                  | Lightning Dock CYRQ I | ENERGY      |             |                     |                 | _     |          |              |
|---------------------------|-----------------------|-------------|-------------|---------------------|-----------------|-------|----------|--------------|
| Sample ID mb-1            | SampType:             | MBLK        | Test        | Code: <b>SM2320</b> | B: Alkalinity   |       |          |              |
| Client ID: PBW            | Batch ID:             | R15528      | Ri          | unNo: <b>15528</b>  |                 |       |          |              |
| Prep Date:                | Analysis Date:        | 12/16/2013  | Se          | eqNo: <b>446604</b> | Units: mg/L     | CaCO3 |          |              |
| Analyte                   | Result PQI            | L SPK value | SPK Ref Val | %REC LowL           | imit HighLimit  | %RPD  | RPDLimit | Qual         |
| Total Alkalinity (as CaCC | D3) ND 2              | 20          |             |                     |                 |       |          |              |
| Sample ID Ics-1           | SampType:             | LCS         | Test        | Code: <b>SM2320</b> | B: Alkalinity   |       |          |              |
| Client ID: LCSW           | Batch ID:             | R15528      | R           | unNo: <b>15528</b>  |                 |       |          |              |
| Prep Date:                | Analysis Date:        | 12/16/2013  | S           | eqNo: <b>446605</b> | Units: mg/L     | CaCO3 |          |              |
| Analyte                   | Result PQ             | L SPK value | SPK Ref Val | %REC LowL           | imit HighLimit  | %RPD  | RPDLimit | Qual         |
| Total Alkalinity (as CaCC | 03) 80 2              | 20 80.00    | 0           | 99.4                | 90 110          |       |          |              |
| Sample ID mb-2            | SampType:             | MBLK        | Test        | Code: <b>SM2320</b> | B: Alkalinity   |       |          | ,·· <u>·</u> |
| Client ID: PBW            | Batch ID:             | R15528      | R           | unNo: <b>15528</b>  |                 |       |          |              |
| Prep Date:                | Analysis Date:        | 12/16/2013  | S           | eqNo: <b>446624</b> | Units: mg/L     | CaCO3 |          |              |
| Analyte                   | Result PQ             | L SPK value | SPK Ref Val | %REC LowL           | _imit HighLimit | %RPD  | RPDLimit | Qual         |
| Total Alkalinity (as CaCo | 03) ND 2              | 20          |             |                     |                 |       |          |              |
| mple ID Ics-2             | SampType:             | LCS         | Test        | Code: <b>SM2320</b> | B: Alkalinity   |       |          |              |

| mple ID Ics-2               | SampT      | ype: LC       | s         | Tes         | tCode: <b>S</b> l | M2320B: AI | kalinity    |       |          |      |
|-----------------------------|------------|---------------|-----------|-------------|-------------------|------------|-------------|-------|----------|------|
| lent ID: LCSW               | Batch      | ID: <b>R1</b> | 5528      | F           | RunNo: 1          | 5528       |             |       |          |      |
| Prep Date:                  | Analysis D | ate: 12       | 2/16/2013 | S           | SeqNo: 4          | 46625      | Units: mg/L | CaCO3 |          |      |
| Analyte                     | Result     | PQL           | SPK value | SPK Ref Val | %REC              | LowLimit   | HighLimit   | %RPD  | RPDLimit | Qual |
| Total Alkalinity (as CaCO3) | 81         | 20            | 80.00     | 0           | 101               | 90         | 110         |       |          |      |

Qualifiers:

Value exceeds Maximum Contaminant Level. Value above quantitation range

Analyte detected below quantitation limits

RSD is greater than RSDlimit Ο

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

Analyte detected in the associated Method Blank В

Holding times for preparation or analysis exceeded Η

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#:

1312666

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-10881

SampType: MBLK

Analysis Date: 12/19/2013

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW

Prep Date:

Batch ID: 10881

LowLimit

RunNo: 15624 SeqNo: 450504

Units: mg/L

**RPDLimit** 

Analyte

Result

SPK value SPK Ref Val %REC LowLimit **PQL** 

HighLimit

%RPD

Qual

Total Dissolved Solids

ND

SampType: LCS

Batch ID: 10881

20.0

RunNo: 15624

%REC

Client ID: LCSW

Sample ID LCS-10881

12/18/2013

12/18/2013

Analysis Date: 12/19/2013

SeqNo: 450505

Units: mg/L

HighLimit

%RPD

Qual

Result **PQL** 

20.0

1000

SPK value SPK Ref Val

102

80

Page 28 of 28

Analyte

Prep Date:

1020

0

**RPDLimit** 

Total Dissolved Solids

TestCode: SM2540C MOD: Total Dissolved Solids

120

#### Qualifiers:

S

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

- Ε Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Reporting Detection Limit
- В Analyte detected in the associated Method Blank
- Sample pH greater than 2 for VOA and TOC only.



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

Sample Log-In Check List

| Client Name:                        | AMEC                                   |  | Work Order Num                     | per: 1312666                            |            | RcptNo: 1                  |                   |
|-------------------------------------|--|--|------------------------------------|---|------------|----------------------------|-------------------|
| Received by/da                      | ate:                                   | 165 1.   | 2//6/17                            |   |            |                            |                   |
| Logged By:                          | Anne Thorn                             | 10   | 12/16/2013 9:03:00                 | AM                                      | anne Am    | -                          |                   |
| Completed By:                       | Anne Thorn                             | ne   | 12/16/2013                         |   | aone Sham  | _                          |                   |
| Reviewed By:                        | A                                      | 12/16/1  | 3                                  |   |            |                            |                   |
| Chain of Cu                         | stody                                  | ( //4//  |                                    |   |            |                            |                   |
| 1. Custody se                       | eals intact on sa                      | mple bottles?                                  |                                    | Yes 🗌                                   | No 🗌       | Not Present                |                   |
| 2. Is Chain of                      | Custody comple                         | ete?   |                                    | Yes 🗹                                   | No 🗌       | Not Present                |                   |
| 3. How was t                        | he sample delive                       | ered?  |                                    | Client                                  |            |                            |                   |
| Log In                              |  |  |                                    |   |            |                            |                   |
| 4. Was an at                        | tempt made to o                        | cool the samples                               | ?                                  | Yes 🗹                                   | No 🗆       | NA 🗆                       |                   |
| 5. Were all s                       | amples received                        | l at a temperature                             | e of >0° C to 6.0°C                | Yes 🗹                                   | No 🗌       | NA 🗀                       |                   |
| 6. Sample(s)                        | in proper conta                        | iner(s)?                                       |                                    | Yes 🗹                                   | No 🗌       |                            |                   |
| 7. Sufficient s                     | sample volume f                        | for indicated test(                            | s)?                                | Yes 🗹                                   | No 🗆       |                            |                   |
| 8. Are sample                       | es (except VOA                         | and ONG) prope                                 | rly preserved?                     | Yes 🗹                                   | No 🗆       |                            |                   |
| 9. Was prese                        | ervative added to                      | bottles?                                       |                                    | Yes 🗌                                   | No 🗹       | NA 🗌                       |                   |
| 10.VOA vials                        | have zero heads                        | space?   |                                    | Yes 🗹                                   | No 🗆       | No VOA Vials               | (Ital)            |
| 11, Were any                        | sample containe                        | ers received brok                              | en?                                | Yes                                     | No 🗹       | # of preserved             | AT 12/16/1        |
|                                     | erwork match bo                        |  |                                    | Yes 🗹                                   | No 🗆       | bottles checked<br>for pH: | E12 unless noted) |
| 13. Are matric                      | es correctly iden                      | ntified on Chain o                             | f Custody?                         | Yes 🗹                                   | No 🗆       | Adjusted?                  |                   |
| 14, Is it clear                     | what analyses w                        | ere requested?                                 |                                    | Yes 🗹                                   | No 🔲       |                            | A 12/1/1/3        |
|                                     | olding times able<br>fy customer for a |  |                                    | Yes 🗹                                   | No 🗌       | Checked by:                | 4 121100          |
| Special Har                         | ndling (if app                         | olicable)                                      |                                    |   |            |                            |                   |
| 16. Was client                      | t notified of all di                   | screpancies with                               | this order?                        | Yes 🗌                                   | No 🗆       | NA 🗹                       |                   |
| Pers                                | son Notified:                          |  | Dat                                | te                                      |            |                            |                   |
| Ву V                                | Vhom:                                  |  | Via                                | : eMail I                               | Phone  Fax | In Person                  |                   |
| Reg                                 | arding:                                | A APPENDENT OF THE PROPERTY AND ADDRESS OF THE |                                    |   |            |                            |                   |
| Clier                               | nt Instructions:                       |  |                                    | AND AND AND AND AND AND AND AND AND AND |            |                            |                   |
| 17. Additiona                       | I remarks:                             |  |                                    |   |            |                            |                   |
| 18. <u>Cooler In</u><br>Cooler<br>1 |  |  | eal Intact   Seal No<br>ot Present | Seal Date                               | Signed By  |                            |                   |

| С               | hain              | -of-Cu     | stody Record                 | Turn-Around  | Time:        |   |              | HALL ENVIRONMENTAL |            |  |                           | ٩L            |   |                        |             |                 |          |           |          |                      |
|-----------------|-------------------|------------|------------------------------|--------------|--------------|---|--------------|--------------------|------------|--|---------------------------|---------------|---|------------------------|-------------|-----------------|----------|-----------|----------|----------------------|
| Client:         | AM E              | CE         | +I, IM                       | ☐ Standard   | □ Rush       |   |              |                    |            |  |                           |               |   |                        |             |                 |          | TO        |          | <b>f</b>             |
|                 |                   |            |                              | Project Name |              | 1                                       |              |                    |            | ww                                       | w.hal                     | lenv          | /ironi  | ment                   | tal.co      | om              |          |           |          |                      |
| Mailing         | Address           | 85         | 19 Jefferson                 | Lightin      | ina Doc      | K/CYRQ Energy                           | }            | 490                | 1 Ha       | wkins                                    | NE -                      | Alb           | ouque   | erqu                   | e, Ni       | M 87            | 109      |           |          |                      |
|                 | AL                |            | ERQUE, NM 87114              | Project #:   |              | , |              | Tel                | . 505      | -345-3                                   |                           |               |   |                        |             | 4107            | 7        |           |          |                      |
| Phone :         |                   | 505-       | 821-1801                     | 11-          | 317-60       | 20102                                   |              |                    |            |  | Α                         | naly          | ysis  | Req                    | ues         |                 |          |           |          | ļ.                   |
| email o         | r Fax#: <b>£</b>  | auo.J      | avine 80 AMEC. COM           | Project Mana | iger:        |   | 5            | only)              | NS         | ]  |                           |               | 304)  | _s                     |             |                 |          |           |          |                      |
| QA/QC I         | Package:<br>idard |            | □ /Level 4 (Full Validation) | DAV          | npt air      | Mer                                     | TMB's (8021) | TPH (Gas only)     | DRO / MRO) |  | IMS)                      |               | PO4,5   | PCB'                   |             |                 |          |           |          |                      |
| Accredi         | itation           | □ Othe     |                              | Sampler:     | DYes         | K<br>D No                               | TMB          | ТРН                | (GRO / DF  | 8.1)                                     | 8270 \$                   |               | 3,NO <sub>2</sub>   | / 8082                 |             | 7               |          |           |          | (Ž                   |
| □ EDD           |                   |            |                              | Sample Tem   | perature:    | 2.1                                     | 3E +         | 3E +               | (GR        | d 41                                     | or a                      | tals          | N,  | ides                   | 2           | Ŝ               |          |           |          | ٤                    |
| Date            | Time              | Matrix     | Sample Request ID            |              | Preservative |   | BTEX + MTBE  | BTEX + MTBE        | TPH 8015B  | TPH (Method 418.1)<br>EDB (Method 504.1) | PAH's (8310 or 8270 SIMS) | RCRA 8 Metals | Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> ) | 8081 Pesticides / 8082 | 8260B (VOA) | 8270 (Semi-VOA) |          |           |          | Air Bubbles (Y or N) |
| 2-13-13         | 147,00            | Hzo        | 53-7                         |              |              | -0                                      |              |                    | _          |  |                           |               |   |                        |             |                 | -        |           | -        | $\perp$              |
|                 |                   |            |                              |              |              |   | <u> </u>     |                    | +          |  |                           |               |   |                        |             |                 |          | +         | -        | +                    |
|                 |                   |            |                              |              |              |   |              |                    |            |  |                           |               |   |                        |             |                 |          |           |          |                      |
|                 |                   |            |                              |              |              |   |              |                    |            |  |                           |               |   |                        |             |                 | _        |           |          |                      |
|                 |                   |            |                              |              | -            |   | -            |                    | $\perp$    | _  | -                         |               |   |                        |             |                 | $\dashv$ |           | +        | +                    |
|                 |                   |            |                              |              |              |   |              |                    |            |  | -                         |               |   |                        |             |                 |          |           | 1        |                      |
|                 |                   |            |                              |              |              |   |              |                    |            |  |                           |               |   |                        |             |                 |          |           |          |                      |
|                 |                   |            |                              | ļ            |              |   |              |                    |            |  | <del> </del>              |               |   |                        |             |                 |          | _         | -        | +                    |
|                 |                   |            |                              | <u> </u>     |              |   | -            | $\vdash$           | +          |  | ├                         | -             |   |                        | -           |                 |          | +         | +        | +                    |
| Date:<br>2/6-13 | Time:             |            | - M teter                    | Received by: | hSZ          | Date Time<br>-12/10/13 9:02             | Rer          | narks              |            | EE                                       | - A                       | 170           | I H   | E                      | <u></u>     | ı_l<br>A        | VA)      | V+=       | <u> </u> |                      |
| Date:           | Time:             | Relinquish | ed by:                       | Received by: |              | Date Time                               |              |                    | -          |  | ST,                       |               | ,   | _                      |             | ,,,             |          | - {   1 2 |          |                      |



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

January 14, 2014

David Janney Cyrq Energy Inc PO Box 86 Animas, NM 88020 TEL: (505) 796-7276

**FAX** 

RE: Lightning Dock Geothermal GW Quality Monitoring OrderNo.: 1312A59

#### Dear David Janney:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/21/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

# Analytical Report Lab Order 1312A59

Date Reported: 1/14/2014

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc

Client Sample ID: LDG 45-7

Project: Lightning Dock Geothermal GW Quality Collection Date: 12/19/2013 11:00:00 AM

Lab ID: 1312A59-001 Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM

| Analyses                          | Result | RL       | Qual | Units | DF | Date Analyzed         | Batch         |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|---------------|
| EPA METHOD 8011/504.1: EDB        |        |          |      |       |    | Analys                | : LRW         |
| 1,2-Dibromoethane                 | ND     | 0.010    |      | μg/L  | 1  | 12/26/2013 2:31:48 PM | 10989         |
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Analys                | : SCC         |
| Aroclor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 AM | 10979         |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 AM |               |
| Aroclor 1232                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 AM |               |
| Aroclor 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 AM |               |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 AM |               |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 AM | 10979         |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 2:42:39 AM |               |
| Surr: Decachlorobiphenyl          | 93.6   | 17-123   |      | %REC  | 1  | 12/30/2013 2:42:39 AM | 1 10979       |
| Surr: Tetrachloro-m-xylene        | 98.0   | 22.6-113 |      | %REC  | 1  | 12/30/2013 2:42:39 AM | 1 10979       |
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analys                | : SCC         |
| Naphthalene                       | ND     | 100      |      | μg/L  | 50 | 12/28/2013 3:37:14 AN |               |
| 1-Methylnaphthalene               | ND     | 100      |      | μg/L  | 50 | 12/28/2013 3:37:14 AM |               |
| 2-Methylnaphthalene               | ND     | 100      |      | μg/L  | 50 | 12/28/2013 3:37:14 AN |               |
| Acenaphthylene                    | ND     | 120      |      | µg/L  | 50 | 12/28/2013 3:37:14 AN |               |
| Acenaphthene                      | ND     | 250      |      | μg/L  | 50 | 12/28/2013 3:37:14 AN |               |
| Fluorene                          | ND     | 40       |      | μg/L  | 50 | 12/28/2013 3:37:14 AM |               |
| Phenanthrene                      | ND     | 30       |      | μg/L  | 50 | 12/28/2013 3:37:14 AN |               |
| Anthracene                        | ND     | 30       |      | μg/L  | 50 | 12/28/2013 3:37:14 AN | 1 10981       |
| Fluoranthene                      | ND     | 15       |      | μg/L  | 50 | 12/28/2013 3:37:14 AN | 1 10981       |
| Pyrene                            | ND     | 15       |      | μg/L  | 50 | 12/28/2013 3:37:14 AN | 1 10981       |
| Benz(a)anthracene                 | ND     | 3.5      |      | μg/L  | 50 | 12/28/2013 3:37:14 AN | 1 10981       |
| Chrysene                          | ND     | 10       |      | μg/L  | 50 | 12/28/2013 3:37:14 AN | 1 10981       |
| Benzo(b)fluoranthene              | ND     | 5.0      |      | μg/L  | 50 | 12/28/2013 3:37:14 AN | 1 10981       |
| Benzo(k)fluoranthene              | ND     | 3.5      |      | μg/L  | 50 | 12/28/2013 3:37:14 AN | 1 10981       |
| Benzo(a)pyrene                    | ND     | 3.5      |      | μg/L  | 50 | 12/28/2013 3:37:14 AN | 1 10981       |
| Dibenz(a,h)anthracene             | ND     | 6.2      |      | μg/L  | 50 | 12/28/2013 3:37:14 AN | 1 10981       |
| Benzo(g,h,i)perylene              | ND     | 6.2      |      | μg/L  | 50 | 12/28/2013 3:37:14 AN | 1 10981       |
| Indeno(1,2,3-cd)pyrene            | ND     | 12       |      | μg/L  | 50 | 12/28/2013 3:37:14 AN | 1 10981       |
| Surr: Benzo(e)pyrene              | 113    | 24.5-139 |      | %REC  | 50 | 12/28/2013 3:37:14 AM | 1 10981       |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analys                | t: <b>JRR</b> |
| Fluoride                          | 14     | 0.50     | *    | mg/L  | 5  | 12/24/2013 3:52:17 PM | 1 R1574       |
| Chloride                          | 97     | 2.5      |      | mg/L  | 5  | 12/23/2013 9:15:25 PN | 1 R1570       |
| Bromide                           | ND     | 0.50     |      | mg/L  | 5  | 12/23/2013 9:15:25 PN | 1 R1570       |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 12/24/2013 3:52:17 PM | 1 R1574       |
| Sulfate                           | 540    | 10       | *    | mg/L  | 20 | 12/23/2013 9:27:49 PM | 1 R1570       |
| Nitrate+Nitrite as N              | ND     | 1.0      |      | mg/L  | 5  | 12/23/2013 11:31:56 P | M R1570       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - P Sample pH greater than 2 for VOA and TOC only.
  - RL Reporting Detection Limit

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc

Client Sample ID: LDG 45-7

Project: Lightning Dock Geothermal GW Quality

Collection Date: 12/19/2013 11:00:00 AM

Lab ID: 1312A59-001

Received Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL Qu   | ıal Units | DF | Date Analyzed        | Batch          |
|--------------------------------|--------|---------|-----------|----|----------------------|----------------|
| EPA METHOD 200.7: DISSOLVED MI | ETALS  |         |           |    | Anaiy                | st: <b>JLF</b> |
| Aluminum                       | 0.21   | 0.020   | * mg/L    | 1  | 12/23/2013 6:00:22 F | M R15707       |
| Barium                         | 0.065  | 0.0020  | mg/L      | 1  | 12/23/2013 6:00:22 F | M R15707       |
| Boron                          | 0.46   | 0.040   | mg/L      | 1  | 12/23/2013 6:00:22 F | M R15707       |
| Cadmium                        | ND     | 0.0020  | mg/L      | 1  | 12/23/2013 6:00:22 F | M R15707       |
| Catcium                        | 23     | 1.0     | mg/L      | 1  | 12/30/2013 12:25:16  | PM R15805      |
| Cobalt                         | ND     | 0.0060  | mg/L      | 1  | 12/23/2013 6:00:22 F | M R15707       |
| Copper                         | ND     | 0.0060  | mg/L      | 1  | 12/27/2013 2:35:33 F | M R15768       |
| Iron                           | ND     | 0.020   | mg/L      | 1  | 12/30/2013 12:25:16  | PM R15805      |
| Magnesium                      | ND     | 1.0     | mg/L      | 1  | 12/30/2013 12:25:16  | PM R15805      |
| Manganese                      | 0.018  | 0.0020  | mg/L      | 1  | 12/23/2013 6:00:22 F | M R15707       |
| Molybdenum                     | 0.026  | 0.0080  | mg/L      | 1  | 12/23/2013 6:00:22 F | M R15707       |
| Nickel                         | ND     | 0.010   | mg/L      | 1  | 12/27/2013 2:35:33 F | M R15768       |
| Potassium                      | 30     | 1.0     | mg/L      | 1  | 12/30/2013 12:25:16  | PM R15805      |
| Silver                         | ND     | 0.0050  | mg/L      | 1  | 12/23/2013 6:00:22 F | M R15707       |
| Sodium                         | 300    | 5.0     | mg/L      | 5  | 12/30/2013 12:27:09  | PM R15805      |
| Zinc                           | ND     | 0.010   | mg/L      | 1  | 12/27/2013 2:35:33 F | PM R15768      |
| EPA 200.8: DISSOLVED METALS    |        |         |           |    | Analy                | st: DBD        |
| Arsenic                        | 0.012  | 0.0010  | * mg/L    | 1  | 1/7/2014 2:57:12 PM  | R15933         |
| Lead                           | ND     | 0.0010  | mg/L      | 1  | 1/7/2014 2:57:12 PM  | R15933         |
| Selenium                       | 0.0017 | 0.0010  | mg/L      | 1  | 1/7/2014 2:57:12 PM  | R15933         |
| Uranium                        | ND     | 0.0010  | mg/L      | 1  | 1/7/2014 6:09:59 PM  | R15934         |
| EPA METHOD 245.1: MERCURY      |        |         |           |    | Analy                | st: <b>JML</b> |
| Mercury                        | ND     | 0.00020 | mg/L      | 1  | 1/7/2014 2:11:45 PM  | 11092          |
| EPA METHOD 8270C: SEMIVOLATIL  | .ES    |         |           |    | Analy                | st: <b>JDC</b> |
| Acenaphthene                   | ND     | 10      | μg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Acenaphthylene                 | ND     | 10      | μg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Aniline                        | ND     | 10      | μg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Anthracene                     | ND     | 10      | μg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Azobenzene                     | ND     | 10      | μg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Benz(a)anthracene              | ND     | 10      | µg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Benzo(a)pyrene                 | ND     | 10      | μg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Benzo(b)fluoranthene           | ND     | 10      | μg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Benzo(g,h,i)perylene           | ND     | 10      | µg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Benzo(k)fluoranthene           | ND     | 10      | μg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Benzoic acid                   | ND     | 40      | μg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Benzyl alcohol                 | ND     | 10      | μg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Bis(2-chloroethoxy)methane     | ND     | 10      | µg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L      | 1  | 12/26/2013 10:13:19  | PM 10980       |
|                                |        |         |           |    |                      |                |

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2 of 48
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Analytical Report

#### Lab Order 1312A59

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 45-7

Project: Lightning Dock Geothermal GW Quality Collection Date: 12/19/2013 11:00:00 AM

Lab ID: 1312A59-001 Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed       | Batch           |
|-----------------------------|--------|-------|----------|----|---------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  |       |          |    | Anal                | yst: <b>JDC</b> |
| Bis(2-chloroisopropyl)ether | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Bis(2-ethylhexyl)phthalate  | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 4-Bromophenyl phenyl ether  | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Butyl benzyl phthalate      | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Carbazole                   | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 4-Chloro-3-methylphenol     | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 4-Chloroaniline             | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 2-Chloronaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 2-Chlorophenol              | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 4-Chlorophenyl phenyl ether | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Chrysene                    | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Di-n-butyl phthalate        | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| Di-n-octyl phthalate        | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| Dibenz(a,h)anthracene       | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| Dibenzofuran                | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| 3,3'-Dichlorobenzidine      | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| Diethyl phthalate           | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| Dimethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| 2,4-Dichlorophenol          | ND     | 20    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| 2,4-Dimethylphenol          | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| 4,6-Dinitro-2-methylphenol  | ND     | 20    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| 2,4-Dinitrophenol           | ND     | 20    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| 2,4-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| 2,6-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |
| Fluoranthene                | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |
| Fluorene                    | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |
| Hexachlorobenzene           | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |
| Hexachlorobutadiene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |
| Hexachlorocyclopentadiene   | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |
| Hexachloroethane            | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |
| Indeno(1,2,3-cd)pyrene      | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |
| Isophorone                  | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |
| 1-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:19 | 9 PM 10980      |
| 2-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |
| 2-Methylphenol              | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |
| 3+4-Methylphenol            | ND     | 10    | μg/L     | 1  | 12/26/2013 10:13:1  | 9 PM 10980      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 1
- Page 3 of 48
  - Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: LDG 45-7

Lightning Dock Geothermal GW Quality Project:

Collection Date: 12/19/2013 11:00:00 AM

1312A59-001 Lab ID:

CLIENT: Cyrq Energy Inc

Matrix: AQUEOUS

Received Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed       | Batch           |
|--------------------------------|--------|-----------|----------|----|---------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLATILE | s      |           |          |    | Anal                | yst: <b>JDC</b> |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Naphthalene                    | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 2-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 3-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 4-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Nitrobenzene                   | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 2-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 4-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Phenol                         | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Pyrene                         | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Pyridine                       | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Surr: 2-Fluorophenol           | 58.0   | 22.7-98   | %REC     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Surr: Phenol-d5                | 43.6   | 23.4-74.9 | %REC     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Surr: 2,4,6-Tribromophenol     | 86.2   | 23.3-111  | %REC     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Surr: Nitrobenzene-d5          | 83.6   | 36.8-111  | %REC     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Surr: 2-Fluorobiphenyl         | 102    | 38.3-110  | %REC     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| Surr: 4-Terphenyl-d14          | 90.8   | 52.1-116  | %REC     | 1  | 12/26/2013 10:13:19 | PM 10980        |
| EPA METHOD 8260B: VOLATILES    |        |           |          |    | Anal                | yst: cadg       |
| Benzene                        | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| Toluene                        | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| Ethylbenzene                   | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| Naphthalene                    | ND     | 2.0       | µg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| Acetone                        | ND     | 10        | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| Bromobenzene                   | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |
| Bromodichloromethane           | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:16:13  | PM R157         |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded H
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 4 of 48 Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

#### **Analytical Report** Lab Order 1312A59

Date Reported: 1/14/2014

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 45-7

Lightning Dock Geothermal GW Quality Collection Date: 12/19/2013 11:00:00 AM Lab ID: 1312A59-001 Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM

| Analyses                    | Result | RL Qu | al Units | DF Date Analyzed        | Batch  |
|-----------------------------|--------|-------|----------|-------------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       |          | Analyst                 | cadg   |
| Bromoform                   | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Bromomethane                | ND     | 3.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 2-Butanone                  | ND     | 10    | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Carbon disulfide            | ND     | 10    | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Carbon Tetrachloride        | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Chlorobenzene               | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Chloroethane                | ND     | 2.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Chloroform                  | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Chloromethane               | ND     | 3.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 2-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 4-Isopropyitoluene          | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| Styrene                     | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1 12/29/2013 8:16:13 PM | R15774 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

- Not Detected at the Reporting Limit Page 5 of 48 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc

Client Sample ID: LDG 45-7

Project: Lightning Dock Geothermal GW Quality Collection Date: 12/19/2013 11:00:00 AM

Lab ID: 1312A59-001 Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM

| Analyses                        | Result | RL (   | Qual | Units      | DF | Date Analyzed          | Batch   |
|---------------------------------|--------|--------|------|------------|----|------------------------|---------|
| EPA METHOD 8260B: VOLATILES     |        |        |      |            |    | Analyst                | cadg    |
| Tetrachloroethene (PCE)         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| trans-1,2-DCE                   | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| trans-1,3-Dichloropropene       | ND     | 1.0    |      | µg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| 1,2,3-Trichlorobenzene          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| 1,2,4-Trichlorobenzene          | ND     | 1.0    |      | µg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| 1,1,1-Trichloroethane           | ND     | 1.0    |      | µg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| 1,1,2-Trichloroethane           | ND     | 1.0    |      | µg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Trichloroethene (TCE)           | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Trichlorofluoromethane          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| 1,2,3-Trichloropropane          | ND     | 2.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Vinyl chloride                  | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Xylenes, Total                  | ND     | 1.5    |      | µg/L       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Surr: 1,2-Dichloroethane-d4     | 96.8   | 70-130 |      | %REC       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Surr: 4-Bromofluorobenzene      | 107    | 70-130 |      | %REC       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Surr: Dibromofluoromethane      | 106    | 70-130 |      | %REC       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| Surr: Toluene-d8                | 97.4   | 70-130 |      | %REC       | 1  | 12/29/2013 8:16:13 PM  | R15774  |
| EPA METHOD 418.1: TPH           |        |        |      |            |    | Analyst                | : JME   |
| Petroleum Hydrocarbons, TR      | 52     | 1.1    |      | mg/L       | 1  | 12/24/2013             | 10974   |
| TOTAL PHENOLICS BY SW-846 9067  |        |        |      |            |    | Analyst                | SCC     |
| Phenolics, Total Recoverable    | ND     | 2.5    |      | μg/L       | 1  | 1/8/2014               | 11134   |
| SM4500-H+B: PH                  |        |        |      |            |    | Analyst                | SRM     |
| рН                              | 6.82   | 1.68   | Н    | pH units   | 1  | 12/23/2013 7:06:45 PM  | R15709  |
| SM2320B: ALKALINITY             |        |        |      |            |    | Analyst                | : JML   |
| Bicarbonate (As CaCO3)          | 110    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:03:39 PM  | R15744  |
| Carbonate (As CaCO3)            | ND     | 2.0    |      | mg/L CaCO3 | 1  | 12/26/2013 1:03:39 PM  | R15744  |
| Total Alkalinity (as CaCO3)     | 110    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:03:39 PM  | R15744  |
| SM2540C MOD: TOTAL DISSOLVED SO | OLIDS  |        |      |            |    | Analyst                | : KS    |
| Total Dissolved Solids          | 1270   | 40.0   | *    | mg/L       | 1  | 12/27/2013 10:29:00 Al | M 10984 |
|                                 |        |        |      |            |    |                        |         |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### **Analytical Report** Lab Order 1312A59

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc

Client Sample ID: LDG 63-7

Collection Date: 12/20/2013 1:00:00 PM Lightning Dock Geothermal GW Quality Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM Lab ID: 1312A59-002

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed         | Batch    |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|----------|
| EPA METHOD 8011/504.1: EDB        |        |          |      |       |    | Analyst               | : LRW    |
| 1,2-Dibromoethane                 | ND     | 0.010    |      | μg/L  | 1  | 12/26/2013 2:45:40 PM | 10989    |
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Analyst               | : SCC    |
| Aroclor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM | 10979    |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM |          |
| Aroclor 1232                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM |          |
| Aroclor 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM |          |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM | 10979    |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM | 10979    |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 3:28:36 AM | 10979    |
| Surr: Decachlorobiphenyl          | 74.4   | 17-123   |      | %REC  | 1  | 12/30/2013 3:28:36 AM | 10979    |
| Surr: Tetrachloro-m-xylene        | 66.0   | 22.6-113 |      | %REC  | 1  | 12/30/2013 3:28:36 AM | 10979    |
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst               | : SCC    |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Fluorene                          | ND     | 08.0     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 10981    |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 1 10981  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 1 10981  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 1 10981  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/28/2013 4:06:32 AM | 1 10981  |
| Surr: Benzo(e)pyrene              | 35.0   | 24.5-139 |      | %REC  | 1  | 12/28/2013 4:06:32 AM | 1 10981  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analys                | : JRR    |
| Fluoride                          | 17     | 0.50     | *    | mg/L  | 5  | 12/24/2013 4:04:41 PM | 1 R15742 |
| Chloride                          | 67     | 2.5      |      | mg/L  | 5  | 12/23/2013 9:40:14 PM | 1 R15706 |
| Bromide                           | ND     | 0.50     |      | mg/L  | 5  | 12/23/2013 9:40:14 PM | 1 R15706 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 12/24/2013 4:04:41 PM | 1 R15742 |
| Sulfate                           | 250    | 2.5      |      | mg/L  | 5  | 12/23/2013 9:40:14 PM | 1 R15706 |
| Nitrate+Nitrite as N              | ND     | 1.0      |      | mg/L  | 5  | 12/23/2013 11:44:21 P | M R15706 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 7 of 48 Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

#### Lab Order 1312A59

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc

Client Sample ID: LDG 63-7

Project: Lightning Dock Geothermal GW Quality

Collection Date: 12/20/2013 1:00:00 PM

1312A59-002 Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM Lab ID:

| Analyses                       | Result | RL Qu   | al Units | DF  | Date Analyzed        | Batch           |
|--------------------------------|--------|---------|----------|-----|----------------------|-----------------|
| EPA METHOD 200.7: DISSOLVED ME | ETALS  |         |          |     | Analy                | /st: <b>JLF</b> |
| Aluminum                       | 0.040  | 0.020   | mg/L     | 1   | 12/23/2013 6:03:59 F | PM R1570        |
| Barium                         | 0.051  | 0.0020  | mg/L     | 1   | 12/23/2013 6:03:59 F | PM R15707       |
| Boron                          | 2.0    | 0.20    | mg/L     | 5   | 12/23/2013 6:05:51 F | PM R15707       |
| Cadmium                        | ND     | 0.0020  | mg/L     | 1   | 12/23/2013 6:03:59 F | PM R15707       |
| Calcium                        | 9.6    | 1.0     | mg/L     | 1   | 12/30/2013 12:28:50  | PM R1580        |
| Cobalt                         | ND     | 0.0060  | mg/L     | 1   | 12/23/2013 6:03:59 F | PM R1570        |
| Copper                         | 0.029  | 0.0060  | mg/L     | 1   | 12/27/2013 2:39:09 F | PM R1576        |
| Iron                           | 0.29   | 0.020   | mg/L     | 1   | 12/23/2013 6:03:59 F | PM R1570        |
| Magnesium                      | ND     | 1.0     | mg/L     | 1   | 12/30/2013 12:28:50  | PM R1580        |
| Manganese                      | 0.028  | 0.0020  | mg/L     | 1   | 12/23/2013 6:03:59 F | PM R1570        |
| Molybdenum                     | 0.094  | 0.0080  | mg/L     | 1   | 12/23/2013 6:03:59 F | PM R1570        |
| Nickel                         | 0.049  | 0.010   | mg/L     | 1   | 12/27/2013 2:39:09   | PM R1576        |
| Potassium                      | 8.6    | 1.0     | mg/L     | 1   | 12/30/2013 12:28:50  | PM R1580        |
| Silver                         | ND     | 0.0050  | mg/L     | 1   | 12/23/2013 6:03:59 [ | PM R1570        |
| Sodium                         | 260    | 5.0     | mg/L     | 5   | 12/30/2013 12:30:46  | PM R1580        |
| Zinc                           | 0.027  | 0.010   | mg/L     | 1   | 12/27/2013 2:39:09 [ | PM R1576        |
| EPA 200.8: DISSOLVED METALS    |        |         |          |     | Analy                | yst: DBD        |
| Arsenic                        | 3.2    | 0.10    | * mg/L   | 100 | 1/7/2014 6:12:38 PM  | R1593           |
| Lead                           | 0.0011 | 0.0010  | mg/L     | 1   | 1/7/2014 2:59:51 PM  | R1593           |
| Selenium                       | 0.0021 | 0.0010  | mg/L     | 1   | 1/7/2014 2:59:51 PM  | R1593           |
| Uranium                        | ND     | 0.0010  | mg/L     | 1   | 1/8/2014 2:18:28 PM  | R1596           |
| EPA METHOD 245.1: MERCURY      |        |         |          |     | Anal                 | yst: <b>JML</b> |
| Mercury                        | ND     | 0.00020 | mg/L     | 1   | 1/7/2014 2:13:33 PM  | 1 11092         |
| EPA METHOD 8270C: SEMIVOLATIL  | ES     |         |          |     | Anal                 | yst: <b>JDC</b> |
| Acenaphthene                   | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Acenaphthylene                 | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Aniline                        | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Anthracene                     | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Azobenzene                     | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Benz(a)anthracene              | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Benzo(a)pyrene                 | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Benzo(b)fluoranthene           | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Benzo(g,h,i)perylene           | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Benzo(k)fluoranthene           | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Benzoic acid                   | 160    | 40      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Benzyl alcohol                 | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L     | 1   | 12/26/2013 10:42:21  | PM 10980        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 8 of 48 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### **Analytical Report**

#### Lab Order 1312A59

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 63-7

Project:Lightning Dock Geothermal GW QualityCollection Date: 12/20/2013 1:00:00 PMLab ID:1312A59-002Matrix: AQUEOUSReceived Date: 12/21/2013 10:00:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed       | Batch           |
|-----------------------------|--------|-------|----------|----|---------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLAT | TILES  |       |          |    | Anal                | yst: <b>JDC</b> |
| Bis(2-chloroisopropyl)ether | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980      |
| Bis(2-ethylhexyl)phthalate  | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980      |
| 4-Bromophenyl phenyl ether  | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980      |
| Butyl benzyl phthalate      | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980      |
| Carbazole                   | ND     | 10    | µg/∟     | 1  | 12/26/2013 10:42:21 | I PM 10980      |
| 4-Chloro-3-methylphenol     | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | I PM 10980      |
| 4-Chloroaniline             | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | I PM 10980      |
| 2-Chloronaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | I PM 10980      |
| 2-Chlorophenol              | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | I PM 10980      |
| 4-Chlorophenyl phenyl ether | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Chrysene                    | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Di-n-butyl phthalate        | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Di-n-octyl phthalate        | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Dibenz(a,h)anthracene       | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Dibenzofuran                | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 3,3´-Dichlorobenzidine      | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Diethyl phthalate           | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Dimethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 2,4-Dichlorophenol          | ND     | 20    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 2,4-Dimethylphenol          | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 4,6-Dinitro-2-methylphenol  | ND     | 20    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 2,4-Dinitrophenol           | ND     | 20    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 2,4-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 2,6-Dinitrotoluene          | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Fluoranthene                | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Fluorene                    | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Hexachlorobenzene           | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Hexachlorobutadiene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Hexachlorocyclopentadiene   | ND     | 10    | µg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Hexachloroethane            | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Indeno(1,2,3-cd)pyrene      | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Isophorone                  | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 1-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 2-Methylnaphthalene         | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 2-Methylphenol              | ND     | 10    | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| 3+4-Methylphenol            | ND     | 10    | µg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Cyrq Energy Inc

Client Sample ID: LDG 63-7

Project: Lightning Dock Geothermal GW Quality

Collection Date: 12/20/2013 1:00:00 PM

Lab ID: 1312A59-002

Received Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed       | Batch           |
|--------------------------------|--------|-----------|----------|----|---------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLATII  | ES     |           |          |    | Anal                | yst: <b>JDC</b> |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980        |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980        |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980        |
| Naphthalene                    | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980        |
| 2-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980        |
| 3-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | PM 10980        |
| 4-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980      |
| Nitrobenzene                   | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980      |
| 2-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980      |
| 4-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | 1 PM 10980      |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1  | 12/26/2013 10:42:21 | 1 PM 10980      |
| Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Phenol                         | 18     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980      |
| Pyrene                         | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | I PM 10980      |
| Pyridine                       | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | 1 PM 10980      |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | 1 PM 10980      |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | 1 PM 10980      |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/26/2013 10:42:21 | 1 PM 10980      |
| Surr: 2-Fluorophenol           | 49.9   | 22.7-98   | %REC     | 1  | 12/26/2013 10:42:21 | 1 PM 10980      |
| Surr: Phenol-d5                | 36.5   | 23.4-74.9 | %REC     | 1  | 12/26/2013 10:42:21 | 1 PM 10980      |
| Surr: 2,4,6-Tribromophenol     | 84.2   | 23.3-111  | %REC     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Surr: Nitrobenzene-d5          | 71.8   | 36.8-111  | %REC     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Surr: 2-Fluorobiphenyl         | 84.9   | 38.3-110  | %REC     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| Surr: 4-Terphenyi-d14          | 89.5   | 52.1-116  | %REC     | 1  | 12/26/2013 10:42:2  | 1 PM 10980      |
| EPA METHOD 8260B: VOLATILES    |        |           |          |    | Anal                | yst: cadg       |
| Benzene                        | 4.8    | 1.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R15774       |
| Toluene                        | 2.0    | 1.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R15774       |
| Ethylbenzene                   | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R15774       |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R15774       |
| 1,2,4-Trimethylbenzene         | 1.6    | 1.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R15774       |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R15774       |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R15774       |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R1577        |
| Naphthalene                    | ND     | 2.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R1577        |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R1577        |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R1577        |
| Acetone                        | 78     | 10        | μg/L     | 1  | 12/29/2013 8:44:38  | PM R1577        |
| Bromobenzene                   | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:44:38  | PM R1577        |
| Bromodichloromethane           | ND     | 1.0       | μg/L     | 1  | 12/29/2013 8:44:38  |                 |

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 10 of 48

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### **Analytical Report** Lab Order 1312A59

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/14/2014

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 63-7

Lightning Dock Geothermal GW Quality Collection Date: 12/20/2013 1:00:00 PM Lab ID: 1312A59-002 Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed         | Batch  |
|-----------------------------|--------|-------|----------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Analyst               | cadg   |
| Bromoform                   | ND     | 1.0   | µg/l₋    | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Bromomethane                | ND     | 3.0   | µg/L_    | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 2-Butanone                  | ND     | 10    | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Carbon disulfide            | ND     | 10    | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Carbon Tetrachloride        | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Chlorobenzene               | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Chloroethane                | ND     | 2.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Chloroform                  | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Chloromethane               | ND     | 3.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 2-Chlorotoluene             | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 1,3-Dichloropropane         | ND     | 1.0   | µg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 2,2-Dichloropropane         | ND     | 2.0   | µg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| Styrene                     | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1  | 12/29/2013 8:44:38 PM | R15774 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ē Value above quantitation range
- J Analyte detected below quantitation limits
- О RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 11 of 48 P
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

#### **Analytical Report**

#### Lab Order 1312A59

Date Reported: 1/14/2014

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 63-7

Project:Lightning Dock Geothermal GW QualityCollection Date: 12/20/2013 1:00:00 PMLab ID:1312A59-002Matrix: AQUEOUSReceived Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed         | Batch   |
|--------------------------------|--------|--------|------|------------|----|-----------------------|---------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analyst               | cadg    |
| Tetrachloroethene (PCE)        | 370    | 10     |      | µg/L       | 10 | 12/28/2013 9:40:30 AM | R15774  |
| trans-1,2-DCE                  | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| trans-1,3-Dichloropropene      | ND     | 1.0    |      | µg/L       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| 1,2,3-Trichlorobenzene         | ND     | 1.0    |      | µg/L       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| 1,2,4-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| 1,1,1-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| 1,1,2-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| Trichloroethene (TCE)          | 1.0    | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| Trichlorofluoromethane         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| 1,2,3-Trichloropropane         | ND     | 2.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| Vinyl chloride                 | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| Xylenes, Total                 | ND     | 1.5    |      | μg/L       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| Surr: 1,2-Dichloroethane-d4    | 98.1   | 70-130 |      | %REC       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| Surr: 4-Bromofluorobenzene     | 109    | 70-130 |      | %REC       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| Surr: Dibromofluoromethane     | 107    | 70-130 |      | %REC       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| Surr: Toluene-d8               | 94.1   | 70-130 |      | %REC       | 1  | 12/29/2013 8:44:38 PM | R15774  |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analyst               | : JME   |
| Petroleum Hydrocarbons, TR     | 2.8    | 1.0    |      | mg/L       | 1  | 12/24/2013            | 10974   |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |            |    | Analyst               | : scc   |
| Phenolics, Total Recoverable   | 49     | 12     |      | µg/L       | 5  | 1/8/2014              | 11134   |
| SM4500-H+B: PH                 |        |        |      |            |    | Analyst               | SRM     |
| pH                             | 8.41   | 1.68   | Н    | pH units   | 1  | 12/23/2013 7:11:07 PM | R15709  |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analys                | : JML   |
| Bicarbonate (As CaCO3)         | 210    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:13:27 PM | R15744  |
| Carbonate (As CaCO3)           | 2.9    | 2.0    |      | mg/L CaCO3 | 1  | 12/26/2013 1:13:27 PM | R15744  |
| Total Alkalinity (as CaCO3)    | 210    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:13:27 PM | R15744  |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analys                | : KS    |
| Total Dissolved Solids         | 800    | 40.0   | *    | mg/L       | 1  | 12/27/2013 10:29:00 A | M 10984 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page
- Page 12 of P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### **Analytical Report**

Lab Order 1312A59

Date Reported: 1/14/2014

Received Date: 12/21/2013 10:00:00 AM

# Hall Environmental Analysis Laboratory, Inc.

Lab ID: 1312A59-003

CLIENT: Cyrq Energy Inc Client Sample ID: IW-1

Project: Lightning Dock Geothermal GW Quality **Collection Date:** 12/20/2013 5:00:00 PM Matrix: AQUEOUS

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed         | Batch            |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|------------------|
| EPA METHOD 8011/504.1: EDB        |        |          |      |       |    | Analys                | t: LRW           |
| 1,2-Dibromoethane                 | ND     | 0.010    |      | μg/L  | 1  | 12/26/2013 2:59:43 PM | <i>I</i> 10989   |
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Analys                | t: SCC           |
| Aroctor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 4:14:27 AN | 1 10979          |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 4:14:27 AN |                  |
| Aroclor 1232                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 4:14:27 AN |                  |
| Aroclor 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 4:14:27 AN | / 10979          |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 4:14:27 AN | 1 10979          |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 4:14:27 AN | 1 10979          |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 4:14:27 AN | <i>I</i> 10979   |
| Surr: Decachlorobiphenyl          | 85.6   | 17-123   |      | %REC  | 1  | 12/30/2013 4:14:27 AN | <i>I</i> 10979   |
| Surr: Tetrachloro-m-xylene        | 80.4   | 22.6-113 |      | %REC  | 1  | 12/30/2013 4:14:27 AN | 1 10979          |
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analys                | t: SCC           |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/28/2013 4:35:51 AN | A 10981          |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | A 10981          |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | A 10981          |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/28/2013 4:35:51 AN | <i>l</i> 10981   |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | <i>l</i> l 10981 |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | /I 10981         |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | A 10981          |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | <i>I</i> 10981   |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | A 10981          |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | <i>l</i> 10981   |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | <i>I</i> 10981   |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | <i>I</i> 10981   |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | <i>I</i> 10981   |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | µg/L  | 1  | 12/28/2013 4:35:51 AM | <i>I</i> 10981   |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | <i>I</i> 10981   |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/28/2013 4:35:51 AM | <i>A</i> 10981   |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | µg/L  | 1  | 12/28/2013 4:35:51 AM | A 10981          |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | µg/L  | 1  | 12/28/2013 4:35:51 AM | √ 10981          |
| Surr: Benzo(e)pyrene              | 61.9   | 24.5-139 |      | %REC  | 1  | 12/28/2013 4:35:51 AM | M 10981          |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analys                | t: JRR           |
| Fluoride                          | 3.9    | 0.50     |      | mg/L  | 5  | 12/24/2013 4:17:06 PM | M R15742         |
| Chloride                          | 170    | 10       |      | mg/L  | 20 | 12/23/2013 10:17:29 P | M R15706         |
| Bromide                           | 0.80   | 0.50     |      | mg/L  | 5  | 12/23/2013 10:05:04 F | M R15706         |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 12/24/2013 4:17:06 PM | M R15742         |
| Sulfate                           | 700    | 10       | *    | mg/L  | 20 | 12/23/2013 10:17:29 P | M R15706         |
| Nitrate+Nitrite as N              | 2.9    | 1.0      |      | mg/L  | 5  | 12/23/2013 11:56:46 F | M R15706         |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 13 of 48 P
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

### **Analytical Report** Lab Order 1312A59

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/14/2014

CLIENT: Cyrq Energy Inc Client Sample ID: IW-1

Lightning Dock Geothermal GW Quality Collection Date: 12/20/2013 5:00:00 PM Project: 1312A59-003 Lab ID: Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM

| Analyses                      | Result | RL Qu   | al Units | DF | Date Analyzed        | Batch           |
|-------------------------------|--------|---------|----------|----|----------------------|-----------------|
| EPA METHOD 200.7: DISSOLVED N | METALS |         |          |    | Analy                | st: <b>JLF</b>  |
| Aluminum                      | 0.069  | 0.020   | mg/L     | 1  | 12/23/2013 6:07:31 F | M R15707        |
| Barium                        | 0.099  | 0.0020  | mg/L     | 1  | 12/23/2013 6:07:31 F | M R15707        |
| Boron                         | 0.52   | 0.040   | mg/L     | 1  | 12/23/2013 6:07:31 F | M R15707        |
| Cadmium                       | ND     | 0.0020  | mg/L     | 1  | 12/23/2013 6:07:31 F | M R15707        |
| Calcium                       | 58     | 1.0     | mg/L     | 1  | 12/30/2013 12:32:28  | PM R15805       |
| Cobalt                        | ND     | 0.0060  | mg/L     | 1  | 12/23/2013 6:07:31 F | PM R15707       |
| Copper                        | ND     | 0.0060  | mg/L     | 1  | 12/27/2013 2:42:47 F | PM R15768       |
| Iron                          | 0.033  | 0.020   | mg/L     | 1  | 12/23/2013 6:07:31 F | M R15707        |
| Magnesium                     | ND     | 1.0     | mg/L     | 1  | 12/30/2013 12:32:28  | PM R15805       |
| Manganese                     | 0.019  | 0.0020  | mg/L     | 1  | 12/23/2013 6:07:31 F | PM R15707       |
| Molybdenum                    | 0.055  | 0.0080  | mg/L     | 1  | 12/23/2013 6:07:31 F | PM R15707       |
| Nickel                        | ND     | 0.010   | mg/L     | 1  | 12/27/2013 2:42:47 F | PM R15768       |
| Potassium                     | 31     | 1.0     | mg/L     | 1  | 12/30/2013 12:32:28  | PM R15805       |
| Silver                        | ND     | 0.0050  | mg/L     | 1  | 12/23/2013 6:07:31 F | PM R15707       |
| Sodium                        | 420    | 5.0     | mg/L     | 5  | 12/30/2013 12:34:24  | PM R15805       |
| Zinc                          | ND     | 0.010   | mg/L     | 1  | 12/27/2013 2:42:47 F | PM R15768       |
| EPA 200.8: DISSOLVED METALS   |        |         |          |    | Analy                | st: DBD         |
| Arsenic                       | 0.013  | 0.0010  | * mg/L   | 1  | 1/7/2014 3:02:31 PM  | R15933          |
| Lead                          | ND     | 0.0010  | mg/L     | 1  | 1/7/2014 3:02:31 PM  | R15933          |
| Selenium                      | 0.010  | 0.0010  | mg/L     | 1  | 1/7/2014 3:02:31 PM  | R15933          |
| Uranium                       | 0.0013 | 0.0010  | mg/L     | 1  | 1/7/2014 6:15:17 PM  | R15934          |
| EPA METHOD 245.1: MERCURY     |        |         |          |    | Analy                | st: JML         |
| Mercury                       | ND     | 0.00020 | mg/L     | 1  | 1/7/2014 2:15:19 PM  | 11092           |
| EPA METHOD 8270C: SEMIVOLAT   | ILES   |         |          |    | Analy                | /st: <b>JDC</b> |
| Acenaphthene                  | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Acenaphthylene                | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Aniline                       | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Anthracene                    | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Azobenzene                    | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Benz(a)anthracene             | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Benzo(a)pyrene                | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Benzo(b)fluoranthene          | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Benzo(g,h,i)perylene          | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Benzo(k)fluoranthene          | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Benzoic acid                  | ND     | 40      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Benzyl alcohol                | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Bis(2-chloroethoxy)methane    | ND     | 10      | µg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |
| Bis(2-chloroethyl)ether       | ND     | 10      | μg/L     | 1  | 12/26/2013 11:11:00  | PM 10980        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Not Detected at the Reporting Limit Page 14 of 48 Sample pH greater than 2 for VOA and TOC only.
- P
- RL Reporting Detection Limit

### Analytical Report Lab Order 1312A59

Date Reported: 1/14/2014

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: IW-1

Project: Lightning Dock Geothermal GW Quality

Lab ID: 1312A59-003

Matrix: AQUEOUS

Collection Date: 12/20/2013 5:00:00 PM

Received Date: 12/21/2013 10:00:00 AM

| Analyses                    | Result | Result RL Qual Units |      |   | Date Analyzed       | Batch    |
|-----------------------------|--------|----------------------|------|---|---------------------|----------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  |                      |      |   | Anal                | yst: JDC |
| Bis(2-chloroisopropyl)ether | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Bis(2-ethylhexyl)phthalate  | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 4-Bromophenyl phenyl ether  | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Butyl benzyl phthalate      | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Carbazole                   | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 4-Chloro-3-methylphenol     | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 4-Chloroaniline             | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 2-Chloronaphthalene         | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 2-Chlorophenol              | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 4-Chlorophenyl phenyl ether | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Chrysene                    | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Di-n-butyl phthalate        | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Di-n-octyl phthalate        | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Dibenz(a,h)anthracene       | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Dibenzofuran                | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 1,2-Dichlorobenzene         | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 1,3-Dichlorobenzene         | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 1,4-Dichlorobenzene         | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 3,3'-Dichlorobenzidine      | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Diethyl phthalate           | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Dimethyl phthalate          | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 2,4-Dichlorophenol          | ND     | 20                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 2,4-Dimethylphenol          | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 4,6-Dinitro-2-methylphenol  | ND     | 20                   | μg/Ľ | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 2,4-Dinitrophenol           | ND     | 20                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 2,4-Dinitrotoluene          | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 2,6-Dinitrotoluene          | ND     | 10                   | µg/∟ | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Fluoranthene                | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Fluorene                    | ND     | 10                   | µg/∟ | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Hexachlorobenzene           | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Hexachlorobutadiene         | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Hexachlorocyclopentadiene   | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Hexachloroethane            | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Indeno(1,2,3-cd)pyrene      | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| Isophorone                  | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 1-Methylnaphthalene         | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 2-Methylnaphthalene         | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 2-Methylphenol              | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |
| 3+4-Methylphenol            | ND     | 10                   | μg/L | 1 | 12/26/2013 11:11:00 | PM 10980 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 1
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Lab Order 1312A59

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: IW-1

Lightning Dock Geothermal GW Quality Project:

Collection Date: 12/20/2013 5:00:00 PM

Lab ID: 1312A59-003

CLIENT: Cyrq Energy Inc

Matrix: AQUEOUS

Received Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed       | Batch      |
|--------------------------------|--------|-----------|----------|----|---------------------|------------|
| EPA METHOD 8270C: SEMIVOLAT    | TILES  |           |          |    | Anal                | yst: JDC   |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | ) PM 10980 |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | ) PM 10980 |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | ) PM 10980 |
| Naphthalene                    | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | ) PM 10980 |
| 2-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | ) PM 1098  |
| 3-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | ) PM 1098  |
| 4-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | ) PM 1098  |
| Nitrobenzene                   | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 1098    |
| 2-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | PM 1098    |
| 4-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | ) РМ 1098  |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1  | 12/26/2013 11:11:00 | DPM 1098   |
| Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | DPM 1098   |
| Phenol                         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | DPM 1098   |
| Pyrene                         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | ) PM 1098  |
| Pyridine                       | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | DPM 1098   |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | 0 PM 1098  |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | 0 PM 1098  |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/26/2013 11:11:00 | 0 PM 1098  |
| Surr: 2-Fluorophenol           | 57.1   | 22.7-98   | %REC     | 1  | 12/26/2013 11:11:00 | 0 PM 1098  |
| Surr: Phenol-d5                | 46.8   | 23.4-74.9 | %REC     | 1  | 12/26/2013 11:11:00 | DPM 1098   |
| Surr: 2,4,6-Tribromophenol     | 89.0   | 23.3-111  | %REC     | 1  | 12/26/2013 11:11:0  |            |
| Surr: Nitrobenzene-d5          | 75.2   | 36.8-111  | %REC     | 1  | 12/26/2013 11:11:0  | 0 PM 1098  |
| Surr: 2-Fluorobiphenyl         | 83.1   | 38.3-110  | %REC     | 1  | 12/26/2013 11:11:0  | 0 PM 1098  |
| Surr: 4-Terphenyl-d14          | . 80.8 | 52.1-116  | %REC     | 1  | 12/26/2013 11:11:00 | D PM 1098  |
| EPA METHOD 8260B: VOLATILES    | S      |           |          |    | Ana                 | lyst: cad  |
| Benzene                        | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| Toluene                        | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| Ethylbenzene                   | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| Methyl tert-butyl ether (MTBE) | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| 1,2,4-Trimethylbenzene         | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R157  |
| 1,3,5-Trimethylbenzene         | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| 1,2-Dichloroethane (EDC)       | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| 1,2-Dibromoethane (EDB)        | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| Naphthalene                    | ND     | 20        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| 1-Methylnaphthalene            | ND     | 40        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| 2-Methylnaphthalene            | ND     | 40        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| Acetone                        | ND     | 100       | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| Bromobenzene                   | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |
| Bromodichloromethane           | ND     | 10        | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R15   |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

  - Not Detected at the Reporting Limit
    Page 16 of 48
    Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

### **Analytical Report** Lab Order 1312A59

Date Reported: 1/14/2014

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: IW-1

Lightning Dock Geothermal GW Quality Collection Date: 12/20/2013 5:00:00 PM Lab ID: 1312A59-003 Matrix: AQUEOUS Received Date: 12/21/2013 10:00:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed       | Batch                    |
|-----------------------------|--------|-------|----------|----|---------------------|--------------------------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Anal                | yst: cadg                |
| Bromoform                   | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Bromomethane                | ND     | 30    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 2-Butanone                  | ND     | 100   | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Carbon disulfide            | ND     | 100   | μg/L     | 10 | 12/28/2013 11:33:52 |                          |
| Carbon Tetrachloride        | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Chlorobenzene               | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Chloroethane                | ND     | 20    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Chloroform                  | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Chloromethane               | ND     | 30    | µg/∟     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 2-Chlorotoluene             | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 4-Chlorotoluene             | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| cis-1,2-DCE                 | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| cis-1,3-Dichloropropene     | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 1,2-Dibromo-3-chloropropane | ND     | 20    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Dibromochloromethane        | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Dibromomethane              | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Dichlorodifluoromethane     | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 1,1-Dichloroethane          | ND     | 10    | µg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 1,1-Dichloroethene          | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 1,2-Dichloropropane         | ND     | 10    | µg/∟     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 1,3-Dichloropropane         | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R157 <mark>7</mark> |
| 2,2-Dichloropropane         | ND     | 20    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 1,1-Dichloropropene         | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Hexachlorobutadiene         | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 2-Hexanone                  | ND     | 100   | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Isopropylbenzene            | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 4-Isopropyltoluene          | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:5  | 2 AM R1577               |
| 4-Methyl-2-pentanone        | ND     | 100   | µg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Methylene Chloride          | ND     | 30    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| n-Butylbenzene              | ND     | 30    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| n-Propylbenzene             | ND     | 10    | µg/∟     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| sec-Butylbenzene            | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| Styrene                     | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| tert-Butylbenzene           | ND     | 10    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 1,1,1,2-Tetrachloroethane   | ND     | 10    | µg/∟     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |
| 1,1,2,2-Tetrachloroethane   | ND     | 20    | μg/L     | 10 | 12/28/2013 11:33:52 | 2 AM R1577               |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 17 of 48 Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

# **Analytical Report**

#### Lab Order 1312A59

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/14/2014

CLIENT: Cyrq Energy Inc

Client Sample ID: IW-1

Lightning Dock Geothermal GW Quality Project:

Collection Date: 12/20/2013 5:00:00 PM

1312A59-003 Lab ID:

Matrix: AQUEOUS

Received Date: 12/21/2013 10:00:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed Ba          | atch  |
|--------------------------------|--------|--------|------|------------|----|---------------------------|-------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analyst: ca               | adg   |
| Tetrachloroethene (PCE)        | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R1 | 15774 |
| trans-1,2-DCE                  | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R1 | 15774 |
| trans-1,3-Dichloropropene      | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R1 | 15774 |
| 1,2,3-Trichlorobenzene         | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R1 | 15774 |
| 1,2,4-Trichlorobenzene         | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R1 | 15774 |
| 1,1,1-Trichloroethane          | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R1 | 15774 |
| 1,1,2-Trichloroethane          | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R1 | 15774 |
| Trichloroethene (TCE)          | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R1 | 15774 |
| Trichlorofluoromethane         | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R1 | 15774 |
| 1,2,3-Trichloropropane         | ND     | 20     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R  | 15774 |
| Vinyl chloride                 | ND     | 10     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R  | 15774 |
| Xylenes, Total                 | ND     | 15     |      | μg/L       | 10 | 12/28/2013 11:33:52 AM R  | 15774 |
| Surr: 1,2-Dichloroethane-d4    | 99.8   | 70-130 |      | %REC       | 10 | 12/28/2013 11:33:52 AM R  | 15774 |
| Surr: 4-Bromofluorobenzene     | 110    | 70-130 |      | %REC       | 10 | 12/28/2013 11:33:52 AM R  | 15774 |
| Surr: Dibromofluoromethane     | 107    | 70-130 |      | %REC       | 10 | 12/28/2013 11:33:52 AM R  | 15774 |
| Surr: Toluene-d8               | 94.1   | 70-130 |      | %REC       | 10 | 12/28/2013 11:33:52 AM R  | 15774 |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analyst: J                | ME    |
| Petroleum Hydrocarbons, TR     | 1.4    | 1.1    |      | mg/L       | 1  | 12/24/2013 10             | 0974  |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |            |    | Analyst: So               | СС    |
| Phenolics, Total Recoverable   | 6.7    | 2.5    |      | μg/L       | 1  | 1/8/2014 11               | 1134  |
| SM4500-H+B: PH                 |        |        |      |            |    | Analyst: SI               | RM    |
| рН                             | 8.59   | 1.68   | *H   | pH units   | 1  | 12/23/2013 7:15:09 PM R   | 15709 |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analyst: J!               | ML    |
| Bicarbonate (As CaCO3)         | 100    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:26:03 PM R   | 15744 |
| Carbonate (As CaCO3)           | 9.9    | 2.0    |      | mg/L CaCO3 | 1  | 12/26/2013 1:26:03 PM R   | 15744 |
| Total Alkalinity (as CaCO3)    | 110    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 1:26:03 PM R   | 15744 |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analyst: K                | S     |
| Total Dissolved Solids         | 1480   | 200    | *    | mg/L       | 1  | 12/27/2013 10:29:00 AM 10 | 0984  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range E
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded H
- ND Not Detected at the Reporting Limit
  - Not Detected at the Reporting Limit Page 18 of 48 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Analytical Report Lab Order 1312A59

Date Reported: 1/14/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: Trip Blank

Project: Lightning Dock Geothermal GW Quality Collection Date:

Lab ID: 1312A59-004 Matrix: TRIP BLANK Received Date: 12/21/2013 10:00:00 AM

| Analyses                                | Result   | RL Qu     | al Units     | DF | Date Analyzed        | Batch           |
|---|----------|-----------|--------------|----|----------------------|-----------------|
| EPA METHOD 8011/504.1: EDB              |          |           | .,           |    | Anal                 | yst: <b>LRW</b> |
| 1,2-Dibromoethane                       | ND       | 0.010     | μg/L         | 1  | 12/26/2013 3:13:39 ( | PM 10989        |
| EPA METHOD 8260B: VOLATILES             |          |           |              |    | Anal                 | yst: cadg       |
| Benzene                                 | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  | _               |
| Toluene                                 | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Ethylbenzene                            | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Methyl tert-butyl ether (MTBE)          | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 1,2,4-Trimethylbenzene                  | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 1,3,5-Trimethylbenzene                  | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 1,2-Dichloroethane (EDC)                | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 1,2-Dibromoethane (EDB)                 | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Naphthalene                             | ND       | 2.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 1-Methylnaphthalene                     | ND       | 4.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 2-Methylnaphthalene                     | ND       | 4.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Acetone                                 | ND       | 10        | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Bromobenzene                            | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Bromodichloromethane                    | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Bromoform                               | ND       | 1.0       | μg/L<br>μg/L | 1  | 12/28/2013 12:02:19  |                 |
| Bromomethane                            | ND       | 3.0       | μg/L<br>μg/L | 1  | 12/28/2013 12:02:19  |                 |
| 2-Butanone                              | ND<br>ND | 3.0<br>10 | μg/L<br>μg/L | 1  | 12/28/2013 12:02:19  |                 |
| Carbon disulfide                        | ND       | 10        | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Carbon distillide  Carbon Tetrachloride | ND       | 1.0       |              | 1  | 12/28/2013 12:02:19  |                 |
|   | ND       | 1.0       | μg/L         | 1  |                      |                 |
| Chlorobenzene                           |          | 2.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Chloroethane                            | ND<br>ND |           | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Chloroform                              | ND       | 1.0       | μg/L         |    | 12/28/2013 12:02:19  |                 |
| Chloromethane                           | ND       | 3.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 2-Chlorotoluene                         | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 4-Chlorotoluene                         | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| cis-1,2-DCE                             | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| cis-1,3-Dichloropropene                 | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 1,2-Dibromo-3-chloropropane             | ND       | 2.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Dibromochloromethane                    | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Dibromomethane                          | ND       | 1.0       | μg/L<br>"    | 1  | 12/28/2013 12:02:19  |                 |
| 1,2-Dichlorobenzene                     | ND       | 1.0       | μg/L<br>     | 1  | 12/28/2013 12:02:19  |                 |
| 1,3-Dichlorobenzene                     | ND       | 1.0       | μg/L<br>     | 1  | 12/28/2013 12:02:19  |                 |
| 1,4-Dichlorobenzene                     | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| Dichlorodifluoromethane                 | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 1,1-Dichloroethane                      | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 1,1-Dichloroethene                      | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  |                 |
| 1,2-Dichloropropane                     | ND       | 1.0       | μg/L         | 1  | 12/28/2013 12:02:19  | PM R15774       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Do
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### **Analytical Report**

Lab Order 1312A59

Date Reported: 1/14/2014

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc

Client Sample ID: Trip Blank

Lightning Dock Geothermal GW Quality Project:

**Collection Date:** 

Lab ID: 1312A59-004 Matrix: TRIP BLANK

Received Date: 12/21/2013 10:00:00 AM

| Analyses                    | Result | sult RL Qual |      | DF | Date Analyzed       | Batch       |
|-----------------------------|--------|--------------|------|----|---------------------|-------------|
| EPA METHOD 8260B: VOLATILES |        |              |      |    | Anal                | yst: cadg   |
| 1,3-Dichloropropane         | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 2,2-Dichloropropane         | ND     | 2.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 1,1-Dichloropropene         | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Hexachlorobutadiene         | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 2-Hexanone                  | ND     | 10           | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Isopropylbenzene            | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 4-Isopropyltoluene          | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 4-Methyl-2-pentanone        | ND     | 10           | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Methylene Chloride          | ND     | 3.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| n-Butylbenzene              | ND     | 3.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| n-Propylbenzene             | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| sec-Butylbenzene            | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Styrene                     | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| tert-Butylbenzene           | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Tetrachloroethene (PCE)     | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| trans-1,2-DCE               | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| trans-1,3-Dichloropropene   | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 1,2,3-Trichlorobenzene      | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 1,2,4-Trichlorobenzene      | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 1,1,1-Trichloroethane       | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 1,1,2-Trichloroethane       | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Trichloroethene (TCE)       | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Trichlorofluoromethane      | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| 1,2,3-Trichloropropane      | ND     | 2.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Vinyl chloride              | ND     | 1.0          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Xylenes, Total              | ND     | 1.5          | μg/L | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Surr: 1,2-Dichloroethane-d4 | 102    | 70-130       | %REC | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Surr: 4-Bromofluorobenzene  | 111    | 70-130       | %REC | 1  | 12/28/2013 12:02:19 | PM R15774   |
| Surr: Dibromofluoromethane  | 109    | 70-130       | %REC | 1  | 12/28/2013 12:02:19 | 9 PM R15774 |
| Surr: Toluene-d8            | 93.3   | 70-130       | %REC | 1  | 12/28/2013 12:02:19 | PM R15774   |
|                             |        |              |      |    |                     |             |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

- Not Detected at the Reporting Limit Page 20 of 48 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131224034

Address:

4901 HAWKINS NE SUITE D

**Project Name:** 

1312A59

Attn:

ALBUQUERQUE, NM 87109 ANDY FREEMAN

### **Analytical Results Report**

Sample Number

131224034-001

Water

Sampling Date

12/19/2013

Date/Time Received 12/24/2013 12:26 PM

Client Sample ID

1312A59-001M / LDG 45-7

Sampling Time

11:00 AM

Matrix Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 1/2/2014      | CRW     | EPA 335.4 |           |

Sample Number

131224034-002

Sampling Date 12/19/2013 Date/Time Received 12/24/2013 12:26 PM

Client Sample ID Matrix

1312A59-0010 / LDG 45-7 Water

Sampling Time 11:00 AM

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method   | Qualifier |
|-----------|--------|-------|------|---------------|---------|----------|-----------|
| Total P   | ND     | mg/L  | 0.01 | 1/7/2014      | CRW     | SM4500PF |           |

Sample Number

131224034-003

1312A59-002M / LDG 63-7

12/20/2013 Sampling Date Sampling Time 1:00 PM

Date/Time Received 12/24/2013 12:26 PM

Client Sample ID Matrix

Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 1/2/2014      | CRW     | EPA 335.4 |           |

Sample Number

131224034-004

12/20/2013 Sampling Date

Date/Time Received 12/24/2013 12:26 PM

Client Sample ID Matrix

1312A59-002O / LDG 63-7

Sampling Time 1:00 PM

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method   | Qualifier |
|-----------|--------|-------|------|---------------|---------|----------|-----------|
| Total P   | 0.0808 | mg/L  | 0.01 | 1/7/2014      | CRW     | SM4500PF |           |

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Friday, January 10, 2014 Page 1 of 2

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D - Spokane WA 99202 - (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131224034

Address:

4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109

**Project Name:** 

1312A59

Attn:

ANDY FREEMAN

**Analytical Results Report** 

Sample Number

131224034-005

Sampling Date

12/20/2013

Date/Time Received 12/24/2013 12:26 PM

Client Sample ID

1312A59-003M / IW-1

Sampling Time

5:00 PM

Matrix Comments Water

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 1/2/2014      | CRW     | EPA 335.4 | _         |

Sample Number

131224034-006

Sampling Date

12/20/2013

Date/Time Received 12/24/2013 12:26 PM

Client Sample ID

1312A59-003O / IW-1

Sampling Time 5:00 PM

Matrix

Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method   | Qualifier |
|-----------|--------|-------|------|---------------|---------|----------|-----------|
| Total P   | 1.92   | mg/L  | 0.01 | 1/7/2014      | CRW     | SM4500PF |           |

Authorized Signature

MCL

EPA's Maximum Contaminant Level

Not Detected

POI

Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory. The results reported relate only to the samples indicated.

Soil/solid results are reported on a dry-weight basis unless otherwise noted.

### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13120851-001

Client Sample ID: 1312A59-001K LDG 45-7

Revised Date: 01/14/14

Report Date: 01/09/14

Collection Date: 12/19/13 11:00

DateReceived: 12/24/13

Matrix: Aqueous

| •                       |        |       |            |      | MCL/ |          |                        |
|-------------------------|--------|-------|------------|------|------|----------|------------------------|
| Analyses                | Result | Units | Qualifiers | RL   | QCL  | Method   | Analysis Date / By     |
| METALS - DISSOLVED      |        |       |            |      |      |          |                        |
| Lithlum                 | 0.9    | mg/L  |            | 0.1  |      | E200.7   | 12/30/13 13:50 / eli-b |
| Rubidium                | 0.25   | mg/L  |            | 0.01 |      | E200.8   | 01/09/14 11:42 / eli-b |
| Ruthenium               | ND     | mg/L  |            | 0.01 |      | E200.8   | 01/09/14 11:42 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2  |      | E200.8   | 01/09/14 11:42 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |      |      |          |                        |
| Radon 222               | 2560   | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |
| Radon 222 precision (±) | 138    | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |
| Radon 222 MDC           | 184    | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13120851-002

Client Sample ID: 1312A59-002K LDG 63-7

Revised Date: 01/14/14

Report Date: 01/09/14 Collection Date: 12/20/13 13:00

DateReceived: 12/24/13

Matrix: Aqueous

|                         |        |       |            |      | MCL/ |          |                        |
|-------------------------|--------|-------|------------|------|------|----------|------------------------|
| Analyses                | Result | Units | Qualifiers | RL   | QCL  | Method   | Analysis Date / By     |
| METALS - DISSOLVED      |        |       |            |      |      |          |                        |
| Lithium                 | 0.6    | mg/L  |            | 0.1  |      | E200.7   | 12/30/13 14:01 / eli-b |
| Rubidium                | 0.07   | mg/L  |            | 0.01 |      | E200.8   | 01/09/14 11:46 / eli-b |
| Ruthenium               | ND     | mg/L  |            | 0.01 |      | E200.8   | 01/09/14 11:46 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2  |      | E200.8   | 01/09/14 11:46 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |      |      |          |                        |
| Radon 222               | 78.6   | pCi/L | U          |      |      | D5072-92 | 12/26/13 13:29 / dpb   |
| Radon 222 precision (±) | 87.6   | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |
| Radon 222 MDC           | 150    | pCi/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |

### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Ha

Hall Environmental

Lab ID:

Not Indicated C13120851-003

Client Sample ID: 1312A59-003K IW-1

Revised Date: 01/14/14

Report Date: 01/09/14

Collection Date: 12/20/13 17:00

DateReceived: 12/24/13

Matrix: Aqueous

|                         |               |      |            |      | MCL/ |          |                        |
|-------------------------|---------------|------|------------|------|------|----------|------------------------|
| nalyses                 | Result U      | nits | Qualifiers | RL   | QCL. | Method   | Analysis Date / By     |
| METALS - DISSOLVED      |               |      |            |      |      |          |                        |
| .ithium .               | 0.6 m         | ıg/L |            | 0.1  |      | E200.7   | 12/30/13 14:05 / eli-b |
| Rubidium                | <b>0.21</b> m | ıg/L |            | 0.01 |      | E200.8   | 01/09/14 11:50 / eli-b |
| Ruthenium               | ND m          | ıg/L |            | 0.01 |      | E200.8   | 01/09/14 11:50 / eli-b |
| fungsten                | ND m          | ng/L |            | 0.2  |      | E200.8   | 01/09/14 11:50 / eli-b |
| RADIONUCLIDES - TOTAL   |               |      |            |      |      |          |                        |
| Radon 222               | 1090 pt       | Ci/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |
| Radon 222 precision (±) | 98.3 pt       | Ci/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |
| Radon 222 MDC           | 145 pt        | Ci/L |            |      |      | D5072-92 | 12/26/13 13:29 / dpb   |

Client: Hall Environmental

Project: Not Indicated

# **QA/QC Summary Report**

Prepared by Casper, WY Branch

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Revised Date: 01/14/14
Report Date: 01/09/14
Work Order: C13120851

| Analyte                      | Count | Result       | Units       |   | RL | %REC | Low Limit | High Limit | RPD      | RPDLimit | Qual      |
|------------------------------|-------|--------------|-------------|---|----|------|-----------|------------|----------|----------|-----------|
| Methad: D5072-92             |       |              |             |   |    |      |           |            |          | Batch:   | R182062   |
| Sample ID: C13120851-003BDUI | 3 Sa  | mple Duplica | ate         |   |    |      | Run: PACK | ARD 3100TR | _131226A | 12/26    | /13 13:29 |
| Radon 222                    |       | 982          | pCi/L       |   |    |      |           |            | 10       | 20       |           |
| Radon 222 precision (±)      |       | 97.0         | pCi/L       |   |    |      |           |            |          |          |           |
| Radon 222 MDC                |       | 145          | pCi/L       |   |    |      |           |            |          |          |           |
| Sample ID: MB-R182062        | 3 Ме  | thod Blank   |             |   |    |      | Run: PACK | ARD 3100TR | _131226A | 12/26    | /13 13:29 |
| Radon 222                    |       | 9            | pCi/L       |   |    |      |           |            |          |          | u         |
| Radon 222 precision (±)      |       | 30           | pCi/L       |   |    |      |           |            |          |          |           |
| Radon 222 MDC                |       | 50           | pCi/L       |   |    |      |           |            |          |          |           |
| Sample ID: LCS-R182062       | Lal   | boratory Con | trol Sample | , |    |      | Run: PACK | ARD 3100TR | _131226A | 12/26    | /13 13:29 |
| Radon 222                    |       | 2210         | pCi/L       |   |    | 97   | 80        | 120        |          |          |           |

Client: Hall Environmental

Project: Not Indicated

# **QA/QC Summary Report**

Prepared by Casper, WY Branch

Revised Date: 01/14/14

Report Date: 01/09/14

Work Order: C13120851

| Analyte    |                    | Count        | Result        | Units                | RL         | %REC | Low Limit  | High Limit | RPD     | RPDLImit     | Qual      |
|------------|--------------------|--------------|---------------|----------------------|------------|------|------------|------------|---------|--------------|-----------|
| Method:    | E200.7             |              |               |                      |            |      | -          |            | Analyti | cal Run; SUB | -B21713   |
| Sample ID: | ICV                | Co           | ntinuing Cali | bration Verification | n Standard |      |            |            |         | 12/30        | /13 10:48 |
| Lithium    |                    |              | 1.20          | mg/L                 | 0.10       | 96   | 95         | 105        |         |              |           |
| Method:    | E200.7             |              |               |                      |            |      |            |            |         | Batch: B     | _R217135  |
| Sample ID: | MB-6500DIS131230A  | Me           | thod Blank    |                      |            |      | Run: SUB-F | 3217135    |         | 12/30        | /13 11:11 |
| Lithium    |                    |              | ND            | mg/L                 | 0.0003     |      |            |            |         |              |           |
| Sample ID: | LFB-6500DIS131230A | <b>A</b> Lat | oratory Fort  | ified Blank          |            |      | Run: SUB-E | 3217135    |         | 12/30        | /13 11:15 |
| Lithium    |                    |              | 1.02          | mg/L                 | 0.10       | 102  | 85         | 115        |         |              |           |
| Sample ID: | B13121948-001AMS2  | 2 Sa         | mple Matrix   | Spike                |            |      | Run: SUB-E | 3217135    |         | 12/30        | /13 13:35 |
| Lithium    |                    |              | 6.00          | mg/L                 | 0.10       | 101  | 70         | 130        |         |              |           |
| Sample ID: | B13121948-001AMS0  | 02 Sa        | mple Matrix   | Spike Duplicate      |            |      | Run: SUB-E | 3217135    |         | 12/30        | /13 13:38 |
| Lithium    |                    |              | 6.30          | mg/L                 | 0.10       | 107  | 70         | 130        | 4.8     | 20           |           |

Client: Hall Environmental

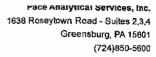
# **QA/QC Summary Report**

Prepared by Casper, WY Branch

Revised Date: 01/14/14 Report Date: 01/09/14

Work Order: C13120851 Project: Not Indicated

| Analyte    |                   | Count  | Result          | Units             | RL      | %REC | Low Limit  | High Limit | RPD      | RPDLimit     | Qual       |
|------------|-------------------|--------|-----------------|-------------------|---------|------|------------|------------|----------|--------------|------------|
| Method:    | E200.8            |        |                 |                   |         | -    |            |            | Analytic | cal Run: SUE | B217575    |
| Sample ID: | QCS-              | 3 Init | tial Calibratio | n Verification St | tandard |      |            | •          |          | 01/09        | /14 09:38  |
| Rubidium   |                   |        | 0.0527          | mg/L              | 0.010   | 105  | 90         | 110        |          |              |            |
| Ruthenium  |                   |        | 0.0520          | mg/L              | 0.010   | 104  | 90         | 110        |          |              |            |
| Tungsten   |                   |        | 0.0526          | mg/L              | 0.10    | 105  | .90        | 110        |          |              |            |
| Method:    | E200.8            |        |                 |                   |         |      |            |            |          | Batch: B     | R217575    |
| Sample ID: | LFB               | 3 Lal  | boratory Fort   | ified Blank       |         |      | Run: SUB-E | 3217575    |          | 01/09        | /14 09:54  |
| Rubidium   |                   |        | 0.0492          | mg/L              | 0.010   | 98   | 85         | 115        |          |              |            |
| Ruthenium  |                   |        | 0.0530          | mg/L              | 0.010   | 106  | 85         | 115        |          |              |            |
| Tungsten   |                   |        | 0.0508          | mg/L              | 0.10    | 102  | 85         | 115        |          |              |            |
| Sample ID: | LRB               | 3 Me   | ethod Blank     |                   |         |      | Run: SUB-E | 3217575    |          | 01/09        | /14 10:22  |
| Rubidium   |                   |        | ND              | mg/L              | 0.001   |      |            |            |          |              |            |
| Ruthenium  |                   |        | ND              | mg/L              | 0.001   |      |            |            |          |              |            |
| Tungsten   |                   |        | ND              | mg/L              | 0.001   |      |            |            |          |              |            |
| Sample ID: | B13121948-001AMS  | 2 Sa   | mple Matrix     | Spike             |         |      | Run: SUB-E | 3217575    |          | 01/09        | /14 11:54  |
| Ruthenium  |                   |        | 0.0536          | mg/L              | 0.010   | 107  | 70         | 130        |          |              |            |
| Tungsten   |                   |        | 0.141           | mg/L              | 0.10    | 137  | 70         | 130        |          |              | S          |
| Sample ID: | B13121948-001AMSD | ) 2 Sa | mple Matrix     | Spike Duplicate   |         |      | Run: SUB-E | 3217575    |          | 01/09        | 9/14 11:58 |
| Ruthenium  |                   |        | 0.0534          | mg/L              | 0.010   | 107  | 70         | 130        | 0.3      | 20           |            |
| Tungsten   |                   |        | 0.138           | mg/L              | 0.10    | 131  | 70         | 130        | 2.1      | 20           | S          |





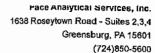
### **ANALYTICAL RESULTS**

Project:

1312A59

| Pace Project No.: 30110362           |                                 |  |              |                |               |      |
|--------------------------------------|---------------------------------|--|--------------|----------------|---------------|------|
| Sample: 1312A59-001 LDG 45-7<br>PWS: | Lab ID: 30110362001<br>Site ID: | Collected: 12/19/13 11:0<br>Sample Type: | 0 Received:  | 12/24/13 15:10 | Matrix: Water |      |
| Parameters                           | Method                          | Act ± Unc (MDC)                          | Units        | Analyzed       | CAS No.       | Qual |
| Radium-226                           | EPA 903.1 6.49                  | ± 1.35 (0.367)                           | pCi/L        | 01/08/14 11:27 | 13982-63-3    |      |
| Radium-228                           | EPA 904.0 0.52                  | 2 ± 0.331 (0.614)                        | pCi/L        | 01/09/14 13:06 | 5 15262-20-1  |      |
| Sample: 1312A59-002 LDG 63-7<br>PWS: | Lab ID: 30110362002<br>Site ID: | Collected: 12/20/13 13:0<br>Sample Type: | 00 Received: | 12/24/13 15:10 | Matrix: Water |      |
| Parameters                           | Method                          | Act ± Unc (MDC)                          | Units        | Analyzed       | CAS No.       | Qual |
| Radium-226                           | EPA 903.1 -0.2                  | 20 ± 0.306 (0.775)                       | pCi/L        | 01/08/14 11:29 | 9 13982-63-3  |      |
| Radium-228                           | EPA 904.0 0.01                  | 00 ± 0.365 (0.847)                       | pCi/L        | 01/09/14 13:29 | 9 15262-20-1  |      |
| Sample: 1312A59-003 IW-1             | Lab ID: 30110362003             |  | 00 Received: | 12/24/13 15:10 | Matrix: Water |      |
| PWS:                                 | Site ID:                        | Sample Type:                             |              |                |               |      |
| Parameters                           | Method                          | Act ± Unc (MDC)                          | Units        | Analyzed       | CAS No.       | Qual |
| Radium-226                           | EPA 903.1 1.04                  | ± 0.535 (0.561)                          | pCi/L        | 01/08/14 11:27 | 7 13982-63-3  |      |
| Radium-228                           | EPA 904.0 0.46                  | 62 ± 0.343 (0.666)                       | pCi/L        | 01/09/14 13:29 | 9 15262-20-1  |      |

### REPORT OF LABORATORY ANALYSIS





#### **QUALITY CONTROL DATA**

Project:

1312A59

Pace Project No.:

30110362

QC Batch:

RADC/18195

Analysis Method:

EPA 903.1

QC Batch Method:

EPA 903.1

Analysis Description:

Matrix: Water

903.1 Radium-226

Associated Lab Samples:

30110362001, 30110362002, 30110362003

METHOD BLANK: 674584 Associated Lab Samples:

30110362001, 30110362002, 30110362003

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-226

 $-0.102 \pm 0.246$  (0.614)

pCi/L

01/08/14 10:30



race Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

#### **QUALITY CONTROL DATA**

Project:

1312A59

Pace Project No.: 30110362

QC Batch:

RADC/18198

Analysis Method:

EPA 904.0

QC Batch Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples:

30110362001, 30110362002, 30110362003

METHOD BLANK: 674587

Matrix: Water

Associated Lab Samples:

30110362001; 30110362002, 30110362003

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-228

0.211 ± 0.277 (0.591)

pCi/L

01/09/14 13:04

#### **REPORT OF LABORATORY ANALYSIS**

# all Environmental Analysis Laboratory, Inc.

WO#:

1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID MB    | Samp <sup>*</sup> | Гуре: <b>МВ</b>   | LK        | Tes         | tCode: El | PA Method | 200.7: Disso | lved Meta | ls       |      |
|-----------------|-------------------|-------------------|-----------|-------------|-----------|-----------|--------------|-----------|----------|------|
| Client ID: PBW  | Batc              | h ID: <b>R1</b> 8 | 5707      | F           | RunNo: 1  | 5707      |              |           |          |      |
| Prep Date:      | Analysis [        | Date: 12          | /23/2013  | 5           | SeqNo: 4  | 53037     | Units: mg/L  |           |          |      |
| Analyte         | Result            | PQL               | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD      | RPDLimit | Qual |
| Aluminum        | ND                | 0.020             |           |             |           |           |              |           |          |      |
| Barium          | ND                | 0.0020            |           |             |           |           |              |           |          |      |
| Boron           | ND                | 0.040             |           |             |           |           |              |           |          |      |
| Cadmium         | ND                | 0.0020            |           |             |           |           |              |           |          |      |
| Cobalt          | ND                | 0.0060            |           |             |           |           |              |           |          |      |
| Iron            | ND                | 0.020             |           |             |           |           |              |           |          |      |
| Manganese       | ND                | 0.0020            |           |             |           |           |              |           |          |      |
| Molybdenum      | ND                | 0.0080            |           |             |           |           |              |           |          |      |
| Silver          | ND                | 0.0050            |           |             |           |           |              |           |          |      |
| Sample ID LCS   | Samp              | Гуре: LC:         | S         | Tes         | tCode: El | PA Method | 200.7: Disso | ved Meta  | ls       |      |
| Client ID: LCSW | Batc              | h ID: <b>R1</b> ! | 5707      | F           | RunNo: 1  | 5707      |              |           |          |      |

| Sample ID LCS   | Samp       | Type: LC        | s         | Tes         | tCode: El | PA Method | 200.7: Disso | ved Meta | ls       |      |
|-----------------|------------|-----------------|-----------|-------------|-----------|-----------|--------------|----------|----------|------|
| Client ID: LCSW | Bato       | h ID: <b>R1</b> | 5707      | F           | RunNo: 1  | 5707      |              |          |          |      |
| Prep Date:      | Analysis I | Date: 12        | 2/23/2013 | S           | SeqNo: 4  | 53038     | Units: mg/L  |          |          |      |
| Analyte         | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD     | RPDLimit | Qual |
| ^ '- minum      | 0.54       | 0.020           | 0.5000    | 0           | 107       | 85        | 115          |          |          |      |
| J.M.            | 0.49       | 0.0020          | 0.5000    | 0           | 97.1      | 85        | 115          |          |          |      |
| ion             | 0.50       | 0.040           | 0.5000    | 0           | 99.2      | 85        | 115          |          |          |      |
| Cadmium         | 0.49       | 0.0020          | 0.5000    | 0           | 98.6      | 85        | 115          |          |          |      |
| Cobalt          | 0.48       | 0.0060          | 0.5000    | 0           | 96.3      | 85        | 115          |          |          |      |
| Iron            | 0.49       | 0.020           | 0.5000    | 0           | 98.4      | 85        | 115          |          |          |      |
| Manganese       | 0.49       | 0.0020          | 0.5000    | 0           | 98.9      | 85        | 115          |          |          |      |
| Molybdenum      | 0.49       | 0.0080          | 0.5000    | 0           | 98.4      | 85        | 115          |          |          |      |
| Silver          | 0.099      | 0.0050          | 0.1000    | 0           | 98.7      | 85        | 115          |          |          |      |

| Sample ID  | МВ  | Samp       | SampType: MBLK  |           |             | tCode: E | PA Method      | 200.7: Dissol | ved Meta | s        |      |
|------------|-----|------------|-----------------|-----------|-------------|----------|----------------|---------------|----------|----------|------|
| Client ID: | PBW | Bato       | h ID: <b>R1</b> | 5768      | F           | RunNo: 1 | 15768          |               |          |          |      |
| Prep Date: |     | Analysis ( | Date: 12        | 2/27/2013 | S           | SeqNo:   | <b>1</b> 55078 | Units: mg/L   |          |          |      |
| Analyte    |     | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit       | HighLimit     | %RPD     | RPDLimit | Qual |
| Copper     |     | ND         | 0.0060          |           |             |          |                |               |          |          |      |
| Vickel     |     | ND         | 0.010           |           |             |          |                |               |          |          |      |
| Zinc       |     | ND         | 0.010           |           |             |          |                |               |          |          |      |

| Sample ID LCS   | SampTyp       | e: LCS               | Tes         | tCode: El | PA Method | 200.7: Disso | lved Meta | ls       |      |
|-----------------|---------------|----------------------|-------------|-----------|-----------|--------------|-----------|----------|------|
| Client ID: LCSW | Batch II      | D: <b>R15768</b>     | F           | RunNo: 1  | 5768      |              |           |          |      |
| Prep Date:      | Analysis Date | e: <b>12/27/2013</b> | S           | SeqNo: 4  | 55079     | Units: mg/L  |           |          |      |
| Analyte         | Result F      | PQL SPK value        | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD      | RPDLimit | Qual |
| Copper          | 0.51 0.       | 0060 0.5000          | 0           | 102       | 85        | 115          |           |          |      |

#### Qualifiers:

S

- Value exceeds Maximum Contaminant Level. Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits R Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND
- P Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

Not Detected at the Reporting Limit Page 21 of 48

# Hall Environmental Analysis Laboratory, Inc.

WO#: **1312A59 15-Jan-14** 

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID LCS   | SampT      | ype: <b>LC</b> | s         | TestCode: EPA Method 200.7: Dissolved Metals |          |          |             |      |          |      |  |
|-----------------|------------|----------------|-----------|--|----------|----------|-------------|------|----------|------|--|
| Client ID: LCSW | Batch      | ID: <b>R1</b>  | 5768      | R  | RunNo: 1 | 5768     |             |      |          |      |  |
| Prep Date:      | Analysis D | ate: 12        | 2/27/2013 | S  | SeqNo: 4 | 55079    | Units: mg/L |      |          |      |  |
| Analyte         | Result     | PQL            | SPK value | SPK Ref Val                                  | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |  |
| Nickel          | 0.50       | 0.010          | 0.5000    | 0  | 99.4     | 85       | 115         |      |          |      |  |
| Zinc            | 0.52       | 0.010          | 0.5000    | 0  | 103      | 85       | 115         |      |          |      |  |

| Sample ID MB   | Sampl      | Гуре: М         | 3LK       | Tes         | tCode: El | PA Method | 200.7: Dissol | ved Metal | s        |      |
|----------------|------------|-----------------|-----------|-------------|-----------|-----------|---------------|-----------|----------|------|
| Client ID: PBW | Batcl      | h ID: <b>R1</b> | 5805      | F           | RunNo: 1  | 5805      |               |           |          |      |
| Prep Date:     | Analysis [ | Date: 12        | 2/30/2013 | 8           | SeqNo: 4  | 56073     | Units: mg/L   |           |          |      |
| Analyte        | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD      | RPDLimit | Qual |
| Calcium        | ND         | 1.0             |           |             |           | -         |               |           |          |      |
| Iron           | ND         | 0.020           |           |             |           |           |               |           |          |      |
| Magnesium      | ND         | 1.0             |           |             |           |           |               |           |          |      |
| Potassium      | ND         | 1.0             |           |             |           |           |               |           |          |      |
| Sodium         | ND         | 1.0             |           |             |           |           |               |           |          |      |

| Sample ID LCS   | SampT      | ype: LC         | S         | TestCode: EPA Method 200.7: Dissolved Metals |          |          |             |      |          |      |
|-----------------|------------|-----------------|-----------|--|----------|----------|-------------|------|----------|------|
| Client ID: LCSW | Batch      | n ID: <b>R1</b> | 5805      | R  | RunNo: 1 | 5805     |             |      |          |      |
| Prep Date:      | Analysis D | ate: 12         | 2/30/2013 | S  | SeqNo: 4 | 56074    | Units: mg/L |      |          |      |
| Analyte         | Result     | PQL             | SPK value | SPK Ref Val                                  | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Calcium         | 50         | 1.0             | 50.00     | 0  | 101      | 85       | 115         |      |          |      |
| iron            | 0.54       | 0.020           | 0.5000    | 0  | 107      | 85       | 115         |      |          |      |
| Magnesium       | 51         | 1.0             | 50.00     | 0  | 102      | 85       | 115         |      |          |      |
| Potassium       | 50         | 1.0             | 50.00     | 0  | 101      | 85       | 115         |      |          |      |
| Sodium          | 50         | 1.0             | 50.00     | 0  | 100      | 85       | 115         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client:

Cyrq Energy Inc

| Project:   | Lightning      | Dock Geothe   | ermal  | GW Qual   | ity Monito  |          |             |                                       |      |          |      |
|------------|----------------|---------------|--------|-----------|-------------|----------|-------------|---------------------------------------|------|----------|------|
| Sample ID  | 1312A59-003JMS | SampType      | : MS   |           | Test        | Code: El | PA 200.8: D | issolved Met                          | als  |          |      |
| Client ID: | IW-1           | Batch ID      | : R15  | 5933      | R           | unNo: 1  | 5933        |                                       |      |          |      |
| Prep Date: |                | Analysis Date | : 1/7  | //2014    | S           | eqNo: 4  | 59412       | Units: mg/L                           |      |          |      |
| Analyte    |                | Result P      | QL     | SPK value | SPK Ref Val | %REC     | LowLimit    | HighLimit                             | %RPD | RPDLimit | Qual |
| Arsenic    |                |               | 010    | 0.02500   | 0.01338     | 90.2     | 70          | 130                                   |      |          |      |
| Lead       |                |               | 010    |           | .00007590   | 116      | 70          | 130                                   |      |          |      |
| Selenium   |                | 0.031 0.0     | 010    | 0.02500   | 0.01024     | 84.0     | 70<br>      | 130                                   |      |          |      |
| Sample ID  | LCS            | SampType      | : LC   | S         | Test        | Code: E  | PA 200.8: D | issolved Met                          | als  |          |      |
| Client ID: | LCSW           | Batch ID      | : R15  | 5933      | R           | lunNo: 1 | 5933        |                                       |      |          | İ    |
| Prep Date: |                | Analysis Date | : 1/7  | 7/2014    | S           | SeqNo: 4 | 59413       | Units: mg/L                           |      |          |      |
| Analyte    |                | Result P      | QL     | SPK value | SPK Ref Val | %REC     | LowLimit    | HighLimit                             | %RPD | RPDLimit | Qual |
| Lead       |                | 0.027 0.0     | 010    | 0.02500   | 0           | 106      | 85          | 115                                   |      |          |      |
| Sample ID  | LCS            | SampType      | e: LC  | s         | Test        | tCode: E | PA 200.8: [ | Dissolved Met                         | als  |          |      |
| Client ID: |                | Batch ID      | : R15  | 5933      | R           | RunNo: 1 | 5933        |                                       |      |          |      |
| Prep Date: |                | Analysis Date | : 1/7  | 7/2014    | S           | SeqNo: 4 | 59414       | Units: mg/L                           |      |          |      |
| Analyte    |                | Result P      | QL     | SPK value | SPK Ref Val | %REC     | LowLimit    | HighLimit                             | %RPD | RPDLimit | Qual |
| nic        |                |               | 010    | 0.02500   | 0           | 93.7     | 85          | 115                                   |      |          |      |
| enium      |                | 0.023 0.0     | 010    | 0.02500   | 0           | 92.5     | 85          | 115                                   |      |          |      |
| Sample ID  | MB             | SampType      | e: MB  | LK        | Tes         | tCode: E | PA 200.8: [ | Dissolved Met                         | als  |          |      |
| Client ID: | PBW            | Batch ID      | ): R1  | 5933      | F           | RunNo: 1 | 5933        |                                       |      |          |      |
| Prep Date: |                | Analysis Date | : 1/7  | 7/2014    | 5           | SeqNo: 4 | 59415       | Units: mg/L                           |      |          |      |
| Analyte    |                | Result F      | PQL    | SPK value | SPK Ref Val | %REC     | LowLimit    | HighLimit                             | %RPD | RPDLimit | Qual |
| Arsenic    |                | ND 0.0        | 0010   |           |             |          |             |                                       |      |          |      |
| Lead       |                |               | 0010   |           |             |          |             |                                       |      |          |      |
| Selenium   |                | ND 0.0        | 0010   |           |             |          |             | · · · · · · · · · · · · · · · · · · · |      |          |      |
| Sample ID  | 1312A59-003JMS | SampType      | e: MS  |           | Tes         | tCode: E | PA 200.8: [ | Dissolved Met                         | als  |          |      |
| Client ID: | JW-1           | Batch ID      | ): R1  | 5934      | F           | RunNo: 1 | 5934        |                                       |      |          |      |
| Prep Date: |                | Analysis Date | e: 1/7 | 7/2014    | \$          | SeqNo: 4 | 159483      | Units: mg/L                           |      |          |      |
| Analyte    |                | Result F      | PQL    | SPK value | SPK Ref Val | %REC     | LowLimit    | HighLimit                             | %RPD | RPDLimit | Qual |
| Uranium    |                | 0.034 0.0     | 0010   | 0.02500   | 0.001347    | 129      | 70          | 130                                   |      |          |      |
| Sample ID  | LCS            | SampType      | e: LC  | s         | Tes         | tCode: E | PA 200.8: I | Dissolved Me                          | tals |          |      |
| Client ID: |                | Batch ID      | ): R1  | 5934      | F           | RunNo: 1 | 5934        |                                       |      |          |      |
| Prep Date: |                | Analysis Date | e: 1/3 | 7/2014    | 5           | SeqNo: 4 | 159484      | Units: mg/L                           |      |          |      |
| Analyte    |                | Result F      | PQL    | SPK value | SPK Ref Val | %REC     | LowLimit    | HighLimit                             | %RPD | RPDLimit | Qual |
|            |                |               |        |           |             |          |             |                                       |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level. Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit RL

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# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Project:   |      | Lightning Dock Geothermal GW Qual | lity Monito  |
|------------|------|-----------------------------------|--|
| Sample ID  | LCS  | SampType: <b>LCS</b>              | TestCode: EPA 200.8: Dissolved Metals                  |
| Client ID: | LCSW | Batch ID: R15934                  | RunNo: <b>15934</b>                                    |
| Prep Date: |      | Analysis Date: 1/7/2014           | SeqNo: 459484 Units: mg/L                              |
| Analyte    |      | Result PQL SPK value              | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Arsenic    |      | 0.025 0.0010 0.02500              |  |
| Uranium    |      | 0.028 0.0010 0.02500              | 0 111 85 115   |
| Sample ID  | LCS  | SampType: LCS                     | TestCode: EPA 200.8: Dissolved Metals                  |
| Client ID: | LCSW | Batch ID: R15934                  | RunNo: <b>15934</b>                                    |
| Prep Date: |      | Analysis Date: 1/7/2014           | SeqNo: 459485 Units: mg/L                              |
| Analyte    |      | Result PQL SPK value              | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Arsenic    |      | 0.025 0.0010 0.02500              |  |
| Uranium    |      | 0.027 0.0010 0.02500              | 0 109 85 115   |
| Sample ID  | МВ   | SampType: <b>MBLK</b>             | TestCode: EPA 200.8: Dissolved Metals                  |
| Client ID: | PBW  | Batch ID: R15934                  | RunNo: <b>15934</b>                                    |
| Prep Date: |      | Analysis Date: 1/7/2014           | SeqNo: 459486 Units: mg/L                              |
| Analyte    |      | Result PQL SPK value              | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Arsenic    |      | ND 0.0010                         |  |
| Uranium    |      | ND 0.0010                         |  |
| Sample ID  | МВ   | SampType: <b>MBLK</b>             | TestCode: EPA 200.8: Dissolved Metals                  |
| Client ID: | PBW  | Batch ID: R15934                  | RunNo: <b>15934</b>                                    |
| Prep Date: |      | Analysis Date: 1/7/2014           | SeqNo: 459487 Units: mg/L                              |
| Analyte    |      | Result PQL SPK value              | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Arsenic    |      | ND 0.0010                         |  |
| Uranium    |      | ND 0.0010                         |  |
| Sample ID  | LCS  | SampType: LCS                     | TestCode: EPA 200.8: Dissolved Metals                  |
| Client ID: | LCSW | Batch ID: R15963                  | RunNo: <b>15963</b>                                    |
| Prep Date: |      | Analysis Date: 1/8/2014           | SeqNo: 460078 Units: mg/L                              |
| Analyte    |      | Result PQL SPK value              | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Uranium    |      | 0.025 0.0010 0.02500              | 0 101 85 115   |
| Sample ID  | МВ   | SampType: <b>MBLK</b>             | TestCode: EPA 200.8: Dissolved Metals                  |
| Client ID: | PBW  | Batch ID: R15963                  | RunNo: 15963   |
| Prep Date: |      | Analysis Date: 1/8/2014           | SeqNo: 460079 Units: mg/L                              |
| Analyte    |      | Result PQL SPK value              | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |
| Uranium    |      | ND 0.0010                         |  |

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

Sample ID MB-11092

SampType: MBLK

**PQL** 

SPK value SPK Ref Val

TestCode: EPA Method 245.1: Mercury

Client ID:

PBW

Batch ID: 11092

RunNo: 15947

Prep Date: 1/6/2014

Analysis Date: 1/7/2014

Result

SeqNo: 459682

Units: mg/L HighLimit

**RPDLimit** %RPD

Qual

Analyte Mercury

ND 0.00020

Sample ID LCS-11092

SampType: LCS

TestCode: EPA Method 245.1: Mercury

%REC LowLimit

Client ID: LCSW Batch ID: 11092

RunNo: 15947

Prep Date: 1/6/2014 Analysis Date: 1/7/2014

SeqNo: 459683

Units: mg/L

Analyte

PQL Result

%REC

HighLimit

%RPD **RPDLimit** 

SPK value SPK Ref Val

101

80

LowLimit

Qual

Mercury

0.0051 0.00020 0.005000

0

120

Qualifiers:

Value exceeds Maximum Contaminant Level. Value above quantitation range

Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits S

Analyte detected in the associated Method Blank В

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit RL

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID A6         |       | SampTy      | pe: CC          | V_6       | Test        | Code: El  | PA Method | 300.0: Anions | 1    |          |      |
|----------------------|-------|-------------|-----------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: Bat       | chQC  | Batch       | ID: R1          | 5706      | R           | tunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           |       | Analysis Da | ite: 12         | 2/23/2013 | S           | eqNo: 4   | 52922     | Units: mg/L   |      |          |      |
| Analyte              |       | Result      | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             |       | 12          | 0.50            | 12.00     | 0           | 103       | 90        | 110           |      |          |      |
| Bromide              |       | 12          | 0.10            | 12.00     | 0           | 102       | 90        | 110           |      |          |      |
| Sulfate              |       | 31          | 0.50            | 30.00     | 0           | 105       | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N |       | 13          | 0.20            | 12.00     | 0           | 107       | 90        | 110           |      |          |      |
| Sample ID A4         |       | SampTy      | pe: CC          | V_4       | Tes         | tCode: El | PA Method | 300.0: Anions | ;    |          |      |
| Client ID: Bat       | tchQC | Batch       | ID: <b>R1</b>   | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           |       | Analysis Da | ate: 12         | 2/23/2013 | S           | SeqNo: 4  | 52933     | Units: mg/L   |      |          |      |
| Analyte              |       | Result      | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             |       | 4.7         | 0.50            | 5.000     | 0           | 93.3      | 90        | 110           |      |          |      |
| Bromide              |       | 4.9         | 0.10            | 5.000     | 0           | 97.4      | 90        | 110           |      |          |      |
| Sulfate              |       | 12          | 0.50            | 12.50     | 0           | 94.3      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N |       | 4.8         | 0.20            | 5.000     | 0           | 96.7      | 90        | 110           |      |          |      |
| Sample ID ME         | 3     | SampTy      | /pe: Mf         | BLK       | Tes         | tCode: E  | PA Method | 300.0: Anions | ;    |          |      |
| Client ID: PB        | w     | Batch       | ID: <b>R1</b>   | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           |       | Analysis Da | ate: 12         | 2/23/2013 | 5           | SeqNo: 4  | 52935     | Units: mg/L   |      |          |      |
| Analyte              |       | Result      | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             |       | ND          | 0.50            |           |             |           |           |               |      |          |      |
| Bromide              |       | ND          | 0.10            |           |             |           |           |               |      |          |      |
| Sulfate              |       | ND          | 0.50            |           |             |           |           |               |      |          |      |
| Nitrate+Nitrite as N |       | ND          | 0.20            |           |             |           |           |               |      |          |      |
| Sample ID LC         | S     | SampTy      | /pe: <b>LC</b>  | s         | Tes         | tCode: E  | PA Method | 300.0: Anion  | 5    |          |      |
| Client ID: LC        | sw    | Batch       | ID: R1          | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           |       | Analysis Da | ate: 1          | 2/23/2013 | S           | SeqNo: 4  | 52936     | Units: mg/L   |      |          |      |
| Analyte              |       | Result      | PQL             |           | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             |       | 4.8         | 0.50            | 5.000     | 0           | 95.8      | 90        | 110           |      |          |      |
| Bromide              |       | 2.5         | 0.10            | 2.500     | 0           | 100       | 90        | 110           |      |          |      |
| Sulfate              |       | 9.7         | 0.50            | 10.00     | 0           | 97.2      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N |       | 3.5         | 0.20            | 3.500     | 0           | 99.7      | 90        | 110           |      |          |      |
| Sample ID A5         |       | SampTy      | /pe: <b>C</b> ( | CV_5      | Tes         | tCode: E  | PA Method | 300.0: Anion  | s    |          |      |
| Client ID: Bar       | tchQC | Batch       | ID: R1          | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           |       | Analysis Da | ate: 1          | 2/23/2013 | Ç           | SeqNo: 4  | 52945     | Units: mg/L   |      |          |      |
| Analyte              |       | Result      | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
|                      |       |             |                 |           |             |           |           |               |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client:

Cyrq Energy Inc

| Project:        | Lightning | g Dock Geo | otherma         | l GW Qual | ity Monito  |           |           |               |      |          |      |
|-----------------|-----------|------------|-----------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Sample ID       | A5        | SampT      | ype: CC         | V_5       | Tes         | tCode: El | PA Method | 300.0: Anions | 5    |          |      |
| Client ID:      | BatchQC   | Batch      | ID: <b>R1</b> : | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:      |           | Analysis D | ate: 12         | /23/2013  | S           | SeqNo: 4  | 52945     | Units: mg/L   |      |          |      |
| Analyte         |           | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride        |           | 7.8        | 0.50            | 8.000     | 0           | 96.9      | 90        | 110           |      |          |      |
| Bromide         |           | 7.9        | 0.10            | 8.000     | 0           | 99.0      | 90        | 110           |      |          |      |
| Sulfate         |           | 20         | 0.50            | 20.00     | 0           | 98.8      | 90        | 110           |      |          |      |
| Nitrate+Nitrite | as N      | 8.1        | 0.20            | 8.000     | 0           | 101       | 90        | 110           |      |          |      |
| Sample ID       | A4        | SampT      | уре: СС         | V_4       | Tes         | tCode: E  | PA Method | 300.0: Anion  | S    |          |      |
| Client ID:      | BatchQC   | Batch      | ID: <b>R1</b>   | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:      |           | Analysis D | ate: 12         | 2/23/2013 | 5           | SeqNo: 4  | 52957     | Units: mg/L   |      |          |      |
| Analyte         |           | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride        |           | 4.7        | 0.50            | 5.000     | 0           | 93.6      | 90        | 110           |      |          |      |
| Bromide         |           | 4.9        | 0.10            | 5.000     | 0           | 97.4      | 90        | 110           |      |          |      |
| Sulfate         |           | 12         | 0.50            | 12.50     | 0           | 95.4      | 90        | 110           |      |          |      |
| Nitrate+Nitrite | as N      | 4.9        | 0.20            | 5.000     | 0           | 97.5      | 90        | 110           |      |          |      |
| Sample ID       | A5        | SampT      | ype: CC         | V_5       | Tes         | tCode: E  | PA Method | 300.0: Anion  | S    |          |      |
| ent ID:         | BatchQC   | Batch      | 1D: <b>R1</b>   | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| rep Date:       |           | Analysis D | ate: 12         | 2/23/2013 | 5           | SeqNo: 4  | 52969     | Units: mg/L   |      |          |      |
| Analyte         |           | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride        |           | 7.6        | 0.50            | 8.000     | 0           | 95.2      | 90        | 110           |      |          |      |
| Bromide         |           | 7.8        | 0.10            | 8.000     | 0           | 97.1      | 90        | 110           |      |          |      |
| Sulfate         |           | 19         | 0.50            | 20.00     | 0           | 97.3      | 90        | 110           |      |          |      |
| Nitrate+Nitrite | as N      | 7.9        | 0.20            | 8.000     | 0           | 99.0      | 90        | 110           |      |          |      |
| Sample ID       | A4        | SampT      | ype: CC         | CV_4      | Tes         | tCode: E  | PA Method | 300.0: Anion  | s    |          |      |
| Client ID:      | BatchQC   | Batch      | 1D: <b>R</b> 1  | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:      |           | Analysis D | ate: 12         | 2/23/2013 | 5           | SeqNo: 4  | 52981     | Units: mg/L   |      |          |      |
| Analyte         |           | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride        |           | 4.7        | 0.50            | 5.000     | 0           | 93.6      | 90        | 110           |      |          |      |
| Bromide         |           | 4.9        | 0.10            | 5.000     | 0           | 97.4      | 90        | 110           |      |          |      |
| Sulfate         |           | 12         | 0.50            | 12.50     | 0           | 95.1      | 90        | 110           |      |          |      |
| Nitrate+Nitrite | as N      | 4.8        | 0.20            | 5.000     | 0           | 96.9      | 90        | 110           |      |          |      |
| Sample ID       | A5        | SampT      | ype: CC         | V_5       | Tes         | tCode: E  | PA Method | 300.0: Anion  | s    |          |      |
| Client ID:      | BatchQC   | Batch      | n ID: <b>R1</b> | 5706      | F           | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:      |           | Analysis D | ate: 12         | 2/24/2013 |             | SeqNo: 4  | 152993    | Units: mg/L   |      |          |      |

#### Qualifiers:

Analyte

Value exceeds Maximum Contaminant Level.

Result

PQL

- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits S
- Analyte detected in the associated Method Blank В

HighLimit

%RPD

- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit ND
- P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL

SPK value SPK Ref Val %REC LowLimit

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Qual

**RPDLimit** 

# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID A5         | SampT      | ype: CC        | V_5       | TestCode: EPA Method 300.0: Anions |           |           |               |      |          |      |
|----------------------|------------|----------------|-----------|------------------------------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC   | Batch      | ID: R1         | 5706      | F                                  | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           | Analysis D | ate: 12        | 2/24/2013 | S                                  | SeqNo: 4  | 52993     | Units: mg/L   |      |          |      |
| Analyte              | Result     | PQL            | SPK value | SPK Ref Val                        | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             | 7.7        | 0.50           | 8.000     | 0                                  | 96.3      | 90        | 110           |      |          |      |
| Bromide              | 7.8        | 0.10           | 8.000     | 0                                  | 97.9      | 90        | 110           |      |          |      |
| Sulfate              | 20         | 0.50           | 20.00     | 0                                  | 97.6      | 90        | 110           |      |          |      |
| Vitrate+Nitrite as N | 8.0        | 0.20           | 8.000     | 0                                  | 99.9      | 90        | 110           |      |          |      |
| Sample ID A4         | SampT      | ype: CC        | V_4       | Tes                                | tCode: El | PA Method | 300.0: Anions | 3    |          |      |
| Client ID: BatchQC   | Batch      | ID: <b>R1</b>  | 5706      | F                                  | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           | Analysis D | ate: 12        | 2/24/2013 | 5                                  | SeqNo: 4  | 53005     | Units: mg/L   |      |          |      |
| Analyte              | Result     | PQL            | SPK value | SPK Ref Val                        | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             | 4.6        | 0.50           | 5.000     | 0                                  | 92.4      | 90        | 110           |      |          |      |
| Bromide              | 4.8        | 0.10           | 5.000     | 0                                  | 96.5      | 90        | 110           |      |          |      |
| Sulfate              | 12         | 0.50           | 12.50     | 0                                  | 94.8      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N | 4.8        | 0.20           | 5.000     | 0                                  | 96.0      | 90        | 110           |      |          |      |
| Sample ID MB         | SampT      | ype: MI        | BLK       | Tes                                | tCode: El | PA Method | 300.0: Anions | 3    |          |      |
| Client ID: PBW       | Batch      | 1D: <b>R</b> 1 | 5706      | F                                  | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           | Analysis D | ate: 1         | 2/24/2013 | (                                  | SeqNo: 4  | 53007     | Units: mg/L   |      |          |      |
| Analyte              | Result     | PQL            | SPK value | SPK Ref Val                        | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             | ND         | 0.50           |           |                                    |           |           |               |      |          |      |
| Bromide              | ND         | 0.10           |           |                                    |           |           |               |      |          |      |
| Sulfate              | ND         | 0.50           |           |                                    |           |           |               |      |          |      |
| Nitrate+Nitrite as N | ND         | 0.20           |           |                                    |           |           |               |      |          |      |
| Sample ID LCS        | SampT      | ype: LC        | s         | Tes                                | tCode: El | PA Method | 300.0: Anion  | 3    |          |      |
| Client ID: LCSW      | Batch      | ı ID: R1       | 15706     | F                                  | RunNo: 1  | 5706      |               |      |          |      |
| Prep Date:           | Analysis D | ate: 1         | 2/24/2013 | 5                                  | SeqNo: 4  | 53008     | Units: mg/L   |      |          |      |
| Analyte              | Result     | PQL            | SPK value | SPK Ref Val                        | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride             | 4.8        | 0.50           | 5.000     | 0                                  | 95.0      | 90        | 110           |      |          |      |
| Bromide              | 2.5        | 0.10           | 2.500     | 0                                  | 99.0      | 90        | 110           |      |          |      |
| Sulfate              | 9.7        | 0.50           | 10.00     | 0                                  | 97.0      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as N | 3.5        | 0.20           | 3.500     | 0                                  | 98.9      | 90        | 110           |      |          |      |
| Sample ID A5         | SampT      | ype: Co        | CV_5      | Tes                                | tCode: E  | PA Method | 300.0: Anion  | 5    |          |      |
| Client ID: BatchQC   | Batch      | ı ID: R1       | 15706     | RunNo: 15706                       |           |           |               |      |          |      |
|                      |            |                |           |                                    |           |           |               |      |          |      |

#### Qualifiers:

Analyte

Prep Date:

Value exceeds Maximum Contaminant Level.

Analysis Date: 12/24/2013

SPK value SPK Ref Val

Result

- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

Units: mg/L

HighLimit

%RPD

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

SeqNo: 453017

%REC LowLimit

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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**RPDLimit** 

Qual

# all Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client:

Cyrq Energy Inc

| Project: Lightnir                | ng Dock Ge          | otherma                             | ıl GW Qual        | ity Monito  |                       |               |                    |      |          |          |
|----------------------------------|---------------------|-------------------------------------|-------------------|-------------|-----------------------|---------------|--------------------|------|----------|----------|
| Sample ID A5                     | SampT               | ype: CC                             | V_5               | Tes         | tCode: EF             | PA Method     | 300.0: Anion       | s    |          |          |
| Client ID: BatchQC               | Batch               | n ID: <b>R1</b>                     | 5706              | F           | RunNo: 1              | 5706          |                    |      |          |          |
| Prep Date:                       | Analysis D          | Date: 12                            | 2/24/2013         | S           | SeqNo: 4              | 53017         | Units: mg/L        |      |          |          |
| Analyte                          | Result              | PQL                                 | SPK value         | SPK Ref Val | %REC                  | LowLimit      | HighLimit          | %RPD | RPDLimit | Qual     |
| Chloride                         | 7.8                 | 0.50                                | 8.000             | 0           | 97.3                  | 90            | 110                |      |          |          |
| Bromide                          | 8.0                 | 0.10                                | 8.000             | 0           | 99.4                  | 90            | 110                |      |          |          |
| Sulfate                          | 20                  | 0.50                                | 20.00             | 0           | 98.6                  | 90            | <b>1</b> 10        |      |          |          |
| Nitrate+Nitrite as N             | 8.1                 | 0.20                                | 8.000             | 0           | 101                   | 90            | 110                |      |          |          |
| Sample ID A4                     | SampT               | ype: CC                             | CV_4              | Tes         | tCode: EI             | PA Method     | 300.0: Anion       | s    |          |          |
| Client ID: BatchQC               | Batch               | h ID: <b>R1</b>                     | 5706              | F           | RunNo: 1              | 5706          |                    |      |          |          |
| Prep Date:                       | Analysis D          | Date: 12                            | 2/24/2013         | 8           | SeqNo: 4              | 53027         | Units: mg/L        |      |          |          |
| Analyte                          | Result              | PQL                                 | SPK value         | SPK Ref Val | %REC                  | LowLimit      | HighLimit          | %RPD | RPDLimit | Qual     |
| Chloride                         | 4.8                 | 0.50                                | 5.000             | 0           | 95.0                  | 90            | 110                |      |          |          |
| Bromide                          | 4.9                 | 0.10                                | 5.000             | 0           | 98.4                  | 90            | 110                |      |          |          |
| Sulfate                          | 12                  | 0.50                                | 12.50             | 0           | 96.3                  | 90            | 110                |      |          |          |
| Nitrate+Nitrite as N             | 4.9                 | 0.20                                | 5.000             | 0           | 98.2                  | 90            | 110                |      |          |          |
| Sample ID MB                     | SampT               | ype: M                              | BLK               | Tes         | tCode: El             | PA Method     | 300.0: Anion       | s    |          |          |
| ent iD: PBW                      | Batch               | h ID: <b>R1</b>                     | 5742              | F           | RunNo: 1              | 5742          |                    |      |          |          |
| rep Date:                        | Analysis D          | Date: 12                            | 2/24/2013         | 9           | SeqNo: 4              | 54474         |                    |      |          |          |
| Analyte                          | Result              | PQL                                 | SPK value         | SPK Ref Val | %REC                  | LowLimit      | HighLimit          | %RPD | RPDLimit | Qual     |
| Fluoride                         | ND                  | 0.10                                |                   |             |                       |               |                    |      |          |          |
| Phosphorus, Orthophosphate (As P | ND                  | 0.50                                |                   |             |                       |               |                    |      |          |          |
| Sample ID LCS-b                  | SampT               | ype: <b>LC</b>                      | s                 | Tes         | tCode: El             | PA Method     | 300.0: Anion       | s    |          |          |
| Client ID: LCSW                  | Batcl               | h ID: <b>R1</b>                     | 5742              | F           | RunNo: 1              | 5742          |                    |      |          |          |
| Prep Date:                       | Analysis D          | Date: 12                            | 2/24/2013         | \$          | SeqNo: 4              | 54478         | Units: mg/L        |      |          |          |
| Analyte                          | Result              | PQL                                 |                   | SPK Ref Val | %REC                  | LowLimit      | HighLimit          | %RPD | RPDLimit | Qual     |
| Fluoride                         | 0.52                | 0.10                                | 0.5000            | 0           | 104                   | 90            | 110                |      |          |          |
| Phosphorus, Orthophosphate (As P | 4.7                 | 0.50                                | 5.000             | 0           | 95.0                  | 90            | 110                |      |          | <u> </u> |
|                                  |                     |                                     |                   |             |                       |               |                    |      |          |          |
| Sample ID A5                     | Samp1               | Гуре: <b>С</b> С                    | CV_5              | Tes         | tCode: El             | PA Method     | 300.0: Anion       | s    |          |          |
| Sample ID A5 Client ID: BatchQC  |                     | Гуре: <b>С</b> (<br>h ID: <b>R1</b> | _                 |             | tCode: El<br>RunNo: 1 |               | 300.0: Anion       | s    |          |          |
|                                  |                     | h ID: <b>R1</b>                     | 5742              | F           |                       | 5742          | Units: mg/L        |      |          |          |
| Client ID: BatchQC               | Batcl               | h ID: <b>R1</b>                     | 5742<br>2/24/2013 | F           | RunNo: 1              | 5742          |                    |      | RPDLimit | Qual     |
| Client ID: BatchQC Prep Date:    | Batcl<br>Analysis D | h ID: <b>R1</b><br>Date: <b>1</b> ; | 5742<br>2/24/2013 | F           | RunNo: 1:<br>SeqNo: 4 | 5742<br>54484 | Units: <b>mg/L</b> |      | RPDLimit | Qual     |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Value above quantitation range

Spike Recovery outside accepted recovery limits

- Not Detected at the Reporting Limit ND
- P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID A4                     | SampT      | Гуре: СС        | V_4       | Tes         | tCode: El | PA Method | 300.0: Anions | 5    |          |      |
|----------------------------------|------------|-----------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | h ID: <b>R1</b> | 5742      | R           | RunNo: 1  | 5742      |               |      |          |      |
| Prep Date:                       | Analysis D | Date: 12        | 2/24/2013 | S           | SeqNo: 4  | 54496     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.1        | 0.10            | 1.000     | 0           | 109       | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.8        | 0.50            | 5.000     | 0           | 95.7      | 90        | 110           |      |          |      |

| Sample ID A5                     | SampT      | ype: CC       | V_5       | Tes         | tCode: El | PA Method | 300.0: Anion | s    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|--------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5742      | F           | RunNo: 1  | 5742      |              |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/24/2013 | S           | SeqNo: 4  | 54508     | Units: mg/L  |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.8        | 0.10          | 1.600     | 0           | 109       | 90        | 110          |      |          |      |
| Phosphorus, Orthophosphate (As P | 8.0        | 0.50          | 8.000     | 0           | 99.9      | 90        | 110          |      |          |      |

| Sample ID A4                     | SampT      | ype: CC       | V_4       | Tes         | tCode: El | PA Method | 300.0: Anions | 5    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | ID: <b>R1</b> | 5742      | F           | RunNo: 1  | 5742      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/24/2013 | S           | SeqNo: 4  | 54513     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.1        | 0.10          | 1.000     | 0           | 107       | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.8        | 0.50          | 5.000     | . 0         | 96.9      | 90        | 110           |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

15-Jan-14

Qual

1312A59

WO#:

Cyrq Energy Inc Client:

Project: Lightning Dock Geothermal GW Quality Monito

SampType: MBLK TestCode: EPA Method 418.1: TPH Sample ID MB-10974

Client ID: PBW Batch ID: 10974 RunNo: 15713

Prep Date: 12/24/2013 Analysis Date: 12/24/2013 SeqNo: 453480 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Petroleum Hydrocarbons, TR ND 1.0

Sample ID LCS-10974 SampType: LCS TestCode: EPA Method 418.1: TPH Client ID: LCSW Batch ID: 10974 RunNo: 15713 Prep Date: 12/24/2013 Analysis Date: 12/24/2013 SeqNo: 453481 Units: mg/L Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Analyte

4.6 1.0 5.000 0 92.4 80 120 Petroleum Hydrocarbons, TR

Sample ID LCSD-10974 SampType: LCSD TestCode: EPA Method 418.1: TPH Batch ID: 10974 RunNo: 15713 Client ID: LCSS02 Prep Date: 12/24/2013 Analysis Date: 12/24/2013 SeqNo: 453482 Units: mg/L **RPDLimit** 

HighLimit SPK value SPK Ref Val %REC %RPD Result PQL LowLimit Analyte Petroleum Hydrocarbons, TR 4.7 1.0 5.000 0 94.8 80 120 2.56 20

#### Qualifiers:

- Value exceeds Maximum Contaminant Level. Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits S
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

Sample ID MB-10989

SampType: MBLK

TestCode: EPA Method 8011/504.1; EDB

Client ID: Prep Date:

Analyte

PBW

12/26/2013

Batch ID: 10989

RunNo: 15731

Analysis Date: 12/26/2013

SeqNo: 454148

Units: µg/L HighLimit

%RPD **RPDLimit**  Qual

1,2-Dibromoethane

Result ND

0.010

Sample ID LCS-10989 Client ID: LCSW

SampType: LCS

SPK value SPK Ref Val %REC LowLimit

TestCode: EPA Method 8011/504.1: EDB

RunNo: 15731

Prep Date: 12/26/2013 Batch ID: 10989

Analysis Date: 12/26/2013

SeqNo: 454165 %REC

Units: µg/L HighLimit

%RPD **RPDLimit** 

Qual

1,2-Dibromoethane

0.1000

0

117

70

LowLimit

130

Analyte

0.12

Result

**PQL** 0.010

SPK value SPK Ref Val

Qualifiers:

Value exceeds Maximum Contaminant Level.

E Value above quantitation range

Analyte detected below quantitation limits J

0 RSD is greater than RSDlimit

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded H

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

|   | Lightning Dock Geothermal GW Quality Monito |                                   |                            |  |                                  |   |   |  |      |          |      |
|---|---|-----------------------------------|----------------------------|--|----------------------------------|---|---|--|------|----------|------|
| Sample ID                               | MB-10979                                    | SampT                             | уре: МЕ                    | BLK  | Test                             | Code: El  | PA Method                                     | 8082: PCB's                                    |      |          |      |
| Client ID:                              | PBW   | Batch                             | ID: 10                     | 979  | R                                | lunNo: 1  | 5776  |  |      |          |      |
| Prep Date:                              | 12/24/2013                                  | Analysis D                        | ate: 12                    | 2/29/2013                                    | S                                | eqNo: 4   | 55290   | Units: µg/L                                    |      |          |      |
| Analyte                                 |   | Result                            | PQL                        | SPK value                                    | SPK Ref Val                      | %REC  | LowLimit                                      | HighLimit                                      | %RPD | RPDLimit | Qual |
| Aroclor 1016                            |   | ND                                | 1.0                        |  |                                  |   |   |  |      |          |      |
| Aroclor 1221                            |   | ND                                | 1.0                        |  |                                  |   |   |  |      |          |      |
| Arodor 1232                             |   | ND                                | 1.0                        |  |                                  |   |   |  |      |          |      |
| Aroclor 1242                            |   | ND                                | 1.0                        |  |                                  |   |   |  |      |          |      |
| Aroclor 1248                            |   | ND                                | 1.0                        |  |                                  |   |   |  |      |          |      |
| Aroclor 1254                            |   | ND                                | 1.0                        |  |                                  |   |   |  |      |          |      |
| Aroclor 1260                            |   | ND                                | 1.0                        |  |                                  |   |   |  |      |          |      |
| Surr: Decacl                            | hlorobiphenyl                               | 2.1                               |                            | 2.500  |                                  | 82.4  | 17  | 123  |      |          |      |
| Surr: Tetracl                           | hloro-m-xylene                              | 2.0                               |                            | 2.500  |                                  | 81.6  | 22.6  | 113  |      |          |      |
| Sample ID                               | 1312A59-003CMS                              | SampT                             | ype: MS                    | 3  | Tes                              | tCode: E  | PA Method                                     |  |      |          |      |
| Client ID:                              | IW-1  | Batch                             | Batch ID: 10979            |  |                                  | RunNo: 1  | 5776  |  |      |          |      |
| Prep Date:                              | 12/24/2013                                  | Analysis D                        | ate: 12                    | 2/30/2013                                    | S                                | SeqNo: 4  | 56259   | Units: µg/L                                    |      |          |      |
| Analyte                                 |   | Result                            | PQL                        | SPK value                                    | SPK Ref Val                      | %REC  | LowLimit                                      | HighLimit                                      | %RPD | RPDLimit | Qual |
| ^dor 1016                               |   | 2.8                               | 1.0                        | 5.000  | 0                                | 55.4  | 70  | 130  |      |          | S    |
| lor 1260                                |   | 3.3                               | 1.0                        | 5.000  | 0                                | 65.9  | 61.1  | 129  |      |          |      |
| Surr: Decac                             | hlorobiphenyl                               | 1.9                               |                            | 2.500  |                                  | 74.4  | 17  | 123  |      |          |      |
| Surr: Tetrac                            | hloro-m-xylene                              | 1.6                               |                            | 2.500  |                                  | 65.6  | 22.6  | 113  |      |          |      |
| Sample ID                               | 1312A59-003CMS                              | <b>D</b> SampT                    | ype: MS                    | SD   | TestCode: EPA Method 8082: PCB's |   |   |  |      |          |      |
| Client ID:                              | IW-1  | Batch                             | 1D: <b>10</b>              | 979  | F                                | RunNo: 1  | 5776  |  |      |          |      |
| Prep Date:                              | 12/24/2013                                  | Analysis D                        | ate: 1                     | 2/30/2013                                    | S                                | SeqNo: 4  | 56260   | Units: µg/L                                    |      |          |      |
| Analyte                                 |   | Result                            | PQL                        | SPK value                                    | SPK Ref Val                      | %REC  | LowLimit                                      | HighLimit                                      | %RPD | RPDLimit | Qual |
| Aroclor 1016                            |   | 3.0                               | 1.0                        | 5.000  | 0                                | 59.9  | 70  | 130  | 7.70 | 20       | S    |
| Aroclor 1260                            |   | 3.6                               | 1.0                        | 5.000  | 0                                | 71.1  | 61.1  | 129  | 7.53 | 12.9     |      |
| Surr: Decac                             | blorobinhenyl                               |                                   |                            |  |                                  |   |   |  |      |          |      |
|   | nioropipnenyi                               | 2.0                               |                            | 2.500  |                                  | 80.8  | 17  | 123  | 0    | 0        |      |
| Surr: Tetrac                            | hloro-m-xylene                              | 2.0<br>1.8                        |                            | 2.500<br>2.500                               |                                  | 80.8<br>70.4  | 17<br>22.6                                    | 123<br>113                                     | 0    | 0        |      |
|   |   | 1.8                               | ype: L0                    | 2.500  | Tes                              | 70.4  | 22.6  |  |      |          |      |
|   | hloro-m-xylene                              | 1.8<br>SampT                      | ype: <b>L</b> 0            | 2.500  |                                  | 70.4  | 22.6<br>PA Method                             | 113  |      |          |      |
| Sample ID                               | LCS-10979                                   | 1.8<br>SampT                      | n ID: 10                   | 2.500<br>CS<br>1979                          | F                                | 70.4<br>tCode: <b>E</b>                                 | 22.6<br>PA Method<br>5776                     | 113  |      |          |      |
| Sample ID<br>Client ID:                 | LCS-10979                                   | 1.8 SampT Batch Analysis D Result | n ID: 10                   | 2.500<br>CS<br>979<br>2/31/2013<br>SPK value | F<br>S<br>SPK Ref Val            | 70.4<br>tCode: <b>E</b><br>RunNo: 1<br>SeqNo: 4<br>%REC | 22.6 PA Method 5776 956267 LowLimit           | 113<br>8082: PCB's<br>Units: µg/L<br>HighLimit |      |          | Qual |
| Sample ID<br>Client ID:<br>Prep Date:   | LCS-10979                                   | SampT<br>Batch<br>Analysis D      | n ID: <b>10</b><br>Date: 1 | 2.500<br>CS<br>1979<br>2/31/2013             | F                                | 70.4<br>tCode: <b>E</b><br>RunNo: 1<br>SeqNo: 4         | 22.6  PA Method  5776  I56267  LowLimit  18.6 | 113  8082: PCB's  Units: µg/L  HighLimit  134  | 0    | 0        | Qual |
| Sample ID Client ID: Prep Date: Analyte | LCS-10979                                   | 1.8 SampT Batch Analysis D Result | n ID: 10<br>Pate: 1        | 2.500<br>CS<br>979<br>2/31/2013<br>SPK value | F<br>S<br>SPK Ref Val            | 70.4<br>tCode: <b>E</b><br>RunNo: 1<br>SeqNo: 4<br>%REC | 22.6 PA Method 5776 956267 LowLimit           | 113<br>8082: PCB's<br>Units: µg/L<br>HighLimit | 0    | 0        | Qual |

#### Qualifiers:

Surr: Tetrachloro-m-xylene

Value exceeds Maximum Contaminant Level. Value above quantitation range

2.9

2.500

- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit

116

- P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

113

22.6

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S

# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID 5mL rb               |            | ype: MBL         |           | Test        | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|--------------------------------|------------|------------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: PBW                 | Batch      | 1D: <b>R15</b> 7 | 774       | R           | tunNo: 1  | 5774      |             |        |          |      |
| Prep Date:                     | Analysis D | ate: 12/2        | 27/2013   | S           | seqNo: 4  | 55189     | Units: µg/L |        |          |      |
| Analyte                        | Result     | PQL S            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Toluene                        | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Ethylbenzene                   | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Naphthalene                    | ND         | 2.0              |           |             |           |           |             |        |          |      |
| 1-Methylnaphthalene            | ND         | 4.0              |           |             |           |           |             |        |          |      |
| 2-Methylnaphthalene            | ND         | 4.0              |           |             |           |           |             |        |          |      |
| Acetone                        | ND         | 10               |           |             |           |           |             |        |          |      |
| Bromobenzene                   | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Bromodichloromethane           | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Bromoform                      | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Bromomethane                   | ND         | 3.0              |           |             |           |           |             |        |          |      |
| 2-Butanone                     | ND         | 10               |           |             |           |           |             |        |          |      |
| Carbon disulfide               | ND         | 10               |           |             |           |           |             |        |          |      |
| Carbon Tetrachloride           | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Chlorobenzene                  | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Chloroethane                   | ND         | 2.0              |           |             |           |           |             |        |          |      |
| Chloroform                     | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Chloromethane                  | ND         | 3.0              |           |             |           |           |             |        |          |      |
| 2-Chlorotoluene                | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 4-Chlorotoluene                | ND         | 1.0              |           |             |           |           |             |        |          |      |
| cis-1,2-DCE                    | ND         | 1.0              |           |             |           |           |             |        |          |      |
| cis-1,3-Dichloropropene        | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,2-Dibromo-3-chloropropane    | ND         | 2.0              |           |             |           |           |             |        |          |      |
| Dibromochloromethane           | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Dibromomethane                 | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,2-Dichlorobenzene            | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,3-Dichlorobenzene            | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,4-Dichlorobenzene            | ND         | 1.0              |           |             |           |           |             |        |          |      |
| Dichlorodifluoromethane        | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethane             | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethene             | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,2-Dichloropropane            | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 1,3-Dichloropropane            | ND         | 1.0              |           |             |           |           |             |        |          |      |
| 2,2-Dichloropropane            | ND         | 2.0              |           |             |           |           |             |        |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

1312A59 15-Jan-14

WO#:

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID 5mL rb            | SampT      | уре: МЕ | BLK       | Test        | Code: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|---------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch      | ID: R1  | 5774      | R           | tunNo: 1 | 5774      |             |        |          |      |
| Prep Date:                  | Anatysis D | ate: 12 | 2/27/2013 | S           | SeqNo: 4 | 55189     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL     | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,1-Dichloropropene         | ND         | 1.0     |           |             |          |           |             |        |          |      |
| Hexachlorobutadiene         | ND         | 1.0     |           |             |          |           |             |        |          |      |
| 2-Hexanone                  | ND         | 10      |           |             |          |           |             |        |          |      |
| Isopropylbenzene            | ND         | 1.0     |           |             |          |           |             |        |          |      |
| 4-Isopropyltoluene          | ND         | 1.0     |           |             |          |           |             |        |          |      |
| 4-Methyl-2-pentanone        | ND         | 10      |           |             |          |           |             |        |          |      |
| Methylene Chloride          | ND         | 3.0     |           |             |          |           |             |        |          |      |
| n-Butylbenzene              | ND         | 3.0     |           |             |          |           |             |        |          |      |
| n-Propylbenzene             | ND         | 1.0     |           |             |          |           |             |        |          |      |
| sec-Butylbenzene            | ND         | 1.0     |           |             |          |           |             |        |          |      |
| Styrene                     | ND         | 1.0     |           |             |          |           |             |        |          |      |
| tert-Butylbenzene           | ND         | 1.0     |           |             |          |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND         | 1.0     |           |             |          |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND         | 2.0     |           |             |          |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND         | 1.0     |           |             |          |           |             |        |          |      |
| s-1,2-DCE                   | ND         | 1.0     |           |             |          |           |             |        |          |      |
| 3-1,3-Dichloropropene       | ND         | 1.0     |           |             |          |           |             |        |          |      |
| _,3-Trichlorobenzene        | ND         | 1.0     |           |             |          |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND         | 1.0     |           |             |          |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND         | 1.0     |           |             |          |           |             |        |          |      |
| 1,1,2-Trichloroethane       | ND         | 1.0     |           |             |          |           |             |        |          |      |
| Trichloroethene (TCE)       | NÐ         | 1.0     |           |             |          |           |             |        |          |      |
| Trichlorofluoromethane      | NĐ         | 1.0     |           |             |          |           |             |        |          |      |
| 1,2,3-Trichloropropane      | ND         | 2.0     |           |             |          |           |             |        |          |      |
| Vinyl chloride              | ND         | 1.0     |           |             |          |           |             |        |          |      |
| Xylenes, Total              | ND         | 1.5     |           |             |          |           |             |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 11         |         | 10.00     |             | 107      | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 11         |         | 10.00     |             | 114      | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 12         |         | 10.00     |             | 116      | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 11         |         | 10.00     |             | 105      | 70        | 130         |        |          |      |

| Sample ID 100ng Ics | SampT                     | ype: LC | s         | TestCode: EPA Method 8260B: VOLATILES |                      |          |           |      |          |      |
|---------------------|---------------------------|---------|-----------|---------------------------------------|----------------------|----------|-----------|------|----------|------|
| Client ID: LCSW     | Batch ID: R15774          |         |           | R                                     | unNo: 1              | 5774     |           |      |          |      |
| Prep Date:          | Analysis Date: 12/27/2013 |         |           | S                                     | SeqNo: <b>455191</b> |          |           |      |          |      |
| Analyte             | Result                    | PQL     | SPK value | SPK Ref Val                           | %REC                 | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Benzene             | 20                        | 1.0     | 20.00     | 0                                     | 102                  | 70       | 130       |      |          |      |
| Toluene             | 20                        | 1.0     | 20.00     | 0                                     | 99.3                 | 82.2     | 124       |      |          |      |
| Chlorobenzene       | 19                        | 1.0     | 20.00     | 0                                     | 94.2                 | 70       | 130       |      |          |      |

#### Qualifiers:

Value exceeds Maximum Contaminant Level. Value above quantitation range

- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Holding times for preparation or analysis exceeded Н
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit RL

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID 100ng Ics            | SampType: LCS |                |           | Tes         | tCode: El |           |             |        |          |      |
|--------------------------------|---------------|----------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: LCSW                | Batch         | 1D: <b>R1</b>  | 5774      | F           | RunNo: 1  |           |             |        |          |      |
| Prep Date:                     | Analysis D    | ate: 12        | 2/27/2013 | 5           | SeqNo: 4  | 55191     | Units: µg/L |        |          |      |
| Analyte                        | Result        | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,1-Dichloroethene             | 23            | 1.0            | 20.00     | 0           | 116       | 83.5      | 155         |        |          |      |
| Trichloroethene (TCE)          | 18            | 1.0            | 20.00     | 0           | 91.7      | 70        | 130         |        |          |      |
| Surr: 1,2-Dichloroethane-d4    | 9.8           |                | 10.00     |             | 98.3      | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene     | 11            |                | 10.00     |             | 114       | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane     | 10            |                | 10.00     |             | 101       | 70        | 130         |        |          |      |
| Surr: Toluene-d8               | 10            |                | 10.00     |             | 100       | 70        | 130         |        |          |      |
| Sample ID b5                   | SampT         | SampType: MBLK |           |             | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
| Client ID: PBW                 | Batch         | ı ID: R1       | 5774      | F           | RunNo: 1  | 5774      |             |        |          |      |
| Prep Date:                     | Analysis D    | ate: 12        | 2/27/2013 |             | SeqNo: 4  | 55218     | Units: µg/L |        |          |      |
| Analyte                        | Result        | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND            | 1.0            |           |             |           |           |             |        |          |      |
| Toluene                        | ND            | 1.0            |           |             |           |           |             |        |          |      |
| Ethylbenzene                   | ND            | 1.0            |           |             |           |           |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND            | 1.0            |           |             |           |           |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND            | 1.0            |           |             |           |           |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND            | 1.0            |           |             |           |           |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND            | 1.0            |           |             |           |           |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND            | 1.0            |           |             |           |           |             |        |          |      |
| Naphthalene                    | ND            | 2.0            |           |             |           |           |             |        |          |      |
| 1-Methylnaphthalene            | ND            | 4.0            |           |             |           |           |             |        |          |      |
| 2-Methylnaphthalene            | ND            | 4.0            |           |             |           |           |             |        |          |      |
| Acetone                        | ND            | 10             |           |             |           |           |             |        |          |      |
| Bromobenzene                   | ND            | 1.0            |           |             |           |           |             |        |          |      |
| Bromodichloromethane           | ND            | 1.0            |           |             |           |           |             |        |          |      |
| Bromoform                      | ND            | 1.0            |           |             |           |           |             |        |          |      |
| Bromomethane                   | ND            | 3.0            |           |             |           |           |             |        |          |      |
| 2-Butanone                     | ND            | 10             |           |             |           |           |             |        |          |      |
| Carbon disulfide               | ND            | 10             |           |             |           |           |             |        |          |      |
| Carbon Tetrachloride           | ND            | 1.0            |           |             |           |           |             |        |          |      |
| Chlorobenzene                  | ND            | 1.0            |           |             |           |           |             |        |          |      |
| Chloroethane                   | ND            | 2.0            |           |             |           |           |             |        |          |      |
| Chloroform                     | ND            | 1.0            |           |             |           |           |             |        |          |      |
| Chloromethane                  | ND            | 3.0            |           |             |           |           |             |        |          |      |
| 2-Chlorotoluene                | ND            | 1.0            |           |             |           |           |             |        |          |      |
| 4-Chlorotoluene                | ND            | 1.0            |           |             |           |           |             |        |          |      |
| cis-1,2-DCE                    | ND            | 1.0            |           |             |           |           |             |        |          |      |
| cis-1,3-Dichloropropene        | ND            | 1.0            |           |             |           |           |             |        |          |      |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID b5                | SampT      | ype: ME | BLK       | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|---------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch      | ID: R1  | 5774      | F           | RunNo: 1  | 5774      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 12 | 2/27/2013 | \$          | SeqNo: 4  | 55218     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,2-Dibromo-3-chloropropane | ND         | 2.0     |           |             |           |           |             |        |          |      |
| Dibromochloromethane        | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Dibromomethane              | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2-Dichlorobenzene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,3-Dichlorobenzene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,4-Dichlorobenzene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Dichlorodifluoromethane     | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethane          | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethene          | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2-Dichloropropane         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,3-Dichloropropane         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 2,2-Dichloropropane         | ND         | 2.0     |           |             |           |           |             |        |          |      |
| 1,1-Dichloropropene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Hexachlorobutadiene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 2-Hexanone                  | ND         | 10      |           |             |           |           |             |        |          |      |
| ropylbenzene                | ND         | 1.0     |           |             |           |           |             |        |          |      |
| propyltoluene               | ND         | 1.0     |           |             |           |           |             |        |          |      |
| .vethyl-2-pentanone         | ND         | 10      |           |             |           |           |             |        |          |      |
| Methylene Chloride          | ND         | 3.0     |           |             |           |           |             |        |          |      |
| n-Butylbenzene              | ND         | 3.0     |           |             |           |           |             |        |          |      |
| n-Propylbenzene             | ND         | 1.0     |           |             |           |           |             |        |          |      |
| sec-Butylbenzene            | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Styrene                     | ND         | 1.0     |           |             |           |           |             |        |          |      |
| tert-Butylbenzene           | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND         | 2.0     |           |             |           |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND         | 1.0     |           |             |           |           |             |        |          |      |
| trans-1,2-DCE               | ND         | 1.0     |           |             |           |           |             |        |          |      |
| trans-1,3-Dichloropropene   | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2,3-Trichlorobenzene      | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1,2-Trichloroethane       | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Trichloroethene (TCE)       | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Trichlorofluoromethane      | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2,3-Trichloropropane      | ND         | 2.0     |           |             |           |           |             |        |          |      |
| Vinyl chloride              | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Xylenes, Total              | ND         | 1.5     |           |             |           |           |             |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 10         | 1.0     | 10.00     |             | 101       | 70        | 130         |        |          |      |
| ouir. 1,2-Dichloroethane-u4 | 10         |         | 10.00     |             | 101       | 70        | 130         |        |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
   Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

**Project:** 

Lightning Dock Geothermal GW Quality Monito

| Sample ID b5               | SampType: MBLK            |     |           | Tes           | tCode: El |          |           |      |          |      |
|----------------------------|---------------------------|-----|-----------|---------------|-----------|----------|-----------|------|----------|------|
| Client ID: PBW             | Batch ID: R15774          |     |           | F             | RunNo: 1  | 5774     |           |      |          |      |
| Prep Date:                 | Analysis Date: 12/27/2013 |     | S         | SeqNo: 455218 |           |          |           |      |          |      |
| Analyte                    | Result                    | PQL | SPK value | SPK Ref Val   | %REC      | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Surr: 4-Bromofluorobenzene | 11                        |     | 10.00     |               | 111       | 70       | 130       |      |          |      |
| Surr: Dibromofluoromethane | 11                        |     | 10.00     |               | 108       | 70       | 130       |      |          |      |
| Surr: Toluene-d8           | 10                        |     | 10.00     |               | 103       | 70       | 130       |      |          |      |

| Sample ID 100ng lcs 2       | SampT                     | ype: <b>LC</b>  | s         | Tes         | TestCode: EPA Method 8260B: VOLATILES |          |           |      |          |      |  |
|-----------------------------|---------------------------|-----------------|-----------|-------------|---------------------------------------|----------|-----------|------|----------|------|--|
| Client ID: LCSW             | Batch                     | n ID: <b>R1</b> | 5774      | F           | RunNo: 1                              |          |           |      |          |      |  |
| Prep Date:                  | Analysis Date: 12/27/2013 |                 |           | 5           | SeqNo: 455220                         |          |           |      |          |      |  |
| Analyte                     | Result                    | PQL             | SPK value | SPK Ref Val | %REC                                  | LowLimit | HighLimit | %RPD | RPDLimit | Qual |  |
| Benzene                     | 21                        | 1.0             | 20.00     | 0           | 106                                   | 70       | 130       |      |          |      |  |
| Toluene                     | 19                        | 1.0             | 20.00     | 0           | 95.1                                  | 82.2     | 124       |      |          |      |  |
| Chlorobenzene               | 19                        | 1.0             | 20.00     | 0           | 93.5                                  | 70       | 130       |      |          |      |  |
| 1,1-Dichloroethene          | 24                        | 1.0             | 20.00     | 0           | 122                                   | 83.5     | 155       |      |          |      |  |
| Trichloroethene (TCE)       | 19                        | 1.0             | 20.00     | 0           | 93.7                                  | 70       | 130       |      |          |      |  |
| Surr: 1,2-Dichloroethane-d4 | 10                        |                 | 10.00     |             | 101                                   | 70       | 130       |      |          |      |  |
| Surr: 4-Bromofluorobenzene  | 11                        |                 | 10.00     |             | 114                                   | 70       | 130       |      |          |      |  |
| Surr: Dibromofluoromethane  | 11                        |                 | 10.00     |             | 106                                   | 70       | 130       |      |          |      |  |
| Surr: Toluene-d8            | 9.8                       |                 | 10.00     |             | 97.8                                  | 70       | 130       |      |          |      |  |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
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- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
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- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID mb-10980          | SampTyp      | oe: ME       | BLK       | Tes         | tCode: E | PA Method | 8270C: Semi | volatiles | <u> </u> |      |
|-----------------------------|--------------|--------------|-----------|-------------|----------|-----------|-------------|-----------|----------|------|
| Client ID: PBW              | Batch I      | D: <b>10</b> | 980       | F           | RunNo: 1 | 5747      |             |           |          |      |
| Prep Date: 12/24/2013       | Analysis Dat | te: 12       | 2/26/2013 | 5           | SeqNo: 4 | 54620     | Units: µg/L |           |          |      |
| Analyte                     |              | PQL          | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene                | ND           | 10           |           |             |          |           |             |           |          |      |
| Acenaphthylene              | ND           | 10           |           |             |          |           |             |           |          |      |
| Aniline                     | ND           | 10           |           |             |          |           |             |           |          |      |
| Anthracene                  | ND           | 10           |           |             |          |           |             |           |          |      |
| Azobenzene                  | ND           | 10           |           |             |          |           |             |           |          |      |
| Benz(a)anthracene           | ND           | 10           |           |             |          |           |             |           |          |      |
| Benzo(a)pyrene              | ND           | 10           |           |             |          |           |             |           |          |      |
| Benzo(b)fluoranthene        | ND           | 10           |           |             |          |           |             |           |          |      |
| Benzo(g,h,i)perylene        | ND           | 10           |           |             |          |           |             |           |          |      |
| Benzo(k)fluoranthene        | ND           | 10           |           |             |          |           |             |           |          |      |
| Benzoic acid                | ND           | 40           |           |             |          |           |             |           |          |      |
| Benzyl atcohol              | ND           | 10           |           |             |          |           |             |           |          |      |
| Bis(2-chloroethoxy)methane  | ND           | 10           |           |             |          |           |             |           |          |      |
| Bis(2-chloroethyl)ether     | ND           | 10           |           |             |          |           |             |           |          |      |
| Bis(2-chloroisopropyl)ether | ND           | 10           |           |             |          |           |             |           |          |      |
| '2-ethylhexyl)phthalate     | ND           | 10           |           |             |          |           |             |           |          |      |
| omophenyl phenyl ether      | ND           | 10           |           |             |          |           |             |           |          |      |
| .tyl benzyl phthalate       | ND           | 10           |           |             |          |           |             |           |          |      |
| Carbazole                   | ND           | 10           |           |             |          |           |             |           |          |      |
| 4-Chloro-3-methylphenol     | ND           | 10           |           |             |          |           |             |           |          |      |
| 4-Chloroaniline             | ND           | 10           |           |             |          |           |             |           |          |      |
| 2-Chloronaphthalene         | ND           | 10           |           |             |          |           |             |           |          |      |
| 2-Chlorophenol              | ND           | 10           |           |             |          |           |             |           |          |      |
| 4-Chlorophenyl phenyl ether | ND           | 10           |           |             |          |           |             |           |          |      |
| Chrysene                    | ND           | 10           |           |             |          |           |             |           |          |      |
| Di-n-butyl phthalate        | ND           | 10           |           |             |          |           |             |           |          |      |
| Di-n-octyl phthalate        | ND           | 10           |           |             |          |           |             |           |          |      |
| Dibenz(a,h)anthracene       | ND           | 10           |           |             |          |           |             |           |          |      |
| Dibenzofuran                | ND           | 10           |           |             |          |           |             |           |          |      |
| 1,2-Dichlorobenzene         | ND           | 10           |           |             |          |           |             |           |          |      |
| 1,3-Dichlorobenzene         | ND           | 10           |           |             |          |           |             |           |          |      |
| 1,4-Dichlorobenzene         | ND           | 10           |           |             |          |           |             |           |          |      |
| 3,3´-Dichlorobenzidine      | ND           | 10           |           |             |          |           |             |           |          |      |
| Diethyl phthalate           | ND           | 10           |           |             |          |           |             |           |          |      |
| Dimethyl phthalate          | ND           | 10           |           |             |          |           |             |           |          |      |
| 2,4-Dichlorophenol          | ND           | 20           |           |             |          |           |             |           |          |      |
| 2,4-Dimethylphenol          | ND           | 10           |           |             |          |           |             |           |          |      |
| 4,6-Dinitro-2-methylphenol  | ND           | 20           |           |             |          |           |             |           |          |      |
| 2,4-Dinitrophenol           | ND           | 20           |           |             |          |           |             |           |          |      |
| -,                          |              |              |           |             |          |           |             |           |          |      |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
   Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
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- H Holding times for preparation or analysis exceeded
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- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID mb-10980         | SampTy      | pe: MBLK         | TestCode:        | EPA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|-------------|------------------|------------------|------------|-------------|-----------|----------|------|
| Client ID: PBW             | Batch i     | ID: <b>10980</b> | RunNo:           | 15747      |             |           |          |      |
| Prep Date: 12/24/2013      | Analysis Da | te: 12/26/2013   | SeqNo:           | 454620     | Units: µg/L |           |          |      |
| Analyte                    | Result      |                  | SPK Ref Val %REC | LowLimit   | HighLimit   | %RPD      | RPDLimit | Qual |
| 2,4-Dinitrotoluene         | ND          | 10               |                  |            |             |           |          |      |
| 2,6-Dinitrotoluene         | ND          | 10               |                  |            |             |           |          |      |
| Fluoranthene               | ND          | 10               |                  | ,          |             |           |          |      |
| Fluorene                   | ND          | 10               |                  |            |             |           |          |      |
| Hexachlorobenzene          | ND          | 10               |                  |            |             |           |          |      |
| Hexachlorobutadiene        | ND          | 10               |                  |            |             |           |          |      |
| Hexachlorocyclopentadiene  | ND          | 10               |                  |            |             |           |          |      |
| Hexachloroethane           | ND          | 10               |                  |            |             |           |          |      |
| Indeno(1,2,3-cd)pyrene     | ND          | 10               |                  |            |             |           |          |      |
| Isophorone                 | ND          | 10               |                  |            |             |           |          |      |
| 1-Methylnaphthalene        | ND          | 10               |                  |            |             |           |          |      |
| 2-Methylnaphthalene        | ND          | 10               |                  |            |             |           |          |      |
| 2-Methylphenol             | ND          | 10               |                  |            |             |           |          |      |
| 3+4-Methylphenol           | ND          | 10               |                  |            |             |           |          |      |
| N-Nitrosodi-n-propylamine  | ND          | 10               |                  |            |             |           |          |      |
| N-Nitrosodimethylamine     | ND          | 10               |                  |            |             |           |          |      |
| N-Nitrosodiphenylamine     | ND          | 10               |                  |            |             |           |          |      |
| Naphthalene                | ND          | 10               |                  |            |             |           |          |      |
| 2-Nitroaniline             | ND          | 10               |                  |            |             |           |          |      |
| 3-Nitroaniline             | ND          | 10               |                  |            |             |           |          |      |
| 4-Nitroaniline             | ND          | 10               |                  |            |             |           |          |      |
| Nitrobenzene               | ND          | 10               |                  |            |             |           |          |      |
| 2-Nitrophenol              | ND          | 10               |                  |            |             |           |          |      |
| 4-Nitrophenol              | ND          | 10               |                  |            |             |           |          |      |
| Pentachlorophenol          | ND          | 20               |                  |            |             |           |          |      |
| Phenanthrene               | ND          | 10               |                  |            |             |           |          |      |
| Phenol                     | ND          | 10               |                  |            |             |           |          |      |
| Pyrene                     | ND          | 10               |                  |            |             |           |          |      |
| Pyridine                   | ND          | 10               |                  |            |             |           |          |      |
| 1,2,4-Trichlorobenzene     | ND          | 10               |                  |            |             |           |          |      |
| 2,4,5-Trichlorophenol      | ND          | 10               |                  |            |             |           |          |      |
| 2,4,6-Trichlorophenol      | ND          | 10               |                  |            |             |           |          |      |
| Surr: 2-Fluorophenol       | 110         | 200.0            | 55.              | 22.7       | 98          |           |          |      |
| Surr: Phenol-d5            | 79          | 200.0            | 39.3             | 3 23.4     | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 130         | 200.0            | 66.7             | 23.3       | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 69          | 100.0            | 68.8             | 36.8       | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 71          | 100.0            | 70.6             | 38.3       | 110         |           |          |      |
| Surr: 4-Terphenyl-d14      | 77          | 100.0            | 77.5             | 5 52.1     | 116         |           |          |      |

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
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- H Holding times for preparation or analysis exceeded
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- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID Ics-10980        | SampT      | ype: <b>LC</b>  | S         | Tes         | tCode: El | PA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: LCSW            | Batch      | ID: <b>10</b> 9 | 980       | F           | RunNo: 1  | 5747      |             |           |          |      |
| Prep Date: 12/24/2013      | Analysis D | ate: 12         | 2/26/2013 | 8           | SeqNo: 4  | 54621     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 66         | 10              | 100.0     | 0           | 65.8      | 48        | 101         |           |          |      |
| 4-Chloro-3-methylphenol    | 130        | 10              | 200.0     | 0           | 66.5      | 47.9      | 109         |           |          |      |
| 2-Chlorophenol             | 120        | 10              | 200.0     | 0           | 59.5      | 40        | 105         |           |          |      |
| 1,4-Dichlorobenzene        | 57         | 10              | 100.0     | 0           | 57.2      | 40.8      | 94.3        |           |          |      |
| 2,4-Dinitrotoluene         | 64         | 10              | 100.0     | 0           | 64.1      | 28.3      | 131         |           |          |      |
| N-Nitrosodi-n-propylamine  | 66         | 10              | 100.0     | 0           | 65.6      | 46.2      | 119         |           |          |      |
| 4-Nitrophenol              | 44         | 10              | 200.0     | 0           | 21.9      | 10.5      | 67.9        |           |          |      |
| Pentachlorophenol          | 53         | 20              | 200.0     | 0           | 26.7      | 22.4      | 81.1        |           |          |      |
| Phenol                     | 73         | 10              | 200.0     | 0           | 36.7      | 21.4      | 72.9        |           |          |      |
| Pyrene                     | 61         | 10              | 100.0     | 0           | 60.9      | 46.9      | 109         |           |          |      |
| 1,2,4-Trichlorobenzene     | 55         | 10              | 100.0     | 0           | 54.6      | 43.1      | 98.4        |           |          |      |
| Surr: 2-Fluorophenol       | 94         |                 | 200.0     |             | 47.1      | 22.7      | 98          |           |          |      |
| Surr: Phenol-d5            | 72         |                 | 200.0     |             | 36.0      | 23.4      | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 130        |                 | 200.0     |             | 63.8      | 23.3      | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 60         |                 | 100.0     |             | 59.7      | 36.8      | 111         |           |          |      |
| `urr: 2-Fluorobiphenyl     | 68         |                 | 100.0     |             | 67.9      | 38.3      | 110         |           |          |      |
| urr: 4-Terphenyl-d14       | 72         |                 | 100.0     |             | 71.6      | 52.1      | 116         |           |          |      |

| Sample ID Icsd-10980       | SampT      | ype: LC         | SD        | Tes         | tCode: El | PA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: LCSS02          | Batch      | 1D: <b>10</b> ! | 980       | F           | RunNo: 1  | 5747      |             |           |          |      |
| Prep Date: 12/24/2013      | Analysis D | ate: 12         | 2/26/2013 | 8           | SeqNo: 4  | 54622     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 76         | 10              | 100.0     | 0           | 75.6      | 48        | 101         | 13.8      | 25       |      |
| 4-Chloro-3-methylphenol    | 150        | 10              | 200.0     | 0           | 74.3      | 47.9      | 109         | 11.1      | 32.7     |      |
| 2-Chlorophenol             | 120        | 10              | 200.0     | 0           | 62.4      | 40        | 105         | 4.89      | 20       |      |
| 1,4-Dichlorobenzene        | 60         | 10              | 100.0     | 0           | 60.1      | 40.8      | 94.3        | 4.94      | 20       |      |
| 2,4-Dinitrotoluene         | 68         | 10              | 100.0     | 0           | 68.5      | 28.3      | 131         | 6.64      | 29.9     |      |
| N-Nitrosodi-n-propylamine  | 69         | 10              | 100.0     | 0           | 69.0      | 46.2      | 119         | 5.17      | 23.1     |      |
| 4-Nitrophenol              | 48         | 10              | 200.0     | 0           | 24.0      | 10.5      | 67.9        | 8.93      | 40.5     |      |
| Pentachlorophenol          | 70         | 20              | 200.0     | 0           | 35.0      | 22.4      | 81.1        | 27.2      | 37.3     |      |
| Phenol                     | 77         | 10              | 200.0     | 0           | 38.4      | 21.4      | 72.9        | 4.45      | 20       |      |
| Pyrene                     | 74         | 10              | 100.0     | 0           | 73.8      | 46.9      | 109         | 19.2      | 26.5     |      |
| 1,2,4-Trichlorobenzene     | 59         | 10              | 100.0     | 0           | 59.4      | 43.1      | 98.4        | 8.32      | 27.2     |      |
| Surr: 2-Fluorophenol       | 92         |                 | 200.0     |             | 45.9      | 22.7      | 98          | 0         | 0        |      |
| Surr; Phenol-d5            | 74         |                 | 200.0     |             | 36.8      | 23.4      | 74.9        | 0         | 0        |      |
| Surr: 2,4,6-Tribromophenol | 140        |                 | 200.0     |             | 70.5      | 23.3      | 111         | 0         | 0        |      |
| Surr: Nitrobenzene-d5      | 63         |                 | 100.0     |             | 62.9      | 36.8      | 111         | 0         | 0        |      |
| Surr: 2-Fluorobiphenyl     | 73         |                 | 100.0     |             | 72.6      | 38.3      | 110         | 0         | 0        |      |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
   Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
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- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Analyte

Lightning Dock Geothermal GW Quality Monito

Sample ID Icsd-10980

SampType: LCSD

TestCode: EPA Method 8270C: Semivolatiles

Client ID: LCSS02

Batch ID: 10980

RunNo: 15747

Prep Date: 12/24/2013 Analysis Date: 12/26/2013

SeqNo: 454622

Units: µg/L HighLimit

%RPD

Qual

SPK value SPK Ref Val %REC

LowLimit

**RPDLimit** 

Surr: 4-Terphenyl-d14

Result 81

100.0

80.5

52.1

116

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range E

Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

RPD outside accepted recovery limits R

Spike Recovery outside accepted recovery limits

Analyte detected in the associated Method Blank

Η Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#:

1312A59

15**-**Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID MB-10981    | SampT      | уре: <b>МВ</b> | LK        | Tes         | tCode: El | PA Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|----------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: PBW        | Batcl      | h ID: 109      | 981       | F           | RunNo: 1  | 5775      |             |      |          |      |
| Prep Date: 12/24/2013 | Analysis D | Date: 12       | /27/2013  | S           | SeqNo: 4  | 55252     | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | ND         | 2.0            |           |             |           |           |             |      |          |      |
| 1-Methylnaphthalene   | ND         | 2.0            |           |             |           |           |             |      |          |      |
| 2-Methylnaphthalene   | ND         | 2.0            |           |             |           |           |             |      |          |      |
| Acenaphthylene        | ND         | 2.5            |           |             |           |           |             |      |          |      |
| Acenaphthene          | ND         | 5.0            |           |             |           |           |             |      |          |      |
| Fluorene              | ND         | 0.80           |           |             |           |           |             |      |          |      |
| Phenanthrene          | ND         | 0.60           |           |             |           |           |             |      |          |      |
| Anthracene            | ND         | 0.60           |           |             |           |           |             |      |          |      |
| Fluoranthene          | ND         | 0.30           |           |             |           |           |             |      |          |      |
| Pyrene                | ND         | 0.30           |           |             |           |           |             |      |          |      |
| Benz(a)anthracene     | ND         | 0.070          |           |             |           |           |             |      |          |      |
| Chrysene              | ND         | 0.20           |           |             |           |           |             |      |          |      |
| Benzo(b)fluoranthene  | ND         | 0.10           |           |             |           |           |             |      |          |      |
| Benzo(k)fluoranthene  | ND         | 0.070          |           |             |           |           |             |      |          |      |
| Benzo(a)pyrene        | ND         | 0.070          |           |             |           |           |             |      |          |      |
| nz(a,h)anthracene     | ND         | 0.12           |           |             |           |           |             |      |          |      |
| zo(g,h,i)perylene     | ND         | 0.12           |           |             |           |           |             |      |          |      |
| Jeno(1,2,3-cd)pyrene  | ND         | 0.25           |           |             |           |           |             |      |          |      |
| Surr: Benzo(e)pyrene  | 22         |                | 20.00     |             | 108       | 24.5      | 139         |      |          |      |

| Sample ID LCS-10981   | SampT      | Гуре: <b>LC</b>   | S         | Tes         | tCode: El | PA Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|-------------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: LCSW       | Batcl      | h ID: <b>10</b> : | 981       | F           | lunNo: 1  | 5775      |             |      |          |      |
| Prep Date: 12/24/2013 | Analysis D | Date: 12          | 2/27/2013 | S           | SeqNo: 4  | 55253     | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL               | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 43         | 2.0               | 80.00     | 0           | 53.2      | 43.8      | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 36         | 2.0               | 80.20     | 0           | 45.1      | 41.3      | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 34         | 2.0               | 80.00     | 0           | 41.9      | 36.6      | 89.6        |      |          |      |
| Acenaphthylene        | 47         | 2.5               | 80.20     | 0           | 58.3      | 43.6      | 103         |      |          |      |
| Acenaphthene          | 37         | 5.0               | 80.00     | 0           | 46.6      | 42.4      | 87.6        |      |          |      |
| Fluorene              | 3.9        | 0.80              | 8.020     | 0           | 48.1      | 40.5      | 93.6        |      |          |      |
| Phenanthrene          | 2.4        | 0.60              | 4.020     | 0           | 60.4      | 43.9      | 111         |      |          |      |
| Anthracene            | 2.3        | 0.60              | 4.020     | 0           | 57.2      | 44.3      | 103         |      |          |      |
| Fluoranthene          | 4.5        | 0.30              | 8.020     | 0           | 56.2      | 43.5      | 109         |      |          |      |
| Pyrene                | 4.8        | 0.30              | 8.020     | 0           | 59.2      | 32.6      | 103         |      |          |      |
| Benz(a)anthracene     | 0.47       | 0.070             | 0.8020    | 0           | 58.6      | 43        | 114         |      |          |      |
| Chrysene              | 2.2        | 0.20              | 4.020     | 0           | 55.2      | 40.2      | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.59       | 0.10              | 1.002     | 0           | 58.9      | 44.4      | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.32       | 0.070             | 0.5000    | 0           | 64.0      | 41.5      | 120         |      |          |      |
|                       |            |                   |           |             |           |           |             |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
   Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSD limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#:

1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Sample ID 1312A59-003DMS

Lightning Dock Geothermal GW Quality Monito

SampType: MS

| Sample ID LCS-10981    | SampT                  | SampType: LCS             |             |      | tCode: El | PA Method | 8310: PAHs  |          |      |  |
|------------------------|------------------------|---------------------------|-------------|------|-----------|-----------|-------------|----------|------|--|
| Client ID: LCSW        | Batch                  | n ID: 10                  | 981         | F    | RunNo: 1  | 5775      |             |          |      |  |
| Prep Date: 12/24/2013  | Analysis D             | Analysis Date: 12/27/2013 |             |      | SeqNo: 4  | 55253     | Units: µg/L |          |      |  |
| Analyte                | Result PQL SPK value S |                           | SPK Ref Val | %REC | LowLimit  | HighLimit | %RPD        | RPDLimit | Qual |  |
| Benzo(a)pyrene         | 0.30                   | 0.30 0.070 0.5020         |             | 0    | 59.8      | 34.5      | 118         |          |      |  |
| Dibenz(a,h)anthracene  | 0.60                   | 0.12                      | 1.002       | 0    | 59.9      | 38.3      | 107         |          |      |  |
| Benzo(g,h,i)perylene   | 0.55                   | 0.12                      | 1.000       | 0    | 55.0      | 38.4      | 110         |          |      |  |
| Indeno(1,2,3-cd)pyrene | 1.3                    | 1.3 0.25 2.004            |             | 0    | 65.9      | 42.4      | 113         |          |      |  |
| Surr: Benzo(e)pyrene   | 16 20.00               |                           |             | 77.8 | 24.5      | 139       |             |          |      |  |

TestCode: EPA Method 8310: PAHs

| Sample ID 1312A33-003DM | oamp i     | ype. we           | ,         | 103         | COOde. L | A Michiga | 03 10. FALIS |      |          |      |
|-------------------------|------------|-------------------|-----------|-------------|----------|-----------|--------------|------|----------|------|
| Client ID: IW-1         | Batc       | h ID: <b>10</b> : | 981       | F           | RunNo: 1 | 5775      |              |      |          |      |
| Prep Date: 12/24/2013   | Analysis [ | Date: 12          | 2/28/2013 | S           | SeqNo: 4 | 55279     | Units: µg/L  |      |          |      |
| Analyte                 | Result     | PQL               | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Naphthalene             | 25         | 2.0               | 80.00     | 0           | 30.8     | 70        | 130          |      |          | S    |
| 1-Methylnaphthalene     | 22         | 2.0               | 80.20     | 0           | 26.9     | 70        | 130          |      |          | S    |
| 2-Methylnaphthalene     | 21         | 2.0               | 80.00     | 0           | 25.9     | 70        | 130          |      |          | S    |
| Acenaphthylene          | 26         | 2.5               | 80.20     | 0           | 32.3     | 70        | 130          |      |          | S    |
| Acenaphthene            | 23         | 5.0               | 80.00     | 0           | 28.2     | 70        | 130          |      |          | S    |
| Fluorene                | 2.3        | 0.80              | 8.020     | 0           | 28.9     | 70        | 130          |      |          | S    |
| Phenanthrene            | 1.3        | 0.60              | 4.020     | 0           | 32.1     | 70        | 130          |      |          | S    |
| Anthracene              | 1.2        | 0.60              | 4.020     | 0           | 30.8     | 70        | 130          |      |          | S    |
| Fluoranthene            | 2.6        | 0.30              | 8.020     | 0           | 31.9     | 70        | 130          |      |          | S    |
| Pyrene                  | 2.5        | 0.30              | 8.020     | 0           | 31.4     | 70        | 130          |      |          | S    |
| Benz(a)anthracene       | 0.25       | 0.070             | 0.8020    | 0           | 31.2     | 70        | 130          |      |          | S    |
| Chrysene                | 1.2        | 0.20              | 4.020     | 0           | 28.9     | 70        | 130          |      |          | S    |
| Benzo(b)fluoranthene    | 0.30       | 0.10              | 1.002     | 0           | 29.9     | 70        | 130          |      |          | S    |
| Benzo(k)fluoranthene    | 0.16       | 0.070             | 0.5000    | 0           | 32.0     | 70        | 130          |      |          | S    |
| Benzo(a)pyrene          | 0.16       | 0.070             | 0.5020    | 0           | 31.9     | 70        | 130          |      |          | S    |
| Dibenz(a,h)anthracene   | 0.31       | 0.12              | 1.002     | 0           | 30.9     | 70        | 130          |      |          | S    |
| Benzo(g,h,i)perylene    | 0.30       | 0.12              | 1.000     | 0.04000     | 26.0     | 70        | 130          |      |          | S    |
| Indeno(1,2,3-cd)pyrene  | 0.67       | 0.25              | 2.004     | 0           | 33.4     | 70        | 130          |      |          | S    |
| Surr: Benzo(e)pyrene    | 8.1        |                   | 20.00     |             | 40.7     | 24.5      | 139          |      |          |      |

| Sample ID 1312A59-003DMS | <b>D</b> SampT | ype: MS | SD        | Tes         | tCode: El                        | PA Method | 8310: PAHs |       |          |      |
|--------------------------|----------------|---------|-----------|-------------|----------------------------------|-----------|------------|-------|----------|------|
| Client ID: IW-1          | Batch          | 1D: 10  | 981       | F           | RunNo: 1                         | 5775      |            |       |          |      |
| Prep Date: 12/24/2013    | Analysis D     | ate: 12 | 2/28/2013 | 5           | SeqNo: <b>455280</b> Units: μg/L |           |            |       |          |      |
| Analyte                  | Result         | PQL     | SPK value | SPK Ref Val | %REC                             | LowLimit  | HighLimit  | %RPD  | RPDLimit | Qual |
| Naphthalene              | 28             | 2.0     | 80.00     | 0           | 35.2                             | 70        | 130        | 13.2  | 20       | S    |
| 1-Methylnaphthalene      | 23             | 2.0     | 80.20     | 0           | 28.4                             | 70        | 130        | 5.46  | 20       | S    |
| 2-Methylnaphthalene      | 21             | 2.0     | 80.00     | 0           | 26.1                             | 70        | 130        | 0.865 | 20       | S    |
| Acenaphthylene           | 30             | 2.5     | 80.20     | 0           | 37.9                             | 70        | 130        | 15.9  | 20       | S    |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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## all Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Sample ID 1312A59-003DN | <b>MSD</b> SampT | ype: MS  | SD.       | Tes         | tCode: El | PA Method | 8310: PAHs  |      |          |      |
|-------------------------|------------------|----------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: IW-1         | Batch            | n ID: 10 | 981       | F           | RunNo: 1  | 5775      |             |      |          |      |
| Prep Date: 12/24/2013   | Analysis D       | ate: 12  | 2/28/2013 | S           | SeqNo: 4  | 55280     | Units: µg/L |      |          |      |
| Analyte                 | Result           | PQL      | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Acenaphthene            | 24               | 5.0      | 80.00     | 0           | 29.8      | 70        | 130         | 5.52 | 20       | S    |
| Fluorene                | 2.5              | 0.80     | 8.020     | 0           | 30.5      | 70        | 130         | 5.45 | 20       | S    |
| Phenanthrene            | 1.5              | 0.60     | 4.020     | 0           | 37.3      | 70        | 130         | 15.1 | 20       | S    |
| Anthracene              | 1.4              | 0.60     | 4.020     | 0           | 35.3      | 70        | 130         | 13.5 | 20       | S    |
| Fluoranthene            | 2.9              | 0.30     | 8.020     | 0           | 36.0      | 70        | 130         | 12.1 | 20       | S    |
| Pyrene                  | 2.9              | 0.30     | 8.020     | 0           | 35.7      | 70        | 130         | 12.6 | 20       | S    |
| Benz(a)anthracene       | 0.29             | 0.070    | 0.8020    | 0           | 36.2      | 70        | 130         | 14.8 | 20       | S    |
| Chrysene                | 1.4              | 0.20     | 4.020     | 0           | 33.8      | 70        | 130         | 15.9 | 20       | S    |
| Benzo(b)fluoranthene    | 0.37             | 0.10     | 1.002     | 0           | 36.9      | 70        | 130         | 20.9 | 20       | RS   |
| Benzo(k)fluoranthene    | 0.21             | 0.070    | 0.5000    | 0           | 42.0      | 70        | 130         | 27.0 | 20       | RS   |
| Benzo(a)pyrene          | 0.17             | 0.070    | 0.5020    | 0           | 33.9      | 70        | 130         | 6.06 | 20       | S    |
| Dibenz(a,h)anthracene   | 0.36             | 0.12     | 1.002     | 0           | 35.9      | 70        | 130         | 14.9 | 20       | S    |
| Benzo(g,h,i)perylene    | 0.34             | 0.12     | 1.000     | 0.04000     | 30.0      | 70        | 130         | 12.5 | 20       | S    |
| Indeno(1,2,3-cd)pyrene  | 0.77             | 0.25     | 2.004     | 0           | 38.4      | 70        | 130         | 13.9 | 20       | S    |
| Surr: Benzo(e)pyrene    | 9.6              |          | 20.00     |             | 47.8      | 24.5      | 139         | 0    |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
   Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

eded

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59 15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

| Phenolics, Total Recoverable | ND                      | 2.5                  |  |   |          |             |              |        |          |      |
|------------------------------|-------------------------|----------------------|--|---|----------|-------------|--------------|--------|----------|------|
| Analyte                      | Result                  | Result PQL SPK value |  |   | %REC     | LowLimit    | HighLimit    | %RPD   | RPDLimit | Qual |
| Prep Date: 1/8/2014          | Analysis Date: 1/8/2014 |                      |  | S | eqNo: 4  | 59499       | Units: µg/L  |        |          |      |
| Client ID: PBW               | Batch                   | Batch ID: 11134      |  |   | tunNo: 1 | 5937        |              |        |          |      |
| Sample ID MB-11134           | SampT                   | SampType: MBLK       |  |   | Code: To | otal Phenol | ics by SW-84 | 6 9067 |          |      |

| Sample ID LCS-11134          | SampType: <b>LCS</b>    |        |           | Test        | TestCode: Total Phenolics by SW-846 906 |          |             |      |          |      |
|------------------------------|-------------------------|--------|-----------|-------------|---|----------|-------------|------|----------|------|
| Client ID: LCSW              | Batch                   | ID: 11 | 134       | R           | lunNo: 1                                | 5937     |             |      |          |      |
| Prep Date: 1/8/2014          | Analysis Date: 1/8/2014 |        |           | S           | eqNo: 4                                 | 59500    | Units: µg/L |      |          |      |
| Analyte                      | Result                  | PQL    | SPK value | SPK Ref Val | %REC                                    | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Phenolics, Total Recoverable | 22                      | 2.5    | 20.00     | 0           | 110                                     | 73.7     | 135         |      |          |      |

| Sample ID LCSD-11134         | SampTy      | pe: <b>LC</b> | SD        | Tes         | tCode: To | otal Phenol | ics by SW-84 | 6 9067 |          |      |
|------------------------------|-------------|---------------|-----------|-------------|-----------|-------------|--------------|--------|----------|------|
| Client ID: LCSS02            | Batch       | ID: <b>11</b> | 134       | F           | RunNo: 1  | 5937        |              |        |          |      |
| Prep Date: 1/8/2014          | Analysis Da | ite: 1/       | 8/2014    | \$          | SeqNo: 4  | 59505       | Units: µg/L  |        |          |      |
| Analyte                      | Result      | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit    | HighLimit    | %RPD   | RPDLimit | Qual |
| Phenolics, Total Recoverable | 18          | 2.5           | 20.00     | 0           | 91.6      | 73.7        | 135          | 17.9   | 21.4     |      |

#### Qualifiers:

- Е
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- Value above quantitation range

Spike Recovery outside accepted recovery limits

- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

Value exceeds Maximum Contaminant Level.

Η Holding times for preparation or analysis exceeded

Analyte detected in the associated Method Blank

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В

## all Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

PQL

Batch ID: R15744

20

Sample ID mb-1

SampType: mblk

TestCode: SM2320B: Alkalinity

Client ID:

PBW

Batch ID: R15744

RunNo: 15744

Units: mg/L CaCO3

Prep Date: Analyte

Analysis Date: 12/26/2013

Result

Result

ND

SeqNo: 454539

HighLimit

%RPD

**RPDLimit** 

Qual

Total Alkalinity (as CaCO3)

Sample ID Ics-1

Client ID: LCSW

SampType: Ics

TestCode: SM2320B: Alkalinity

SPK value SPK Ref Val %REC LowLimit

RunNo: 15744

Prep Date:

Analyte

Analysis Date: 12/26/2013

SeqNo: 454540

Units: mg/L CaCO3

%RPD **RPDLimit** 

SPK value SPK Ref Val

98.6

%REC LowLimit

Qual

90

HighLimit 110

PQL 79 Total Alkalinity (as CaCO3) 20 80.00 0

### Qualifiers:

0

- Value exceeds Maximum Contaminant Level. Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
  - P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL

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# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312A59

15-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal GW Quality Monito

Sample ID MB-10984

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID:

PBW

Batch ID: 10984

RunNo: 15756

Prep Date: 12/25/2013

Analysis Date: 12/27/2013

20.0

SeqNo: 454897

Units: mg/L

**RPDLimit** 

Analyte

Result ND SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

Qual

Total Dissolved Solids

Sample ID LCS-10984

SampType: LCS

RunNo: 15756

Client ID: LCSW

Prep Date: 12/25/2013

Batch ID: 10984 Analysis Date: 12/27/2013

SPK Ref Vai

SeqNo: 454898

Units: mg/L

**RPDLimit** 

Result 1020 **PQL** 

1000

SPK value

%REC 102

HighLimit LowLimit

%RPD

Qual

20.0

0

Analyte Total Dissolved Solids

80

TestCode: SM2540C MOD: Total Dissolved Solids

120

Qualifiers:

E

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

Analyte detected below quantitation limits RSD is greater than RSDlimit 0

RPD outside accepted recovery limits

Value above quantitation range

R

В

Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

Analyte detected in the associated Method Blank

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87105

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

# Sample Log-In Check List

| Client Name: AMEC   | Work Order Numbe       | r: 1312A59 |             | RoptNo: 1                  |                  |
|---|------------------------|------------|-------------|----------------------------|------------------|
| Received by/date:   | 12/21/13               |            |             |                            |                  |
| Logged By: Lindsay Mangin   | 12/21/2013 10:00:00    | AM         | Janly Hayes |                            |                  |
| Completed By: Lindsay Mangin  | 12/23/2013 9:53:25 A   | M          | June Harry  |                            |                  |
| Reviewed By:  | 12/23/13               |            |             |                            |                  |
| Chain of Custody  |                        |            |             |                            |                  |
| 1. Custody seals intact on sample bottles?  |                        | Yes        | No 🗌        | Not Present 🗹              |                  |
| 2. Is Chain of Custody complete?  |                        | Yes 🔽      | No 🗌        | Not Present                |                  |
| 3. How was the sample delivered?  |                        | Client     |             |                            |                  |
| <u>Log In</u>   |                        |            |             |                            |                  |
| 4. Was an attempt made to cool the samp   | les?                   | Yes 🗹      | No 🗌        | na 🗆                       |                  |
| 5. Were all samples received at a tempera   | ture of >0° C to 6.0°C | Yes 🗸      | No 🗆        | NA $\square$               |                  |
| 6. Sample(s) in proper container(s)?  |                        | Yes 🗸      | No 🗌        |                            |                  |
| 7. Sufficient sample volume for indicated to                                      | est(s)?                | Yes 🗹      | No 🗆        |                            |                  |
| 8. Are samples (except VOA and ONG) pro   | operly preserved?      | Yes 🗹      | No 🗌        |                            |                  |
| 9. Was preservative added to bottles?   |                        | Yes        | No 🗹        | NA $\square$               |                  |
| 10.VOA vials have zero headspace?   |                        | Yes 🗹      | No 🗆        | No VOA Vials               |                  |
| 11. Were any sample containers received by  | roken?                 | Yes        | No 🗹 🛚      | # of preserved             |                  |
| 40.5  |                        | V          | No 🗆        | bottles checked<br>for pH: | 7.3              |
| 12.Does paperwork match bottle labels?<br>(Note discrepancies on chain of custody | )                      | Yes 🗹      | No L        | (<2)or                     | 12 ynless noted) |
| 13. Are matrices correctly identified on Chai                                     |                        | Yes 🗸      | No 🗆        | Adjusted2                  | N6               |
| 14, Is it clear what analyses were requested                                      | 1?                     | Yes 🔽      | No 🗆        |                            | 400              |
| 15. Were all holding times able to be met?  |                        | Yes 🗹      | No 🗌        | Checked by:                | II)              |
| (If no, notify customer for authorization.)                                       |                        |            |             |                            |                  |
| Special Handling (if applicable)  |                        |            |             |                            |                  |
| 16. Was client notified of all discrepancies v                                    | vith this order?       | Yes        | No 🗆        | NA 🗹                       |                  |
| Person Notified:  | Date:                  |            |             |                            |                  |
| By Whom:  | Via:                   | eMail      | Phone Fax   | In Person                  |                  |
| Regarding:  |                        |            |             |                            |                  |
| Client Instructions:  |                        |            |             |                            |                  |
| 17. Additional remarks:   |                        |            |             |                            | )                |
| 18. Cooler Information  |                        |            |             |                            |                  |
| Cooler No Temp °C Condition   | Seal Intact   Seal No  | Seal Date  | Signed By   |                            |                  |
| 1 4.6 Good  | Not Present            |            |             |                            |                  |

| C               | hain     | -of-Cu                         | ıstoc  | ly Re       | cord        | Turn-Around             | f Time:                               |              |   |             | -                |                             |                    | AL                 | L E                       | - N.  | /TI             | <b>D</b> (1) | NE              | ME   | NT          | ΔΙ     |                |
|-----------------|----------|--------------------------------|--------|-------------|-------------|-------------------------|---------------------------------------|--------------|---|-------------|------------------|-----------------------------|--------------------|--------------------|---------------------------|---|-----------------|--------------|-----------------|------|-------------|--------|----------------|
| Client:         | 3 Ad     | 7                              |        |             |             | t Standard              | d □ Rush                              | 1            |   | ] -         |                  |                             | _                  |                    | LY                        | _   |                 |              |                 |      |             |        |                |
|                 |          |                                |        |             |             | Project Nam             | ie: Lightin                           | 9 Do         | je.   |             |                  | A                           | \                  | ww.                | haller                    | viror   | nmen            | ntal.co      | om              |      |             |        |                |
| Mailing         | Address  | : 8519                         | Jen    | Fferso      | u STNE      | Ceothe                  | ne: Lightin                           | Bual         | the Monitor   | 75          | 490              | 01 H                        | awkii              | ns NE              | <u> </u>                  | lbuqı   | uerqu           | ле, N        | M 87            | 7109 |             |        |                |
| Alb             | ng her   | que,                           | VM.    | 874         | 5_87113'    | Project #:              | 7-00102                               | 1.06         |   |             | Te               | l. 50                       | 5-34               | 5-39               |                           |   |                 | -345         |                 | 7    |             | انسان  |                |
| Phone:          | #: (5    | 05) 972                        | 1-18   | <u> 301</u> |             |                         |                                       |              |   |             |                  | <u> </u>                    |                    |                    | Ana                       | -   | _               | ques         |                 |      |             |        |                |
| email o         | r Fax#:  | david                          | jan    | neya        | anechon     | Project Man             | ager:                                 |              |   | E           | only.            | 잂                           |                    |                    |                           | 000   | ျှ              |              |                 |      |             |        |                |
| QA/QC           | Package: |                                |        |             |             | David                   | Janne                                 | <b>y</b>     |   | (8021)      | as (             | 2                           |                    |                    | (3)                       | 0,40  | PCB             |              |                 |      |             |        |                |
| Stan            |          |                                | □ Lev  | el 4 (Full  | Validation) |                         | , , , , , , , , , , , , , , , , , , , |              |   | ( တ         | 9                | 8                           |                    |                    | €<br>S                    | , P(  | 2 P             |              |                 |      |             |        |                |
| Accred          |          | □ Othe                         | ır     |             |             | Sampler: 2              | Erje Ko<br>MYes 1                     | enic<br>• No | )   | + TMB       | + TPH (Gas only) | 30 / D                      | 18.1)              | 04.1)              | 8270                      | ON.   | / 8082          | 1            | ₽<br>F          |      |             |        | or N)          |
| □ EDD           | (Type)   |                                |        |             |             | Sample Ten              | nperature: +                          | · (          | NAME OF THE PARTY | Ж           | 띪                | 9                           | d 4,               | d 50               | 5                         |   | ides            | 12           | 9               |      |             |        | 2              |
| Date            | Time     | Matrix                         | Sar    | nple Re     | equest ID   | Container<br>Type and # | Preservative                          | Н            | eal no.   | BTEX + MTBE | BTEX + MTBE      | TPH 8015B (GRO / DRO / MRO) | TPH (Method 418.1) | EDB (Method 504.1) | PAH's (8310 or 8270 SIMS) | Arions (F,CI,NO <sub>3</sub> ,NO <sub>3</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> ) | 8081 Pesticides |              | 8270 (Semi-VOA) |      |             |        | Air Bubbles (Y |
| 2/14/13         | 11:00    | water                          | - 41   | 26 4        | 5-7         | 21                      | see                                   |              | -007<br>-002  |             | /                | -                           | _                  | -                  |                           | 7   | _               | M            | 4               |      | 1           |        |                |
| 2/2/13          | 13:00    |                                | LD     | G 6         | 3-7         | 27                      | attache                               | <u> </u>     | -COZ  | "           | 51               | 1                           | - 4                |                    |                           | Yt  | 7/              |              | VT              |      | 7           | $\geq$ |                |
| 2/20/13         | 17:00    | V                              | I      | N-1         | *           | 2 22                    | List                                  | 7            | -003  |             |                  |                             |                    |                    |                           |   |                 |              |                 |      |             |        |                |
|                 |          |                                | +1     | p Bla       | 3-7<br>*    | -                       |                                       | -            | -00x  | _           |                  | _                           | _                  | -                  | _                         |   | +               | -            | _               |      | -           | +      | $\dashv$       |
|                 |          |                                | •      |             |             |                         |                                       |              |   | -           |                  |                             |                    | _                  | +                         |   | +               | -            | -               |      | -           |        | +              |
|                 |          |                                |        |             |             |                         |                                       |              |   |             |                  |                             |                    |                    |                           |   |                 |              |                 |      |             | 1      |                |
|                 |          |                                |        |             |             |                         |                                       |              |   |             |                  |                             |                    |                    | $\perp$                   | -   | +               |              |                 |      | $\dashv$    | +      | +              |
|                 |          |                                |        |             |             | <u> </u>                | 1                                     |              |   |             |                  |                             |                    | $\dashv$           | $\dashv$                  | -   | -               |              |                 |      | $\top$      |        |                |
|                 |          |                                |        |             |             |                         |                                       |              |   |             |                  |                             |                    |                    |                           |   |                 |              |                 |      |             |        |                |
| ***             |          |                                |        |             |             |                         | <u></u>                               | <u></u>      |   | <u> </u>    | لبا              |                             |                    |                    |                           |   | 1               | <u> </u>     |                 |      |             |        | $\perp$        |
| Date: 2 /2 i//3 | Time:    | Relinquish<br>Em<br>Relinquish | ed by: | Ven         | y_          | Received by:            | 1                                     | Z Z I        | Time Time   | Rer         | narks            | :                           | ee<br>- 1          | at                 | Hac<br>All<br>ple         | h c   |                 | a            | . h.c           | 2/2  | / +<br>\ le | e      |                |
| Date:           | THINE:   | Reimquish                      | a by:  |             | V           | Received by:            | ,                                     | Dati         | e ime   | *           | F (Q)            | 6                           | 51                 | i<br>Im            | #   <br>p 1e              | me  | tal)            | 57           | ie!             | d +  | elte        | va     |                |



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 16, 2014

David Janney Cyrq Energy Inc PO Box 86 Animas, NM 88020 TEL: (505) 796-7276

FAX

RE: Lightning Dock Geothermal Water Quality Monitoring OrderNo.: 1312B40

Dear David Janney:

Hall Environmental Analysis Laboratory received 2 sample(s) on 12/24/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andel

4901 Hawkins NE

Albuquerque, NM 87109

## **Analytical Report** Lab Order 1312B40

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/16/2014

**CLIENT:** Cyrq Energy Inc Client Sample ID: LDG 47-7

Lightning Dock Geothermal Water Qualit Collection Date: 12/21/2013 1:00:00 PM Project: Lab ID: 1312B40-001 Matrix: AQUEOUS Received Date: 12/24/2013 10:30:00 AM

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|--------|
| EPA METHOD 8011/504.1: EDB        |        | 1        |      |       |    | Analyst               | : LRW  |
| 1,2-Dibromoethane                 | ND     | 0.010    |      | μg/L  | 1  | 12/26/2013 3:41:42 PM | 10989  |
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Anaiyst               | : SCC  |
| Aroclor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM | 10979  |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM |        |
| Aroclor 1232                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM |        |
| Aroclor 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM |        |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM |        |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM | 10979  |
| Aroclor 1260                      | ND     | 1.0      |      | μg/L  | 1  | 12/30/2013 6:32:14 AM | 10979  |
| Surr: Decachlorobiphenyl          | 80.8   | 17-123   |      | %REC  | 1  | 12/30/2013 6:32:14 AM | 10979  |
| Surr: Tetrachloro-m-xylene        | 72.8   | 22.6-113 |      | %REC  | 1  | 12/30/2013 6:32:14 AM | 10979  |
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst               | : SCC  |
| Naphthalene                       | 2.2    | 2.0      |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| 2-Methylnaphthalene               | 3.1    | 2.0      |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Phenanthrene                      | 0.71   | 0.60     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Benz(a)anthracene                 | ND     | 0.070    |      | µg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | µg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | µg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/28/2013 6:03:46 AM |        |
| Surr: Benzo(e)pyrene              | 57.0   | 24.5-139 |      | %REC  | 1  | 12/28/2013 6:03:46 AM | 10981  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst               | : JRR  |
| Fluoride                          | 12     | 2.0      | *    | mg/L  | 20 | 12/24/2013 3:02:38 PM | R15742 |
| Chloride                          | 130    | 10       |      | mg/L  | 20 | 12/24/2013 3:02:38 PM | R15742 |
| Bromide                           | 0.32   | 0.10     |      | mg/L  | 1  | 12/24/2013 2:25:24 PM | R15742 |
| Phosphorus, Orthophosphate (As P) | ND     | 0.50     | Н    | mg/L  | 1  | 12/24/2013 2:25:24 PM | R15742 |
| Sulfate                           | 250    | 10       |      | mg/L  | 20 | 12/24/2013 3:02:38 PM | R15742 |
| Nitrate+Nitrite as N              | ND     | 1.0      |      | mg/L  | 5  | 12/28/2013 2:49:13 AM | R15794 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 1 of 34 Sample pH greater than 2 for VOA and TOC only.
- P
- RL Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/16/2014

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 47-7

Project:Lightning Dock Geothermal Water QualitCollection Date: 12/21/2013 1:00:00 PMLab ID:1312B40-001Matrix: AQUEOUSReceived Date: 12/24/2013 10:30:00 AM

| Analyses                       | Result | RL Qu   | ıal Units | DF | Date Analyzed        | Batch          |
|--------------------------------|--------|---------|-----------|----|----------------------|----------------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |           |    | Analy                | st: <b>JLF</b> |
| Aluminum                       | 0.050  | 0.020   | mg/L      | 1  | 1/7/2014 11:54:32 AM | 1 R15921       |
| Barium                         | 0.13   | 0.0020  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Boron                          | 2.6    | 0.20    | mg/L      | 5  | 12/27/2013 2:48:35 P | M R15768       |
| Cadmium                        | ND     | 0.0020  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Calcium                        | 12     | 1.0     | mg/L      | 1  | 12/30/2013 12:41:37  | PM R15805      |
| Cobalt                         | ND     | 0.0060  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Copper                         | ND     | 0.0060  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Iron                           | 0.32   | 0.020   | * mg/L    | 1  | 12/30/2013 12:41:37  | PM R15805      |
| Magnesium                      | ND     | 1.0     | mg/L      | 1  | 12/30/2013 12:41:37  | PM R15805      |
| Manganese                      | 0.14   | 0.0020  | * mg/L    | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Molybdenum                     | 0.038  | 0.0080  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Nickel                         | 0.081  | 0.010   | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Potassium                      | 22     | 1.0     | mg/L      | 1  | 12/30/2013 12:41:37  | PM R15805      |
| Silver                         | ND     | 0.0050  | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| Sodium                         | 390    | 5.0     | mg/L      | 5  | 12/30/2013 12:47:00  | PM R15805      |
| Zinc                           | 0.022  | 0.010   | mg/L      | 1  | 12/27/2013 2:46:38 P | M R15768       |
| EPA 200.8: DISSOLVED METALS    |        |         |           |    | Analy                | st: DBD        |
| Arsenic                        | 0.42   | 0.020   | * mg/L    | 20 | 1/8/2014 2:52:32 PM  | R15963         |
| Lead                           | ND     | 0.0010  | mg/L      | 1  | 1/8/2014 2:36:36 PM  | R15963         |
| Selenium                       | ND     | 0.0010  | mg/L      | 1  | 1/8/2014 2:36:36 PM  | R15963         |
| Uranium                        | ND     | 0.0010  | mg/L      | 1  | 1/8/2014 2:36:36 PM  | R15963         |
| EPA METHOD 245.1: MERCURY      |        |         |           |    | Analy                | st: JML        |
| Mercury                        | ND     | 0.00020 | mg/L      | 1  | 1/7/2014 2:17:05 PM  | 11092          |
| EPA METHOD 8270C: SEMIVOLATIL  | ES     |         |           |    | Analy                | st: JDC        |
| Acenaphthene                   | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Acenaphthylene                 | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Aniline                        | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Anthracene                     | ND     | 10      | µg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Azobenzene                     | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benz(a)anthracene              | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benzo(a)pyrene                 | ND     | 10      | µg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benzo(b)fluoranthene           | ND     | 10      | µg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benzo(g,h,i)perylene           | ND     | 10      | µg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |
| Benzo(k)fluoranthene           | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  |                |
| Benzoic acid                   | ND     | 40      | μg/L      | 1  | 12/26/2013 11:39:34  |                |
| Benzyl alcohol                 | . ND   | 10      | μg/L      | 1  | 12/26/2013 11:39:34  |                |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  |                |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L      | 1  | 12/26/2013 11:39:34  | PM 10980       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2 of 3.
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

## Analytical Report Lab Order 1312B40

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/16/2014

CLIENT: Cyrq Energy Inc Client Sample ID: LDG 47-7

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1312B40-001 Matrix: AQUEOUS

Collection Date: 12/21/2013 1:00:00 PM

Received Date: 12/24/2013 10:30:00 AM

| Analyses                    | Result | RL Qu | al Units | DF Date Analyzed Batch         |
|-----------------------------|--------|-------|----------|--------------------------------|
| EPA METHOD 8270C: SEMIVOLA  | TILES  |       |          | Analyst: JDC                   |
| Bis(2-chloroisopropyl)ether | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Bis(2-ethylhexyl)phthalate  | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 4-Bromophenyl phenyl ether  | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Butyl benzyl phthalate      | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Carbazole                   | ND     | 10    | µg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 4-Chloro-3-methylphenol     | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 4-Chloroaniline             | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 2-Chloronaphthalene         | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 2-Chlorophenol              | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 4-Chlorophenyl phenyl ether | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Chrysene                    | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Di-n-butyl phthalate        | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Di-n-octyl phthalate        | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Dibenz(a,h)anthracene       | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Dibenzofuran                | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 1,2-Dichlorobenzene         | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 1,4-Dichlorobenzene         | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 3,3'-Dichlorobenzidine      | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Diethyl phthalate           | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Dimethyl phthalate          | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 2,4-Dichlorophenol          | ND     | 20    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 2,4-Dimethylphenol          | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 4,6-Dinitro-2-methylphenol  | ND     | 20    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 2,4-Dinitrophenol           | ND     | 20    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 2,4-Dinitrotoluene          | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 2,6-Dinitrotoluene          | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Fluoranthene                | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Fluorene                    | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Hexachlorobenzene           | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Hexachlorobutadiene         | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Hexachlorocyclopentadiene   | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Hexachloroethane            | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Indeno(1,2,3-cd)pyrene      | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| Isophorone                  | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 1-Methylnaphthalene         | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 2-Methylnaphthalene         | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 2-Methylphenol              | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |
| 3+4-Methylphenol            | ND     | 10    | μg/L     | 1 12/26/2013 11:39:34 PM 10980 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 1/16/2014

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: LDG 47-7 **CLIENT:** Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Qualit Collection Date: 12/21/2013 1:00:00 PM 1312B40-001 Lab ID: Matrix: AQUEOUS Received Date: 12/24/2013 10:30:00 AM

| Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed       | Batch           |
|--------------------------------|--------|-----------|----------|----|---------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLAT    | ILES   |           |          |    | Anal                | yst: <b>JDC</b> |
| N-Nitrosodi-n-propylamine      | ND     | 10        | µg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Naphthalene                    | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 3-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 4-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Nitrobenzene                   | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 4-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Phenol                         | 14     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Pyrene                         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Pyridine                       | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Surr: 2-Fluorophenol           | 60.0   | 22.7-98   | %REC     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Surr: Phenol-d5                | 42.5   | 23.4-74.9 | %REC     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Surr: 2,4,6-Tribromophenol     | 86.1   | 23.3-111  | %REC     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Surr: Nitrobenzene-d5          | 81.0   | 36.8-111  | %REC     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Surr: 2-Fluorobiphenyl         | 82.0   | 38.3-110  | %REC     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| Surr: 4-Terphenyl-d14          | 86.7   | 52.1-116  | %REC     | 1  | 12/26/2013 11:39:34 | PM 10980        |
| EPA METHOD 8260B: VOLATILES    | ı      |           |          |    | Anal                | yst: cadg       |
| Benzene                        | 23     | 1.0       | μg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| Toluene                        | 45     | 1.0       | μg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| Ethylbenzene                   | 1.3    | 1.0       | μg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| 1,2,4-Trimethylbenzene         | 2.7    | 1.0       | µg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| Naphthalene                    | 12     | 2.0       | μg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| 2-Methylnaphthalene            | 5.8    | 4.0       | μg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| Acetone                        | 58     | 10        | µg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| Bromobenzene                   | ND     | 1.0       | µg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |
| Bromodichloromethane           | ND     | 1.0       | μg/L     | 1  | 12/29/2013 7:47:46  | PM R1577        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded H
- Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

## Analytical Report Lab Order 1312B40

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/16/2014

CLIENT: Cyrq Energy Inc

Client Sample ID: LDG 47-7

Project: Lightning Dock Geothermal Water Qualit

**Collection Date:** 12/21/2013 1:00:00 PM

Lab ID: 1312B40-001

Matrix: AQUEOUS

Received Date: 12/24/2013 10:30:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed        | Batch    |
|-----------------------------|--------|-------|----------|----|----------------------|----------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Analys               | st: cadg |
| Bromoform                   | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R15774 |
| Bromomethane                | ND     | 3.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R15774 |
| 2-Butanone                  | 27     | 10    | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Carbon disulfide            | ND     | 10    | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Carbon Tetrachloride        | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Chlorobenzene               | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Chloroethane                | ND     | 2.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Chloroform                  | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Chloromethane               | ND     | 3.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 2-Chlorotoluene             | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Dibromomethane              | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Dichlorodifluoromethane     | ND     | 1.0   | µg/∟     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 1,2-Dichloropropane         | ND     | 1.0   | µg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 4-isopropyltoluene          | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| Styrene                     | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1  | 12/29/2013 7:47:46 P | M R1577  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 1/16/2014

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: LDG 47-7

**CLIENT:** Cyrq Energy Inc Lightning Dock Geothermal Water Qualit Collection Date: 12/21/2013 1:00:00 PM Project:

Received Date: 12/24/2013 10:30:00 AM 1312B40-001 Matrix: AQUEOUS Lab ID:

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed         | Batch        |
|--------------------------------|--------|--------|------|------------|----|-----------------------|--------------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analyst               | cadg         |
| Tetrachloroethene (PCE)        | 12     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| trans-1,2-DCE                  | ND     | 1.0    |      | µg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| trans-1,3-Dichloropropene      | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| 1,2,3-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| 1,2,4-Trichlorobenzene         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| 1,1,1-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| 1,1,2-Trichloroethane          | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| Trichloroethene (TCE)          | ND     | 1.0    |      | µg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| Trichlorofluoromethane         | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| 1,2,3-Trichloropropane         | ND     | 2.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| Vinyl chloride                 | ND     | 1.0    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| Xylenes, Total                 | 19     | 1.5    |      | μg/L       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| Surr: 1,2-Dichloroethane-d4    | 95.2   | 70-130 |      | %REC       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| Surr: 4-Bromofluorobenzene     | 111    | 70-130 |      | %REC       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| Surr: Dibromofluoromethane     | 103    | 70-130 |      | %REC       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| Surr: Toluene-d8               | 100    | 70-130 |      | %REC       | 1  | 12/29/2013 7:47:46 PM | R15774       |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analys                | : BCN        |
| Petroleum Hydrocarbons, TR     | ND     | 1.0    |      | mg/L       | 1  | 12/27/2013            | 10991        |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |            |    | Analys                | : SCC        |
| Phenolics, Total Recoverable   | 36     | 12     |      | μg/L       | 5  | 1/8/2014              | 11134        |
| SM4500-H+B: PH                 |        |        |      |            |    | Analys                | t: JML       |
| рН                             | 7.33   | 1.68   | Н    | pH units   | 1  | 12/26/2013 3:28:37 PM | 1 R15744     |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analys                | t: JML       |
| Bicarbonate (As CaCO3)         | 440    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 3:28:37 PM | 1 R15744     |
| Carbonate (As CaCO3)           | ND     | 2.0    |      | mg/L CaCO3 | 1  | 12/26/2013 3:28:37 PM | 1 R15744     |
| Total Alkalinity (as CaCO3)    | 440    | 20     |      | mg/L CaCO3 | 1  | 12/26/2013 3:28:37 PM | 1 R15744     |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analys                | t: <b>KS</b> |
| Total Dissolved Solids         | 1190   | 40.0   | *    | mg/L       | 1  | 12/27/2013 10:29:00 A | M 10984      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit  $Page\ 6\ of\ 34$  Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Analytical Report Lab Order 1312B40

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/16/2014

CLIENT: Cyrq Energy Inc Client Sample ID: Trip Blank

Project: Lightning Dock Geothermal Water Qualit Collection Date:

Lab ID: 1312B40-002 Matrix: TRIP BLANK Received Date: 12/24/2013 10:30:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed         | Batch    |
|--------------------------------|--------|-------|----------|----|-----------------------|----------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Analyst               | : LRW    |
| 1,2-Dibromoethane              | ND     | 0.010 | µg/L     | 1  | 12/26/2013 3:55:28 PM | 10989    |
| EPA METHOD 8260B: VOLATILES    |        |       |          |    | Analyst               | : cadg   |
| Benzene                        | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Toluene                        | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Ethylbenzene                   | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 1,2,4-Trimethylbenzene         | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 1,3,5-Trimethylbenzene         | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Naphthalene                    | ND     | 2.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 1-Methylnaphthalene            | ND     | 4.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 2-Methylnaphthalene            | ND     | 4.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Acetone                        | ND     | 10    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Bromobenzene                   | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Bromodichloromethane           | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Bromoform                      | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Bromomethane                   | ND     | 3.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 2-Butanone                     | ND     | 10    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Carbon disulfide               | ND     | 10    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Carbon Tetrachloride           | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Chlorobenzene                  | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Chloroethane                   | ND     | 2.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Chloroform                     | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Chloromethane                  | ND     | 3.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| 2-Chlorotoluene                | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| 4-Chlorotoluene                | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| cis-1,2-DCE                    | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| cis-1,3-Dichloropropene        | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| 1,2-Dibromo-3-chloropropane    | ND     | 2.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Dibromochloromethane           | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Dibromomethane                 | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| 1,2-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| 1,3-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| 1,4-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Dichlorodifluoromethane        | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| 1,1-Dichloroethane             | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| 1,1-Dichloroethene             | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| 1,2-Dichloropropane            | ND     | 1.0   | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 7
  - P Sample pH greater than 2 for VOA and TOC only.
  - RL Reporting Detection Limit

Date Reported: 1/16/2014

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: Trip Blank

Project: Lightning Dock Geothermal Water Qualit

CLIENT: Cyrq Energy Inc

Collection Date:

Lab ID: 1312B40-002 Matrix: TRIP BLANK Received Date: 12/24/2013 10:30:00 AM

| Analyses                    | Result | RL Qu  | al Units | DF | Date Analyzed         | Batch    |
|-----------------------------|--------|--------|----------|----|-----------------------|----------|
| EPA METHOD 8260B: VOLATILES |        |        |          |    | Analyst               | cadg     |
| 1,3-Dichloropropane         | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 2,2-Dichloropropane         | ND     | 2.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 1,1-Dichloropropene         | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Hexachlorobutadiene         | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 2-Hexanone                  | ND     | 10     | µg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Isopropylbenzene            | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 4-Isopropyltoluene          | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 4-Methyl-2-pentanone        | ND     | 10     | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Methylene Chloride          | ND     | 3.0    | μg/Ĺ     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| n-Butylbenzene              | ND     | 3.0    | µg/Ľ     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| n-Propylbenzene             | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| sec-Butylbenzene            | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Styrene                     | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| tert-Butylbenzene           | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| Tetrachloroethene (PCE)     | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| trans-1,2-DCE               | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| trans-1,3-Dichloropropene   | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 1,2,3-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 1,2,4-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | R15774   |
| 1,1,1-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| 1,1,2-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Trichloroethene (TCE)       | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Trichlorofluoromethane      | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| 1,2,3-Trichloropropane      | ND     | 2.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Vinyl chloride              | ND     | 1.0    | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Xylenes, Total              | ND     | 1.5    | μg/L     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Surr: 1,2-Dichloroethane-d4 | 103    | 70-130 | %REC     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Surr: 4-Bromofluorobenzene  | 109    | 70-130 | %REC     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Surr: Dibromofluoromethane  | 111    | 70-130 | %REC     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |
| Surr: Toluene-d8            | 96.5   | 70-130 | %REC     | 1  | 12/28/2013 8:43:59 AM | 1 R15774 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 8 of 34
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D - Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** 

HALL ENVIRONMENTAL ANALYSIS LAB

131227021

Address:

4901 HAWKINS NE SUITE D

**Project Name:** 

Batch #:

1312B40

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

## **Analytical Results Report**

Sample Number

131227021-001

Sampling Date

12/21/2013

Date/Time Received 12/27/2013 12:23 PM

Client Sample ID

1312B40-001M / LDG 47-7

Sampling Time

Units

mg/L

1:00 PM

Matrix Comments Water

| Parameter | Result |
|-----------|--------|
| Cyanide   | ND     |

PQL **Analysis Date** 0.01 1/2/2014

Analyst Method Qualifier CRW EPA 335.4

Sample Number

131227021-002

Sampling Date 12/21/2013 Date/Time Received 12/27/2013 12:23 PM

Client Sample ID

1312B40-0010 / LDG 47-7

Sampling Time 1:00 PM

Units

mg/L

Matrix

Water

Comments

| Parameter | Result |
|-----------|--------|
| Total P   | 0.243  |

| PQL  |  |
|------|--|
| 0.01 |  |

Analysis Date 1/7/2014

Analyst CRW

Method Qualifier SM4500PF

Authorized Signature

John Coddington, Lab Manager

MCL

EPA's Maximum Contaminant Level

ND

Not Detected

PQL Practical Quantitation Limit

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Soil/solid results are reported on a dry-weight basis unless otherwise noted.



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### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:

Hall Environmental

Project: Lab ID:

Not Indicated

B13121948-001

Client Sample ID: 1312B40-001K-L, LDG 47-7

Report Date: 01/09/14

DateReceived: 12/27/13

Collection Date: 12/21/13 13:00

Matrix: Aqueous

|                         | MCL/   |       |            |      |            |                         |  |  |  |  |
|-------------------------|--------|-------|------------|------|------------|-------------------------|--|--|--|--|
| Analyses                | Result | Units | Qualifiers | RL   | QCL Method | Analysis Date / By      |  |  |  |  |
| METALS, DISSOLVED       |        |       |            |      |            |                         |  |  |  |  |
| Lithium                 | 1.0    | mg/L  |            | 0.1  | E200.7     | 12/30/13 13:27 / rlh    |  |  |  |  |
| Rubidium                | 0.24   | mg/L  |            | 0.01 | E200.8     | 01/09/14 11:38 / jjw    |  |  |  |  |
| Tungsten                | ND     | mg/L  |            | 0.1  | E200.8     | 01/09/14 11:38 / jjw    |  |  |  |  |
| RADIONUCLIDES           |        |       |            |      |            |                         |  |  |  |  |
| Radon 222               | -33.4  | pCi/L | UH         |      | D5072-92   | 12/31/13 12:25 / eli-ca |  |  |  |  |
| Radon 222 precision (±) | 185    | pCi/L | Н          |      | D5072-92   | 12/31/13 12:25 / eli-ca |  |  |  |  |
| Radon 222 MDC           | 322    | pCi/L | Н          |      | D5072-92   | 12/31/13 12:25 / eli-ca |  |  |  |  |

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

H - Analysis performed past recommended holding time.

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# **QA/QC Summary Report**

Prepared by Billings, MT Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 01/09/14

Work Order: B13121948

| •          |                    |       |               |                       |                  |      |            |             |             |              |           |
|------------|--------------------|-------|---------------|-----------------------|------------------|------|------------|-------------|-------------|--------------|-----------|
| Analyte    |                    | Count | Result        | Units                 | RL               | %REC | Low Limit  | High Limit  | RPD         | RPDLimit     | Qual      |
| Method:    | E200.7             |       |               |                       | <del>-</del> ,-, |      |            | Ana         | alytical Ru | un: ICP203-B | 131230/   |
| Sample ID: | ICV                | Co    | ntinuing Cali | ibration Verification | n Standard       |      |            |             |             | 12/30        | /13 10:48 |
| Lithium    |                    |       | 1.20          | mg/L                  | 0.10             | 96   | 95         | 105         |             |              |           |
| Method:    | E200.7             |       |               |                       |                  |      |            |             |             | Batch:       | R21713    |
| Sample ID: | MB-6500DIS131230A  | . Me  | thod Blank    |                       |                  |      | Run: ICP20 | 3-B_131230A |             | 12/30        | /13 11:11 |
| Lithium    |                    |       | ND            | mg/L                  | 0.0003           |      |            |             |             |              |           |
| Sample ID: | LFB-6500DIS131230A | Lat   | oratory Fort  | tified Blank          |                  |      | Run: ICP20 | 3-B_131230A |             | 12/30        | /13 11:15 |
| Lithium    |                    |       | 1.02          | mg/L                  | 0.10             | 102  | 85         | 115         |             |              |           |
| Sample ID: | B13121948-001AMS2  | Sa.   | mple Matrix   | Spike                 |                  |      | Run: ICP20 | 3-B_131230A |             | 12/30        | /13 13:35 |
| Lithium    |                    |       | 6.00          | mg/L                  | 0.10             | 101  | 70         | 130         |             |              |           |
| Sample ID: | B13121948-001AMSD  | )2 Sa | mple Matrix   | Spike Duplicate       |                  |      | Run: ICP20 | 3-B_131230A |             | 12/30        | /13 13:38 |
| Lithium    |                    |       | 6.30          | mg/L                  | 0.10             | 107  | 70         | 130         | 4.8         | 20           |           |



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## **QA/QC Summary Report**

Prepared by Billings, MT Branch

Client: Hall Environmental

Project: Not indicated

Report Date: 01/09/14

Work Order: B13121948

| Analyte      |                   | Count | Result             | Units            | RL    | %REC | Low Limit  | High Limit     | RPD     | RPDLimit  | Qual       |
|--------------|-------------------|-------|--------------------|------------------|-------|------|------------|----------------|---------|-----------|------------|
| Method:      | E200.8            |       |                    |                  |       |      |            | Analytic       | al Run: | CPMS203-B | _140109A   |
| Sample ID: C | CS-               | 2 (   | nitial Calibration | Verification Sta | ndard |      |            |                |         | 01/09     | /14 09:38  |
| Rubidium     |                   |       | 0.0527             | mg/L             | 0.010 | 105  | 90         | 110            |         |           |            |
| Tungsten     |                   |       | 0.0526             | mg/L             | 0.10  | 105  | 90         | 110            |         |           |            |
| Method: I    | E200.8            |       |                    |                  |       |      |            |                |         | Batch     | : R217575  |
| Sample ID: L | .FB               | 2 1   | aboratory Forti    | fied Blank       |       |      | Run: ICPMS | 3203-B_140109A | 4       | 01/09     | /14 09:54  |
| Rubidium     |                   |       | 0.0492             | mg/L             | 0.010 | 98   | 85         | 115            |         |           |            |
| Tungsten     |                   |       | 0.0508             | mg/L             | 0.10  | 102  | 85         | 115            |         |           |            |
| Sample ID: L | -RB               | 2 1   | Method Blank       |                  |       |      | Run: ICPMS | 6203-B_140109A | Ą       | 01/09     | /14 10:22  |
| Rubidium     |                   |       | ND                 | mg/L             | 0.001 |      |            |                |         |           |            |
| Tungsten     |                   |       | ND                 | mg/L             | 0.001 |      |            |                |         |           |            |
| Sample ID: E | 313121948-001AMS  | 2 5   | Sample Matrix S    | Spike            |       |      | Run: ICPMS | S203-B_140109A | 4       | 01/09     | )/14 11:54 |
| Rubidium     |                   |       | 0.186              | mg/L             | 0.010 |      | 70         | 130            |         |           | Α          |
| Tungsten     |                   |       | 0.141              | mg/L             | 0.10  | 137  | 70         | 130            |         |           | S          |
| Sample ID: E | 313121948-001AMSE | 2 9   | Sample Matrix S    | Spike Duplicate  |       |      | Run: ICPMS | S203-B_140109A | A       | 01/09     | 9/14 11:58 |
| Rubidium     |                   |       | 0.183              | mg/L             | 0.010 |      | 70         | 130            | 1.5     | 20        | Α          |
| Tungsten     |                   |       | 0.138              | mg/L             | 0.10  | 131  | 70         | 130            | 2.1     | 20        | S          |



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Gilletta, WY 858-888-7175 · Rapid City, SD 888-672-1225 · College Station, TX 888-690-2218

# **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 01/02/14
Work Order: B13121948

| Analyte                                    | Result            | Units              | FiL | %REC | Low Limit | High Limit    | RPD              | RPDLimit | Qual       |
|--|-------------------|--------------------|-----|------|-----------|---------------|------------------|----------|------------|
| Method: D5072-92                           |                   |                    |     |      |           |               |                  | Batch:   | R182194    |
| Sample ID: B13121948-001BDUP               | Sample Duplica    | ate                |     |      | Run: PACK | (ARD 3100TR   | 131231A          | 12/31    | 1/13 12:25 |
| Radon 222                                  | 53.2              | pCi/L              |     |      |           |               | 870              | 20       | UR         |
| Radon 222 precision (±)                    | 187               | pCi/L              |     |      |           |               |                  |          |            |
| Radon 222 MDC                              | 322               | pCi/L              |     |      |           |               |                  |          |            |
| - The Sample and the Duplicate are both be | elow the MDC. The | RPD is acceptable. |     |      |           |               |                  |          |            |
| Sample ID: MB-R182194                      | Method Blank      |                    |     |      | Run: PACK | KARD 3100TR_  | 131 <b>2</b> 31A | 12/31    | /13 12:25  |
| Radon 222                                  | 10                | pCí/L              |     |      |           |               |                  |          | U          |
| Radon 222 precision (±)                    | 30                | pCi/L              |     |      |           |               |                  |          |            |
| Radon 222 MDC                              | 50                | pCi/L              |     |      |           |               |                  |          |            |
| Sample ID: LCS-R182194                     | Laboratory Con    | trol Sample        |     |      | Run: PAC  | (ARD 3100TR_1 | 131231A          | 12/31    | 1/13 12:25 |
| Radon 222                                  | 548               | pCi/L              |     | 94   | 80        | 120           |                  |          |            |



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Qual

### **ANALYTICAL RESULTS**

Project:

PWS:

Radium-226

Radium-228

1312B40

Pace Project No.: 30110466

Sample: 1312B40-001 LDG 47-7

Lab ID: 30110466001

Site ID:

Method

EPA 903.1

EPA 904.0

Collected: 12/21/13 13:00 Received: 12/27/13 09:30 Matrix: Water

Sample Type:

Parameters

Act ± Unc (MDC)  $0.0340 \pm 0.481 \quad (0.981)$ 

-0.191 ± 0.378 (0.924)

pCi/L pCi/L

Units

Analyzed CAS No. 01/10/14 16:13 13982-63-3 01/14/14 15:02 15262-20-1

**REPORT OF LABORATORY ANALYSIS** 

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### **QUALITY CONTROL DATA**

Project:

1312B40

Pace Project No.: 30110466

QC Batch:

RADC/18217

Analysis Method:

EPA 903.1

QC Batch Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples:

30110466001

Matrix: Water

METHOD BLANK: 675523

Associated Lab Samples: 30110466001

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-226

-0.139 ± 0.532 (0.990)

pCi/L

01/10/14 15:26



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### **QUALITY CONTROL DATA**

Project:

1312B40

Pace Project No.: 30110466

QC Batch:

RADC/18211

Analysis Method:

EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples: 30110466001

Matrix: Water

METHOD BLANK: 675092 Associated Lab Samples:

Parameter

30110466001

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-228

 $0.120 \pm 0.275$  (0.611)

pCi/L

01/14/14 11:53

**REPORT OF LABORATORY ANALYSIS** 

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40 16-Jan-14

Cyrq Energy Inc Client:

Lightning Dock Geothermal Water Quality Moni Project:

| Sample ID MB   | Samp             | Туре: МЕ | BLK       | Tes         | tCode: El | PA Method | 200.7: Dissol | ved Meta | s        |      |
|----------------|------------------|----------|-----------|-------------|-----------|-----------|---------------|----------|----------|------|
| Client ID: PBW | Batch ID: R15768 |          |           | F           | RunNo: 1  | 5768      |               |          |          |      |
| Prep Date:     | Analysis (       | Date: 12 | 2/27/2013 | S           | SeqNo: 4  | 55078     | Units: mg/L   |          |          |      |
| Analyte        | Result           | PQL      | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |
| Barium         | ND               | 0.0020   |           |             |           |           |               |          |          |      |
| Boron          | ND               | 0.040    |           |             |           |           |               |          |          |      |
| Cadmium        | ND               | 0.0020   |           |             |           |           |               |          |          |      |
| Cobalt         | ND               | 0.0060   |           |             |           |           |               |          |          |      |
| Copper         | ND               | 0.0060   |           |             |           |           |               |          |          |      |
| Manganese      | ND               | 0.0020   |           |             |           |           |               |          |          |      |
| Molybdenum     | ND               | 0.0080   |           |             |           |           |               |          |          |      |
| Nickel         | ND               | 0.010    |           |             |           |           |               |          |          |      |
| Silver         | ND               | 0.0050   |           |             |           |           |               |          |          |      |
| Zinc           | ND               | 0.010    |           |             |           |           |               |          |          |      |

| Sample ID LCS   | Samp <sup>*</sup> | Type: <b>LC</b> | S         | Tes         | Code: El | PA Method | 200.7: Disso | ved Meta | Is       |      |
|-----------------|-------------------|-----------------|-----------|-------------|----------|-----------|--------------|----------|----------|------|
| Client ID: LCSW | Batc              | h ID: R1        | 5768      | F           | tunNo: 1 | 5768      |              |          |          |      |
| Prep Date:      | Analysis [        | Date: 12        | 2/27/2013 | S           | eqNo: 4  | 55079     | Units: mg/L  |          |          |      |
| Analyte         | Result            | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit    | %RPD     | RPDLimit | Qual |
| Barium          | 0.51              | 0.0020          | 0.5000    | 0           | 102      | 85        | 115          |          |          |      |
| Boron           | 0.52              | 0.040           | 0.5000    | 0           | 104      | 85        | 115          |          |          |      |
| Cadmium         | 0.52              | 0.0020          | 0.5000    | 0           | 103      | 85        | 115          |          |          |      |
| Cobalt          | 0.51              | 0.0060          | 0.5000    | 0           | 101      | 85        | 115          |          |          |      |
| Copper          | 0.51              | 0.0060          | 0.5000    | 0           | 102      | 85        | 115          |          |          |      |
| Manganese       | 0.53              | 0.0020          | 0.5000    | 0           | 105      | 85        | 115          |          |          |      |
| Molybdenum      | 0.52              | 0.0080          | 0.5000    | 0           | 103      | 85        | 115          |          |          |      |
| Nickel          | 0.50              | 0.010           | 0.5000    | 0           | 99.4     | 85        | 115          |          |          |      |
| Silver          | 0.10              | 0.0050          | 0.1000    | 0           | 105      | 85        | 115          |          |          |      |
| Zinc            | 0.52              | 0.010           | 0.5000    | 0           | 103      | 85        | 115          |          |          |      |

| Sample ID MB   | SampT      | ype: ME       | BLK       | TestCode: EPA Method 200.7: Dissolved Metals |          |          |             |      |          |      |  |
|----------------|------------|---------------|-----------|--|----------|----------|-------------|------|----------|------|--|
| Client ID: PBW | Batch      | ID: <b>R1</b> | 5805      | F  | RunNo: 1 | 5805     |             |      |          |      |  |
| Prep Date:     | Analysis D | ate: 12       | 2/30/2013 | S  | SeqNo: 4 | 56073    | Units: mg/L |      |          |      |  |
| Analyte        | Result     | PQL           | SPK value | SPK Ref Val                                  | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |  |
| Calcium        | ND         | 1.0           |           |  |          |          |             |      |          |      |  |
| Iron           | ND         | 0.020         |           |  |          |          |             |      |          |      |  |
| Magnesium      | ND         | 1.0           |           |  |          |          |             |      |          |      |  |
| Potassium      | ND         | 1.0           |           |  |          |          |             |      |          |      |  |
| Sodium         | ND         | 1.0           |           |  |          |          |             |      |          |      |  |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range E
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit Ο
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
  - Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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# 'all Environmental Analysis Laboratory, Inc.

WO#: 1

1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID LCS   | SampT      | ype: LC       | S         | TestCode: EPA Method 200.7: Dissolved Metals |                          |          |           |      |          |      |
|-----------------|------------|---------------|-----------|--|--------------------------|----------|-----------|------|----------|------|
| Client ID: LCSW | Batch      | 1D: <b>R1</b> | 5805      | R  | RunNo: 15805             |          |           |      |          |      |
| Prep Date:      | Analysis D | ate: 12       | 2/30/2013 | S  | SeqNo: 456074 Units: mg/ |          |           |      |          |      |
| Analyte         | Result     | PQL           | SPK value | SPK Ref Val                                  | %REC                     | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Calcium         | 50         | 1.0           | 50.00     | 0  | 101                      | 85       | 115       |      |          |      |
| Iron            | 0.54       | 0.020         | 0.5000    | 0  | 107                      | 85       | 115       |      |          |      |
| Magnesium       | 51         | 1.0           | 50.00     | 0  | 102                      | 85       | 115       |      |          |      |
| Potassium       | 50         | 1.0           | 50.00     | 0  | 101                      | 85       | 115       |      |          |      |
| Sodium          | 50         | 1.0           | 50.00     | 0  | 100                      | 85       | 115       |      |          |      |

| Sample ID 1312B40-001JMS | SampT      | SampType: MS TestCode: EPA Method 200.7: Dissolved Metals |           |             |              |          |             |      |          |      |
|--------------------------|------------|---|-----------|-------------|--------------|----------|-------------|------|----------|------|
| Client ID: LDG 47-7      | Batch      | n ID: <b>R1</b>   | 5805      | F           | RunNo: 15805 |          |             |      |          |      |
| Prep Date:               | Analysis D | Date: 12  | 2/30/2013 | 5           | SeqNo: 4     | 56137    | Units: mg/L |      |          |      |
| Analyte                  | Result     | PQL   | SPK value | SPK Ref Val | %REC         | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Calcium                  | 61         | 1.0   | 50.00     | 12.45       | 96.3         | 70       | 130         |      |          |      |
| Iron                     | 0.81       | 0.020   | 0.5000    | 0.3210      | 96.9         | 70       | 130         |      |          |      |
| Magnesium                | 49         | 1.0   | 50.00     | 0.5473      | 96.3         | 70       | 130         |      |          |      |
| Potassium                | 70         | 1.0   | 50.00     | 21.92       | 96.5         | 70       | 130         |      |          |      |

| ample ID 1312B40-001J | <b>MSD</b> SampT | ype: MS       | D         | Tes         | tCode: El    | PA Method | 200.7: Dissol | ved Metal | s        |      |
|-----------------------|------------------|---------------|-----------|-------------|--------------|-----------|---------------|-----------|----------|------|
| lient ID: LDG 47-7    | Batch            | 1D: <b>R1</b> | 5805      | F           | RunNo: 15805 |           |               |           |          |      |
| Prep Date:            | Analysis D       | Date: 12      | 2/30/2013 | 8           | SeqNo: 4     | 56138     | Units: mg/L   |           |          |      |
| Analyte               | Result           | PQL           | SPK value | SPK Ref Val | %REC         | LowLimit  | HighLimit     | %RPD      | RPDLimit | Qual |
| Calcium               | 60               | 1.0           | 50.00     | 12.45       | 95.0         | 70        | 130           | 1.05      | 20       |      |
| Iron                  | 0.81             | 0.020         | 0.5000    | 0.3210      | 98.2         | 70        | 130           | 0.793     | 20       |      |
| Magnesium             | 48               | 1.0           | 50.00     | 0.5473      | 95.2         | 70        | 130           | 1.17      | 20       |      |
| Potassium             | 70               | 1.0           | 50.00     | 21.92       | 95.2         | 70        | 130           | 0.905     | 20       |      |

| Sample ID 1312B40-001JMS | SampT      | ype: <b>MS</b> | 3         | TestCode: EPA Method 200.7: Dissolved Metals |          |          |             |      |          |      |
|--------------------------|------------|----------------|-----------|--|----------|----------|-------------|------|----------|------|
| Client ID: LDG 47-7      | Batch      | ID: <b>R1</b>  | 5921      | R  | tunNo: 1 | 5921     |             |      |          |      |
| Prep Date:               | Analysis D | ate: 1/        | 7/2014    | S  | eqNo: 4  | 59107    | Units: mg/L |      |          |      |
| Analyte                  | Result     | PQL            | SPK value | SPK Ref Val                                  | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Aluminum                 | 0.63       | 0.020          | 0.5000    | 0.04959                                      | 116      | 70       | 130         |      |          |      |

| Sample ID 1312B40-001JMS | D SampT     | ype: MS | SD             | Test        | Code: El | PA Method | 200.7: Dissol | ved Metal | s        |      |
|--------------------------|-------------|---------|----------------|-------------|----------|-----------|---------------|-----------|----------|------|
| Client ID: LDG 47-7      | Batch       | ID: R1  | 5921           | R           | tunNo: 1 | 5921      |               |           |          |      |
| Prep Date:               | Analysis Da | ate: 1/ | 7/ <b>2014</b> | S           | eqNo: 4  | 59108     | Units: mg/L   |           |          |      |
| Analyte                  | Result      | PQL     | SPK value      | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD      | RPDLimit | Qual |
| Aluminum                 | 0.64        | 0.020   | 0.5000         | 0.04959     | 118      | 70        | 130           | 2.02      | 20       |      |

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

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P Sample pH greater than 2 for VOA and TOC only.

RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB

SampType: MBLK

TestCode: EPA Method 200.7: Dissolved Metals

Client ID: Prep Date:

PBW

Batch ID: R15921

PQL

RunNo: 15921

Analysis Date: 1/7/2014

SeqNo: 459138

Units: mg/L

HighLimit

**RPDLimit** 

Qual

Analyte Aluminum

ND 0.020

Sample ID LCS

SampType: LCS

TestCode: EPA Method 200.7: Dissolved Metals

SPK value SPK Ref Val %REC LowLimit

Client ID: LCSW Batch ID: R15921

0.020

RunNo: 15921

Prep Date:

Analysis Date: 1/7/2014

Result

SeqNo: 459139

Units: mg/L

%RPD

Qual

Analyte

Result **PQL** 

SPK value SPK Ref Val

%REC LowLimit 111

HighLimit

%RPD **RPDLimit** 

Aluminum

0.56

0.5000

115

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#:

1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID LCS   | SampType: LCS    |          |           | Test         | Code: El     |          |              |      |          |      |
|-----------------|------------------|----------|-----------|--------------|--------------|----------|--------------|------|----------|------|
| Client ID: LCSW | Batch ID: R15963 |          |           | RunNo: 15963 |              |          |              |      |          |      |
| Prep Date:      | Analysis [       | Date: 1/ | 8/2014    | S            | SeqNo: 4     | 60078    | Units: mg/L  |      |          |      |
| Analyte         | Result           | PQL      | SPK value | SPK Ref Val  | %REC         | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Arsenic         | 0.025            | 0.0010   | 0.02500   | 0            | 98. <b>7</b> | 85       | 115          |      |          |      |
| Lead            | 0.026            | 0.0010   | 0.02500   | 0            | 104          | 85       | 115          |      |          |      |
| Selenium        | 0.023            | 0.0010   | 0.02500   | 0            | 93.5         | 85       | 115          |      |          |      |
| Uranium         | 0.025            | 0.0010   | 0.02500   | 0            | 101          | 85       | 1 <b>1</b> 5 |      |          |      |

| Sample ID MB   | SampType: <b>MBLK</b> |                 |           | Tes         | TestCode: EPA 200.8: Dissolved Metals |          |             |      |          |      |
|----------------|-----------------------|-----------------|-----------|-------------|---------------------------------------|----------|-------------|------|----------|------|
| Client ID: PBW | Bato                  | h ID: <b>R1</b> | 5963      | F           | RunNo: 1                              | 5963     |             |      |          |      |
| Prep Date:     | Analysis [            | Date: 1/        | 8/2014    | S           | SeqNo: 4                              | 60079    | Units: mg/L |      |          |      |
| Analyte        | Result                | PQL             | SPK value | SPK Ref Val | %REC                                  | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Arsenic        | ND                    | 0.0010          |           |             |                                       |          |             |      |          |      |
| Lead           | ND                    | 0.0010          |           |             |                                       |          |             |      |          |      |
| Selenium       | ND                    | 0.0010          |           |             |                                       |          |             |      |          |      |
| Uranium        | ND                    | 0.0010          |           |             |                                       |          |             |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level. Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrq Energy Inc

PBW

Client ID:

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID MB-11092 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Prep Date: 1/6/2014 Analysis Date: 1/7/2014 SeqNo: 459682 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

RunNo: 15947

Mercury ND 0.00020

Sample ID LCS-11092 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 11092 RunNo: 15947

Batch ID: 11092

Prep Date: 1/6/2014 Analysis Date: 1/7/2014 SeqNo: 459683 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury 0.0051 0.00020 0.005000 0 101 80 120

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

II II-lding times for any size or analysis areas

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# 'all Environmental Analysis Laboratory, Inc.

WO#: 1312B40 16-Jan-14

Client: Cyrq Energy Inc

Lightning Dock Geothermal Water Quality Moni Project:

| Sample ID MB                     | SampType: MBLK |                |           | Tes         | tCode: E | PA Method | ;           |      |          |      |
|----------------------------------|----------------|----------------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: PBW                   | Batch          | ID: <b>R</b> 1 | 5742      | F           | RunNo: 1 | 5742      |             |      |          |      |
| Prep Date:                       | Analysis D     | ate: 12        | 2/24/2013 | S           | SeqNo: 4 | 54474     | Units: mg/L |      |          |      |
| Analyte                          | Result         | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | ND             | 0.10           |           |             |          |           |             |      |          |      |
| Chloride                         | ND             | 0.50           |           |             |          |           |             |      |          |      |
| Bromide                          | ND             | 0.10           |           |             |          |           |             |      |          |      |
| Phosphorus, Orthophosphate (As`P | ND             | 0.50           |           |             |          |           |             |      |          |      |
| Sulfate                          | ND             | 0.50           |           |             |          |           |             |      |          |      |

| Sample ID LCS-b                  | SampT      | ype: LC         | s         | Test        | tCode: El | PA Method | 300.0: Anions | 5    |          |      |
|----------------------------------|------------|-----------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: LCSW                  | Batch      | n ID: <b>R1</b> | 5742      | R           | RunNo: 1  | 5742      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12         | 2/24/2013 | S           | SeqNo: 4  | 54478     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.52       | 0.10            | 0.5000    | 0           | 104       | 90        | 110           |      |          |      |
| Chloride                         | 4.7        | 0.50            | 5.000     | 0           | 94.1      | 90        | 110           |      |          |      |
| Bromide                          | 2.5        | 0.10            | 2.500     | 0           | 98.7      | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50            | 5.000     | 0           | 95.0      | 90        | 110           |      |          |      |
| Sulfate                          | 9.6        | 0.50            | 10.00     | 0           | 96.1      | 90        | 110           |      |          |      |

| ample ID A5                      | SampT      | ype: CC       | V_5       | Tes         | TestCode: EPA Method 300.0: Anions |          |             |      |          |      |  |
|----------------------------------|------------|---------------|-----------|-------------|------------------------------------|----------|-------------|------|----------|------|--|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5742      | F           | RunNo: 1                           | 5742     |             |      |          |      |  |
| Prep Date:                       | Analysis D | ate: 12       | 2/24/2013 | S           | SeqNo: 4                           | 54484    | Units: mg/L |      |          |      |  |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC                               | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |  |
| Fluoride                         | 1.7        | 0.10          | 1.600     | 0           | 108                                | 90       | 110         |      |          |      |  |
| Chloride                         | 7.9        | 0.50          | 8.000     | 0           | 98.4                               | 90       | 110         |      |          |      |  |
| Bromide                          | 8.1        | 0.10          | 8.000     | 0           | 101                                | 90       | 110         |      |          |      |  |
| Phosphorus, Orthophosphate (As P | 8.0        | 0.50          | 8.000     | 0           | 99.4                               | 90       | 110         |      |          |      |  |
| Sulfate                          | 20         | 0.50          | 20.00     | 0           | 100                                | 90       | 110         |      |          |      |  |

| Sample ID A4                     | SampT      | ype: CC       | V_4       | Tes         | tCode: El | PA Method | 300.0: Anions | 3    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5742      | F           | RunNo: 1  | 5742      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/24/2013 | 5           | SeqNo: 4  | 54496     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.1        | 0.10          | 1.000     | 0           | 109       | 90        | 110           |      |          |      |
| Chloride                         | 4.8        | 0.50          | 5.000     | 0           | 95.6      | 90        | 110           |      |          |      |
| Bromide                          | 5.0        | 0.10          | 5.000     | 0           | 99.4      | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.8        | 0.50          | 5.000     | 0           | 95.7      | 90        | 110           |      |          |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0           | 97.1      | 90        | 110           |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

ND Not Detected at the Reporting Limit Page 14 of 34

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID 1312B40-001GMS SampType: MS TestCode: EPA Method 300.0: Anions

Client ID: LDG 47-7 Batch ID: R15742 RunNo: 15742

Prep Date: Analysis Date: 12/24/2013 SeqNo: 454504 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Bromide 2.8 0.10 2.500 0.3221 99.7 85.9 111

Sample ID 1312B40-001GMSD SampType: MSD TestCode: EPA Method 300.0: Anions

Client ID: LDG 47-7 Batch ID: R15742 RunNo: 15742

Prep Date: Analysis Date: 12/24/2013 SeqNo: 454505 Units: mg/L

SPK value SPK Ref Val %RPD **RPDLimit** Result **PQL** %REC LowLimit HighLimit Qual Analyte 2.8 0.10 2.500 0.3221 100 85.9 111 0.397 20 Bromide

| Sample ID A5                     | SampT      | ype: CC       | V_5       | Tes         | tCode: El | PA Method | 300.0: Anions | 6    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5742      | F           | RunNo: 1  | 5742      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/24/2013 | S           | SeqNo: 4  | 54508     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.8        | 0.10          | 1.600     | 0           | 109       | 90        | 110           |      |          |      |
| Chloride                         | 8.0        | 0.50          | 8.000     | 0           | 99.5      | 90        | 110           |      |          |      |
| Bromide                          | 8.1        | 0.10          | 8.000     | 0           | 101       | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 8.0        | 0.50          | 8.000     | 0           | 99.9      | 90        | 110           |      |          |      |
| Sulfate                          | 20         | 0.50          | 20.00     | 0           | 101       | 90        | 110           |      |          |      |

| Sample ID A4                     | SampT      | ype: CC       | V_4       | Tes         | tCode: El | PA Method | 300.0: Anions | 6    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5742      | F           | RunNo: 1  | 5742      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/24/2013 | 8           | SeaNo: 4  | 54513     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.1        | 0.10          | 1.000     | 0           | 107       | 90        | 110           |      |          |      |
| Chloride                         | 4.8        | 0.50          | 5.000     | 0           | 96.4      | 90        | 110           |      |          |      |
| Bromide                          | 5.0        | 0.10          | 5.000     | 0           | 100       | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.8        | 0.50          | 5.000     | 0           | 96.9      | 90        | 110           |      |          |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0           | 97.8      | 90        | 110           |      |          |      |

| Sample ID A6         | SampType: CCV_6           | TestCode: EPA Method 300.0: Anions     |                  |
|----------------------|---------------------------|--|------------------|
| Client ID: BatchQC   | Batch ID: R15794          | RunNo: 15794                           |                  |
| Prep Date:           | Analysis Date: 12/27/2013 | SeqNo: 455808 Units: mg/L              |                  |
| Analyte              | Result PQL SPK value      | SPK Ref Val %REC LowLimit HighLimit %R | PD RPDLimit Qual |
| Nitrate+Nitrite as N | 13 0.20 12.00             | 0 106 90 110                           |                  |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# 'all Environmental Analysis Laboratory, Inc.

WO#: 1312B40 16-Jan-14

| Client:           | Cyrq En  | 0,5         |                |             |             |               |           |               |      |          |      |
|-------------------|----------|-------------|----------------|-------------|-------------|---------------|-----------|---------------|------|----------|------|
| Project:          | Lightnin | g Dock Geo  | therma         | ıl Water Qu | ality Moni  |               |           |               |      |          |      |
| Sample ID         | мв       | SampTy      | /pe: <b>ME</b> | BLK         | Tes         | tCode: El     | PA Method | 300.0: Anions |      |          |      |
| Client ID:        | PBW      | Batch       | ID: <b>R1</b>  | 5794        | F           | RunNo: 1      | 5794      |               |      |          |      |
| Prep Date:        |          | Analysis Da | ate: 12        | 2/27/2013   | S           | SeqNo: 4      | 55810     | Units: mg/L   |      |          |      |
| Analyte           |          | Result      | PQL            | SPK value   | SPK Ref Val | %REC          | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Nitrate+Nitrite a | as N     | ND          | 0.20           |             |             |               |           |               |      |          |      |
| Sample ID         | LCS      | SampTy      | /pe: LC        | s           | Tes         | tCode: El     | PA Method | 300.0: Anions |      |          |      |
| Client ID:        | LCSW     | Batch       | ID: <b>R1</b>  | 5794        | F           | RunNo: 1      | 5794      |               |      |          |      |
| Prep Date:        |          | Analysis Da | ate: 12        | 2/27/2013   | 8           | SeqNo: 4      | 55811     | Units: mg/L   |      |          |      |
| Analyte           |          | Result      | PQL            | SPK value   | SPK Ref Val | %REC          | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Nitrate+Nitrite a | as N     | 3.4         | 0.20           | 3.500       | 0           | 9 <b>7</b> .6 | 90        | 110           |      |          |      |
| Sample ID         | A4       | SampT       | pe: CC         | CV_4        | Tes         | tCode: El     | PA Method | 300.0: Anions |      |          |      |
| Client ID:        | BatchQC  | Batch       | ID: <b>R1</b>  | 5794        | F           | RunNo: 1      | 5794      |               |      |          |      |
| Prep Date:        |          | Analysis D  | ate: 12        | 2/27/2013   | 8           | SeqNo: 4      | 55820     | Units: mg/L   |      |          |      |
| Analyte           |          | Result      | PQL            | SPK value   | SPK Ref Val | %REC          | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Nitrate+Nitrite a | as N     | 4.9         | 0.20           | 5.000       | 0           | 98.0          | 90        | 110           |      |          |      |
| ample ID          | A5       | SampT       | ype: CC        | V_5         | Tes         | tCode: El     | PA Method | 300.0: Anions | ,    |          |      |
| lient ID:         | BatchQC  | Batch       | ID: <b>R1</b>  | 5794        | F           | RunNo: 1      | 5794      |               |      |          |      |
| Prep Date:        |          | Analysis D  | ate: 12        | 2/27/2013   | S           | SeqNo: 4      | 55832     | Units: mg/L   |      |          |      |
| Analyte           |          | Result      | PQL            | SPK value   | SPK Ref Val | %REC          | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Nitrate+Nitrite a | as N     | 8.1         | 0.20           | 8.000       | 0           | 102           | 90        | 110           |      |          |      |
| Sample ID         | A4       | SampT       | ype: CC        | V_4         | Tes         | tCode: E      | PA Method | 300.0: Anions | ;    |          |      |
| Client ID:        | BatchQC  | Batch       | ID: <b>R1</b>  | 5794        | F           | RunNo: 1      | 5794      |               |      |          |      |
| Prep Date:        |          | Analysis D  | ate: 12        | 2/27/2013   | \$          | SeqNo: 4      | 55844     | Units: mg/L   |      |          |      |
| Analyte           |          | Result      | PQL            | SPK value   | SPK Ref Val | %REC          | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Nitrate+Nitrite a | as N     | 4.9         | 0.20           | 5.000       | 0           | 98.2          | 90        | 110           |      |          |      |
| Sample ID         | A5       | SampT       | ype: CC        | CV_5        | Tes         | tCode: E      | PA Method | 300.0: Anions | ;    |          | 70/  |
| Client ID:        | BatchQC  | Batch       | ID: <b>R1</b>  | 5794        | F           | RunNo: 1      | 5794      |               |      |          |      |
| Prep Date:        |          | Analysis D  | ate: 12        | 2/27/2013   | (           | SeqNo: 4      | 55883     | Units: mg/L   |      |          |      |
| Analyte           |          | Result      | PQL            | SPK value   | SPK Ref Val | %REC          | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Nitrate+Nitrite a | as N     | 8.1         | 0.20           | 8.000       | 0           | 101           | 90        | 110           |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID A4

SampType: CCV\_4

TestCode: EPA Method 300.0: Anions

Client ID: **BatchQC**  Batch ID: R15794

RunNo: 15794

Prep Date:

Analysis Date: 12/28/2013

SeqNo: 455895

Units: mg/L

Result

Analyte Nitrate+Nitrite as N

SPK value SPK Ref Val

%REC LowLimit HighLimit

**RPDLimit** Qual

4.9

5.000

97.8 0

110

WO#:

SampType: CCV\_5

TestCode: EPA Method 300.0: Anions

Sample ID A5 Client ID:

BatchQC

Batch ID: R15794

0.20

RunNo: 15794

Prep Date:

Analysis Date: 12/28/2013

SeqNo: 455907

Units: mg/L

**RPDLimit** 

Analyte Nitrate+Nitrite as N Result **PQL** 7.9 0.20 SPK value SPK Ref Val 8.000

%REC 992

HighLimit 90

%RPD

%RPD

Qual

Sample ID A4

SampType: CCV\_4

TestCode: EPA Method 300.0: Anions

Client ID:

**BatchQC** 

Batch ID: R15794

RunNo: 15794

LowLimit

Units: mg/L

110

Prep Date: Analyte

Analysis Date: 12/28/2013 Result

SeqNo: 455915

%REC LowLimit HighLimit

%RPD **RPDLimit** 

Qual

Nitrate+Nitrite as N

SPK value SPK Ref Val PQL 0.20 5.000

96.4

110

4.8

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit Ο
- R RPD outside accepted recovery limits

- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL

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## all Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10991

SampType: MBLK

TestCode: EPA Method 418.1: TPH

Client ID:

PRW

Batch ID: 10991

RunNo: 15761

Prep Date: 12/26/2013

Analysis Date: 12/27/2013

SeqNo: 454975

Units: mg/L

Qual

Petroleum Hydrocarbons, TR

Result ND

**PQL** 1.0

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD **RPDLimit** 

Analyte

SampType: LCS

TestCode: EPA Method 418.1: TPH

%RPD

Sample ID LCS-10991

Client ID: LCSW

Batch ID: 10991

RunNo: 15761

Units: mg/L

Analyte Petroleum Hydrocarbons, TR

Prep Date:

Prep Date: 12/26/2013

12/26/2013

Analysis Date: 12/27/2013

**PQL** 

SPK value SPK Ref Val %REC

LowLimit

HighLimit 120 **RPDLimit** 

5.3

1.0

5.000

106

SeqNo: 454976

80

Qual

Sample ID LCSD-10991

Client ID: LCSS02

SampType: LCSD

Batch ID: 10991

1.0

TestCode: EPA Method 418.1: TPH

RunNo: 15761

Units: mg/L

**RPDLimit** Qual

Analyte Petroleum Hydrocarbons, TR

PQL Result

5.4

Analysis Date: 12/27/2013

SPK value SPK Ref Val %REC 5.000

LowLimit 108

SeqNo: 454977

HighLimit 120 %RPD 2.24

20

Qualifiers:

RSD is greater than RSDlimit 0

R RPD outside accepted recovery limits

Value exceeds Maximum Contaminant Level.

Value above quantitation range Analyte detected below quantitation limits I

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded Η

Sample pH greater than 2 for VOA and TOC only.

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

P

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10989

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW

Analyte

Batch ID: 10989

RunNo: 15731

Prep Date: 12/26/2013

Analysis Date: 12/26/2013

Result

SeqNo: 454148

SPK value SPK Ref Val %REC LowLimit

Units: µg/L HighLimit

%RPD

**RPDLimit** Qual

1,2-Dibromoethane

PQL ND 0.010

Sample ID LCS-10989

SampType: LCS

TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW

1,2-Dibromoethane

Batch ID: 10989

0.010

RunNo: 15731

Prep Date: 12/26/2013

Analysis Date: 12/26/2013

0.12

0.1000

SeqNo: 454165

117

Units: µg/L

130

%REC Analyte Result PQL SPK value SPK Ref Val LowLimit HighLimit %RPD **RPDLimit** Qual

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits

Spike Recovery outside accepted recovery limits

- RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#:

1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-10979         | SampT      |               |           |             | PA Method |          |             |      |          |      |
|----------------------------|------------|---------------|-----------|-------------|-----------|----------|-------------|------|----------|------|
| Client ID: PBW             | Batch      | 1D: <b>10</b> | 979       | F           | RunNo: 1  | 5776     |             |      |          |      |
| Prep Date: 12/24/2013      | Analysis D | ate: 12       | 2/29/2013 | S           | SeqNo: 4  | 55290    | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | ND         | 1.0           |           |             |           |          |             |      |          |      |
| Aroclor 1221               | ND         | 1.0           |           |             |           |          |             |      |          |      |
| Aroclor 1232               | ND         | 1.0           |           |             |           |          |             |      |          |      |
| Aroclor 1242               | ND         | 1.0           |           |             |           |          |             |      |          |      |
| Aroclor 1248               | ND         | 1.0           |           |             |           |          |             |      |          |      |
| Aroclor 1254               | ND         | 1.0           |           |             |           |          |             |      |          |      |
| Aroclor 1260               | ND         | 1.0           |           |             |           |          |             |      |          |      |
| Surr: Decachlorobiphenyl   | 2.1        |               | 2.500     |             | 82.4      | 17       | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 2.0        |               | 2.500     |             | 81.6      | 22.6     | 113         |      |          |      |

| Sample ID LCS-10979        | SampType: LCS |         |           | Tes         | PA Method | 8082: PCB's |             |      |          |      |
|----------------------------|---------------|---------|-----------|-------------|-----------|-------------|-------------|------|----------|------|
| Client ID: LCSW            | Batch         | 1D: 10  | 979       | F           | RunNo: 1  | 5776        |             |      |          |      |
| Prep Date: 12/24/2013      | Analysis D    | ate: 12 | 2/31/2013 | 8           | SeqNo: 4  | 56267       | Units: µg/L |      |          |      |
| Analyte                    | Result        | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit    | HighLimit   | %RPD | RPDLimit | Qual |
| nclor 1016                 | 3.2           | 1.0     | 5.000     | 0           | 63.8      | 18.6        | 134         |      |          |      |
| clor 1260                  | 3.7           | 1.0     | 5.000     | 0           | 74.1      | 35.7        | 137         |      |          |      |
| Surr: Decachlorobiphenyl   | 2.8           |         | 2.500     |             | 113       | 17          | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 2.9           |         | 2.500     |             | 116       | 22.6        | 113         |      |          | S    |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb               | SampT      | ype: Mi | BLK       | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|--------------------------------|------------|---------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: PBW                 | Batch      | ID: R1  | 15774     | F           | RunNo: 1  | 5774      |             |        |          |      |
| Prep Date:                     | Analysis D | ate: 1  | 2/27/2013 | S           | SeqNo: 4  | 55189     | Units: µg/L |        |          |      |
| Analyte                        | Result     | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Toluene                        | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Ethylbenzene                   | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Naphthalene                    | ND         | 2.0     |           |             |           |           |             |        |          |      |
| 1-Methylnaphthalene            | ND         | 4.0     |           |             |           |           |             |        |          |      |
| 2-Methylnaphthalene            | ND         | 4.0     |           |             |           |           |             |        |          |      |
| Acetone                        | ND         | 10      |           |             |           |           |             |        |          |      |
| Bromobenzene                   | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Bromodichloromethane           | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Bromoform                      | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Bromomethane                   | ND         | 3.0     |           |             |           |           |             |        |          |      |
| 2-Butanone                     | ND         | 10      |           |             |           |           |             |        |          |      |
| Carbon disulfide               | ND         | 10      |           |             |           |           |             |        |          |      |
| Carbon Tetrachloride           | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Chlorobenzene                  | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Chloroethane                   | ND         | 2.0     |           |             |           |           |             |        |          |      |
| Chloroform                     | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Chloromethane                  | ND         | 3.0     |           |             |           |           |             |        |          |      |
| 2-Chlorotoluene                | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 4-Chlorotoluene                | ND         | 1.0     |           |             |           |           |             |        |          |      |
| cis-1,2-DCE                    | ND         | 1.0     |           |             |           |           |             |        |          |      |
| cis-1,3-Dichloropropene        | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2-Dibromo-3-chloropropane    | ND         | 2.0     |           |             |           |           |             |        |          |      |
| Dibromochloromethane           | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Dibromomethane                 | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2-Dichlorobenzene            | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,3-Dichlorobenzene            | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,4-Dichlorobenzene            | ND         | 1.0     |           |             |           |           |             |        |          |      |
| Dichlorodifluoromethane        | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethane             | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethene             | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,2-Dichloropropane            | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 1,3-Dichloropropane            | ND         | 1.0     |           |             |           |           |             |        |          |      |
| 2,2-Dichloropropane            | ND         | 2.0     |           |             |           |           |             |        |          |      |
| ,                              |            |         |           |             |           |           |             |        |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#:

1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb            | SampT      | уре: <b>МЕ</b> | BLK       | Test        | Code: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|----------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch      | 1D: <b>R1</b>  | 5774      | R           | tunNo: 1 | 5774      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 12        | 2/27/2013 | S           | eqNo: 4  | 55189     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,1-Dichloropropene         | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Hexachlorobutadiene         | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 2-Hexanone                  | ND         | 10             |           |             |          |           |             |        |          |      |
| Isopropylbenzene            | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 4-Isopropyltoluene          | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 4-Methyl-2-pentanone        | ND         | 10             |           |             |          |           |             |        |          |      |
| Methylene Chloride          | ND         | 3.0            |           |             |          |           |             |        |          |      |
| n-Butylbenzene              | ND         | 3.0            |           |             |          |           |             |        |          |      |
| n-Propylbenzene             | ND         | 1.0            |           |             |          |           |             |        |          |      |
| sec-Butylbenzene            | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Styrene                     | ND         | 1.0            |           |             |          |           |             |        |          |      |
| tert-Butylbenzene           | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND         | 2.0            |           |             |          |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND         | 1.0            |           |             |          |           |             |        |          |      |
| ans-1,2-DCE                 | ND         | 1.0            |           |             |          |           |             |        |          |      |
| ıs-1,3-Dichloropropene      | ND         | 1.0            |           |             |          |           |             |        |          |      |
| _,3-Trichlorobenzene        | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,2-Trichloroethane       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Trichloroethene (TCE)       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Trichlorofluoromethane      | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,2,3-Trichloropropane      | ND         | 2.0            |           |             |          |           |             |        |          |      |
| Vinyl chloride              | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Xylenes, Total              | ND         | 1.5            |           |             |          |           |             |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 11         |                | 10.00     |             | 107      | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 11         |                | 10.00     |             | 114      | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 12         |                | 10.00     |             | 116      | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 11         |                | 10.00     |             | 105      | 70        | 130         |        |          |      |

| Sample ID 100ng Ics | TestCode: EPA Method 8260B: VOLATILES |                 |           |             |          |          |             |      |          |      |
|---------------------|---------------------------------------|-----------------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: LCSW     | Batch                                 | 1 ID: <b>R1</b> | 5774      | R           | RunNo: 1 | 5774     |             |      |          |      |
| Prep Date:          | Analysis D                            | ate: 12         | 2/27/2013 | S           | SeqNo: 4 | 55191    | Units: µg/L |      |          |      |
| Analyte             | Result                                | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene             | 20                                    | 1.0             | 20.00     | 0           | 102      | 70       | 130         |      |          |      |
| Toluene             | 20                                    | 1.0             | 20.00     | 0           | 99.3     | 82.2     | 124         |      |          |      |
| Chlorobenzene       | 19                                    | 1.0             | 20.00     | 0           | 94.2     | 70       | 130         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit О
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#:

1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| 1.0<br>1.0           | SPK value<br>20.00<br>20.00<br>10.00<br>10.00<br>10.00<br>10.00 |   | wnNo: 18 eqNo: 48 %REC 116 91.7 98.3 114 101 100   | 55191<br>LowLimit<br>83.5<br>70<br>70<br>70  | Units: µg/L HighLimit 155 130 130 130   | %RPD   | RPDLimit  | Qual   |
|----------------------|---|---|--|--|---|--|---|--|
| 1.0<br>1.0           | SPK value<br>20.00<br>20.00<br>10.00<br>10.00<br>10.00          | SPK Ref Val                             | %REC<br>116<br>91.7<br>98.3<br>114<br>101  | 83.5<br>70<br>70<br>70   | HighLimit<br>155<br>130<br>130  | %RPD   | RPDLimit  | Qual   |
| 1.0<br>1.0           | 20.00<br>20.00<br>10.00<br>10.00<br>10.00<br>10.00              | 0                                       | 116<br>91.7<br>98.3<br>114<br>101  | 83.5<br>70<br>70<br>70   | 155<br>130<br>130   | %RPD   | RPDLimit  | Qual   |
| 1.0<br>e: <b>MB</b>  | 20.00<br>10.00<br>10.00<br>10.00<br>10.00                       |   | 91.7<br>98.3<br>114<br>101   | 70<br>70<br>70   | 130<br>130  |  |   |  |
| ———<br>е: <b>М</b> В | 10.00<br>10.00<br>10.00<br>10.00                                | 0                                       | 98.3<br>114<br>101   | 70<br>70   | 130   |  |   |  |
|                      | 10.00<br>10.00<br>10.00   |   | 114<br>101   | 70   |   |  |   |  |
|                      | 10.00<br>10.00  |   | 101  |  | 120   |  |   |  |
|                      | 10.00   |   |  | 70   | 130   |  |   |  |
|                      |   |   | 100  | 70   | 130   |  |   |  |
|                      | )   |   |  | 70   | 130   |  |   |  |
| ). D1                | LK  | Test                                    | Code: Ef   | PA Method  | 8260B: VOL  | ATILES   |   |  |
| . IX I               | 5774  | F                                       | RunNo: 1   | 5774   |   |  |   |  |
| e: 12                | 2/27/2013   | S                                       | eqNo: 4  | 55218  | Units: µg/L   |  |   |  |
| PQL                  | SPK value   | SPK Ref Val                             | %REC   | LowLimit   | HighLimit   | %RPD   | RPDLimit  | Qual   |
| 1.0                  |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 2.0                  |   |   |  |  |   |  |   |  |
| 4.0                  |   |   |  |  |   |  |   |  |
| 4.0                  |   |   |  |  |   |  |   |  |
| 10                   |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 3.0                  |   |   |  |  |   |  |   |  |
| 10                   |   |   |  |  |   |  |   |  |
| 10                   |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 2.0                  |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| 3.0                  |   |   |  |  |   |  |   |  |
|                      |   |   |  |  |   |  |   |  |
| 1.0                  |   |   |  |  |   |  |   |  |
| ,                    | R1 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.                       | 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | E: R15774 F. E: 12/27/2013 S. S. PQL SPK value SPK Ref Val. 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1. | E R15774 RunNo: 1: E 12/27/2013 SeqNo: 4: PQL SPK value SPK Ref Val %REC 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | RIST774 RunNo: 15774  E 12/27/2013 SeqNo: 455218  PQL SPK value SPK Ref Val %REC LowLimit  1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1. | R15774 RunNo: 15774  12/27/2013 SeqNo: 455218 Units: µg/L  RQL SPK value SPK Ref Val %REC LowLimit HighLimit  1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1. | RI5774 RunNo: 15774  E 12/27/2013 SeqNo: 455218 Units: µg/L  ROL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD  1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1. | RunNo: 15774  Runno: 15774  RunNo: 15774  Ru |

#### Qualifiers:

cis-1,2-DCE

cis-1,3-Dichloropropene

\* Value exceeds Maximum Contaminant Level.

ND

ND

1.0

1.0

- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID <b>b5</b>         | SampTy      | /pe: <b>M</b> E | BLK       | Tes         | tCode: E | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|-------------|-----------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch       | ID: <b>R1</b>   | 5774      | R           | RunNo: 1 | 5774      |             |        |          |      |
| Prep Date:                  | Analysis Da |                 |           |             | SeqNo: 4 |           | Units: µg/L |        |          |      |
| Analyte                     | Result      | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,2-Dibromo-3-chloropropane | ND          | 2.0             |           |             |          |           |             |        |          |      |
| Dibromochloromethane        | ND          | 1.0             |           |             |          |           |             |        |          |      |
| Dibromomethane              | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,2-Dichlorobenzene         | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,3-Dichlorobenzene         | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,4-Dichlorobenzene         | ND          | 1.0             |           |             |          |           |             |        |          |      |
| Dichlorodifluoromethane     | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,1-Dichloroethane          | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,1-Dichloroethene          | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,2-Dichloropropane         | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,3-Dichloropropane         | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 2,2-Dichloropropane         | ND          | 2.0             |           |             |          |           |             |        |          |      |
| 1,1-Dichloropropene         | ND          | 1.0             |           |             |          |           |             |        |          |      |
| Hexachlorobutadiene         | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 2-Hexanone                  | ND          | 10              |           |             |          |           |             |        |          |      |
| 'propylbenzene              | ND          | 1.0             |           |             |          |           |             |        |          |      |
| opropyltoluene              | ND          | 1.0             |           |             |          |           |             |        |          |      |
| .∕lethyl-2-pentanone        | ND          | 10              |           |             |          |           |             |        |          |      |
| Methylene Chloride          | ND          | 3.0             |           |             |          |           |             |        |          |      |
| n-Butylbenzene              | ND          | 3.0             |           |             |          |           |             |        |          |      |
| n-Propylbenzene             | ND          | 1.0             |           |             |          |           |             |        |          |      |
| sec-Butylbenzene            | ND          | 1.0             |           |             |          |           |             |        |          |      |
| Styrene                     | ND          | 1.0             |           |             |          |           |             |        |          |      |
| tert-Butylbenzene           | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND          | 2.0             |           |             |          |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND          | 1.0             |           |             |          |           |             |        |          |      |
| trans-1,2-DCE               | ND          | 1.0             |           |             |          |           |             |        |          |      |
| trans-1,3-Dichloropropene   | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,2,3-Trichlorobenzene      | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,1,2-Trichloroethane       | ND          | 1.0             |           |             |          |           |             |        |          |      |
| Trichloroethene (TCE)       | ND          | 1.0             |           |             |          |           |             |        |          |      |
| Trichlorofluoromethane      | ND          | 1.0             |           |             |          |           |             |        |          |      |
| 1,2,3-Trichloropropane      | ND          | 2.0             |           |             |          |           |             |        |          |      |
| Vinyl chloride              | ND          | 1.0             |           |             |          |           |             |        |          |      |
| Xylenes, Total              | ND          | 1.5             |           |             |          |           |             |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 10          |                 | 10.00     |             | 101      | 70        | 130         |        |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
   Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1312B40** 

16-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID b5               | SampT      | уре: М | BLK       | Tes         | TestCode: EPA Method 8260B: VOLATILES |          |             |      |          |      |  |
|----------------------------|------------|--------|-----------|-------------|---------------------------------------|----------|-------------|------|----------|------|--|
| Client ID: PBW             | Batch      | ID: R1 | 5774      | F           | tunNo: 1                              | 5774     |             |      |          |      |  |
| Prep Date:                 | Analysis D | ate: 1 | 2/27/2013 | 8           | eqNo: 4                               | 55218    | Units: µg/L |      |          |      |  |
| Analyte                    | Result     | PQL    | SPK value | SPK Ref Val | %REC                                  | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |  |
| Surr: 4-Bromofluorobenzene | 11         |        | 10.00     |             | 111                                   | 70       | 130         |      |          |      |  |
| Surr: Dibromofluoromethane | 11         |        | 10.00     |             | 108                                   | 70       | 130         |      |          |      |  |
| Surr: Toluene-d8           | 10         |        | 10.00     |             | 103                                   | 70       | 130         |      |          |      |  |

| Sample ID 100ng lcs 2       | SampT      | ype: <b>LC</b> | s         | Tes         | Code: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|----------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: LCSW             | Batch      | ID: <b>R1</b>  | 5774      | F           | lunNo: 1 | 5774      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 12        | 2/27/2013 | S           | eqNo: 4  | 55220     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                     | 21         | 1.0            | 20.00     | 0           | 106      | 70        | 130         |        |          |      |
| Toluene                     | 19         | 1.0            | 20.00     | 0           | 95.1     | 82.2      | 124         |        |          |      |
| Chlorobenzene               | 19         | 1.0            | 20.00     | 0           | 93.5     | 70        | 130         |        |          |      |
| 1,1-Dichloroethene          | 24         | 1.0            | 20.00     | 0           | 122      | 83.5      | 155         |        |          |      |
| Trichloroethene (TCE)       | 19         | 1.0            | 20.00     | 0           | 93.7     | 70        | 130         |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 10         |                | 10.00     |             | 101      | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 11         |                | 10.00     |             | 114      | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 11         |                | 10.00     |             | 106      | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 9.8        |                | 10.00     |             | 97.8     | 70        | 130         |        |          |      |

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Helding times for respective or embrais exceeds

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# 'all Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID mb-10980          | SampTyp       | e: MBLK              | Test        | Code: <b>EPA</b> l | Method  | 8270C: Semi | olatiles |          |      |
|-----------------------------|---------------|----------------------|-------------|--------------------|---------|-------------|----------|----------|------|
| Client ID: PBW              | Batch II      | D: <b>10980</b>      | Ru          | unNo: <b>1574</b>  | 7       |             |          |          |      |
| Prep Date: 12/24/2013       | Analysis Date | e: <b>12/26/2013</b> | Se          | eqNo: <b>4546</b>  | 20      | Units: µg/L |          |          |      |
| Analyte                     | Result        | PQL SPK value        | SPK Ref Val | %REC Lo            | owLimit | HighLimit   | %RPD     | RPDLimit | Qual |
| Acenaphthene                | ND            | 10                   |             |                    |         |             |          |          |      |
| Acenaphthylene              | ND            | 10                   |             |                    |         |             |          |          |      |
| Aniline                     | ND            | 10                   |             |                    |         |             |          |          |      |
| Anthracene                  | ND            | 10                   |             |                    |         |             |          |          |      |
| Azobenzene                  | ND            | 10                   |             |                    |         |             |          |          |      |
| Benz(a)anthracene           | ND            | 10                   |             |                    |         |             |          |          |      |
| Benzo(a)pyrene              | ND            | 10                   |             |                    |         |             |          |          |      |
| Benzo(b)fluoranthene        | ND            | 10                   |             |                    |         |             |          |          |      |
| Benzo(g,h,i)perylene        | ND            | 10                   |             |                    |         |             |          |          |      |
| Benzo(k)fluoranthene        | ND            | 10                   |             |                    |         |             |          |          |      |
| Benzoic acid                | ND            | 40                   |             |                    |         |             |          |          |      |
| Benzyl alcohol              | ND            | 10                   |             |                    |         |             |          |          |      |
| Bis(2-chloroethoxy)methane  | ND            | 10                   |             |                    |         |             |          |          |      |
| Bis(2-chloroethyl)ether     | ND            | 10                   |             |                    |         |             |          |          |      |
| Bis(2-chloroisopropyl)ether | ND            | 10                   |             |                    |         |             |          |          |      |
| n:s(2-ethylhexyl)phthalate  | ND            | 10                   |             |                    |         |             |          |          |      |
| romophenyl phenyl ether     | ND            | 10                   |             |                    |         |             |          |          |      |
| ryl benzyl phthafate        | ND            | 10                   |             |                    |         |             |          |          |      |
| Carbazole                   | ND            | 10                   |             |                    |         |             |          |          |      |
| 4-Chloro-3-methylphenol     | ND            | 10                   |             |                    |         |             |          |          |      |
| 4-Chloroaniline             | ND            | 10                   |             |                    |         |             |          |          |      |
| 2-Chloronaphthalene         | ND            | 10                   |             |                    |         |             |          |          |      |
| 2-Chlorophenol              | ND            | 10                   |             |                    |         |             |          |          |      |
| 4-Chlorophenyl phenyl ether | ND            | 10                   |             |                    |         |             |          |          |      |
| Chrysene                    | ND            | 10                   |             |                    |         |             |          |          |      |
| Di-n-butyl phthalate        | ND            | 10                   |             |                    |         |             |          |          |      |
| Di-n-octyl phthalate        | ND            | 10                   |             |                    |         |             |          |          |      |
| Dibenz(a,h)anthracene       | ND            | 10                   |             |                    |         |             |          |          |      |
| Dibenzofuran                | ND            | 10                   |             |                    |         |             |          |          |      |
| 1,2-Dichlorobenzene         | ND            | 10                   |             |                    |         |             |          |          |      |
| 1,3-Dichlorobenzene         | ND            | 10                   |             |                    |         |             |          |          |      |
| 1,4-Dichlorobenzene         | ND            | 10                   |             |                    |         |             |          |          |      |
| 3,3´-Dichlorobenzidine      | ND            | 10                   |             |                    |         |             |          |          |      |
| Diethyl phthalate           | ND            | 10                   |             |                    |         |             |          |          |      |
| Dimethyl phthalate          | ND            | 10                   |             |                    |         |             |          |          |      |
| 2,4-Dichlorophenol          | ND            | 20                   |             |                    |         |             |          |          |      |
| 2,4-Dimethylphenol          | ND            | 10                   |             |                    |         |             |          |          |      |
| 4,6-Dinitro-2-methylphenol  | ND            | 20                   |             |                    |         |             |          |          |      |
| 2,4-Dinitrophenol           | ND            | 20                   |             |                    |         |             |          |          |      |

#### Qualifiers:

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- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID mb-10980         | SampTy      | pe: MBLK        | TestCode: E      | PA Method | 8270C: Semi | olatiles/ |          |      |
|----------------------------|-------------|-----------------|------------------|-----------|-------------|-----------|----------|------|
| Client ID: PBW             | Batch I     | D: <b>10980</b> | RunNo: 1         | 5747      |             |           |          |      |
| Prep Date: 12/24/2013      | Analysis Da | te: 12/26/2013  | SeqNo: 4         | 54620     | Units: µg/L |           |          |      |
| Analyte                    | Result      |                 | SPK Ref Val %REC | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| 2,4-Dinitrotoluene         | ND          | 10              |                  |           |             |           |          |      |
| 2,6-Dinitrotoluene         | ND          | 10              |                  |           |             |           |          |      |
| Fluoranthene               | ND          | 10              |                  |           |             |           |          |      |
| Fluorene                   | ND          | 10              |                  |           |             |           |          |      |
| Hexachlorobenzene          | ND          | 10              |                  |           |             |           |          |      |
| Hexachlorobutadiene        | ND          | 10              |                  |           |             |           |          |      |
| Hexachlorocyclopentadiene  | ND          | 10              |                  |           |             |           |          |      |
| Hexachloroethane           | ND          | 10              |                  |           |             |           |          |      |
| Indeno(1,2,3-cd)pyrene     | ND          | 10              |                  |           |             |           |          |      |
| Isophorone                 | ND          | 10              |                  |           |             |           |          |      |
| 1-Methylnaphthalene        | ND          | 10              |                  |           |             |           |          |      |
| 2-Methylnaphthalene        | ND          | 10              |                  |           |             |           |          |      |
| 2-Methylphenol             | ND          | 10              |                  |           |             |           |          |      |
| 3+4-Methylphenol           | ND          | 10              |                  |           |             |           |          |      |
| N-Nitrosodi-n-propylamine  | ND          | 10              |                  |           |             |           |          |      |
| N-Nitrosodimethylamine     | ND          | 10              |                  |           |             |           |          |      |
| N-Nitrosodiphenylamine     | ND          | 10              |                  |           |             |           |          |      |
| Naphthalene                | ND          | 10              |                  |           |             |           |          |      |
| 2-Nitroaniline             | ND          | 10              |                  |           |             |           |          |      |
| 3-Nitroaniline             | ND          | 10              |                  |           |             |           |          |      |
| 4-Nitroaniline             | ND          | 10              |                  |           |             |           |          |      |
| Nitrobenzene               | ND          | 10              |                  |           |             |           |          |      |
| 2-Nitrophenol              | ND          | 10              |                  |           |             |           |          |      |
| 4-Nitrophenol              | ND          | 10              |                  |           |             |           |          |      |
| Pentachlorophenol          | ND          | 20              |                  |           |             |           |          |      |
| Phenanthrene               | ND          | 10              |                  |           |             |           |          |      |
| Phenol                     | ND          | 10              |                  |           |             |           |          |      |
| Pyrene                     | ND          | 10              |                  |           |             |           |          |      |
| Pyridine                   | ND          | 10              |                  |           |             |           |          |      |
| 1,2,4-Trichlorobenzene     | ND          | 10              |                  |           |             |           |          |      |
| 2,4,5-Trichlorophenol      | ND          | 10              |                  |           |             |           |          |      |
| 2,4,6-Trichlorophenol      | ND          | 10              |                  |           |             |           |          |      |
| Surr: 2-Fluorophenol       | 110         | 200.            | 55.1             | 22.7      | 98          |           |          |      |
| Surr: Phenol-d5            | 79          | 200.            | 39.3             | 23.4      | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 130         | 200.            | 0 66.7           | 23.3      | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 69          | 100.            | 0 68.8           | 36.8      | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 71          | 100.            | 0 70.6           | 38.3      | 110         |           |          |      |
| Surr: 4-Terphenyl-d14      | 77          | 100.            | 0 77.5           | 52.1      | 116         |           |          |      |

### Qualifiers:

- \* Value exceeds Maximum Containinant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# 'all Environmental Analysis Laboratory, Inc.

WO#:

1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID Ics-10980        | SampT      | ype: <b>LC</b> | s         | Test        | Code: El | PA Method | 8270C: Semi | volatiles  |          |      |
|----------------------------|------------|----------------|-----------|-------------|----------|-----------|-------------|------------|----------|------|
| Client ID: LCSW            | Batch      | ID: 10         | 980       | R           | tunNo: 1 | 5747      |             |            |          |      |
| Prep Date: 12/24/2013      | Analysis D | ate: 12        | 2/26/2013 | S           | SeqNo: 4 | 54621     | Units: µg/L |            |          |      |
| Analyte                    | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD       | RPDLimit | Qual |
| Acenaphthene               | 66         | 10             | 100.0     | 0           | 65.8     | 48        | 101         |            |          |      |
| 4-Chloro-3-methylphenol    | 130        | 10             | 200.0     | 0           | 66.5     | 47.9      | 109         |            |          |      |
| 2-Chlorophenol             | 120        | 10             | 200.0     | 0           | 59.5     | 40        | 105         |            |          |      |
| 1,4-Dichlorobenzene        | 57         | 10             | 100.0     | 0           | 57.2     | 40.8      | 94.3        |            |          |      |
| 2,4-Dinitrotoluene         | 64         | 10             | 100.0     | 0           | 64.1     | 28.3      | 131         |            |          |      |
| N-Nitrosodi-n-propylamine  | 66         | 10             | 100.0     | 0           | 65.6     | 46.2      | 119         |            |          |      |
| 4-Nitrophenol              | 44         | 10             | 200.0     | 0           | 21.9     | 10.5      | 67.9        |            |          |      |
| Pentachlorophenol          | 53         | 20             | 200.0     | 0           | 26.7     | 22.4      | 81.1        |            |          |      |
| Phenol                     | 73         | 10             | 200.0     | 0           | 36.7     | 21.4      | 72.9        |            |          |      |
| Pyrene                     | 61         | 10             | 100.0     | 0           | 60.9     | 46.9      | 109         |            |          |      |
| 1,2,4-Trichlorobenzene     | 55         | 10             | 100.0     | 0           | 54.6     | 43.1      | 98.4        |            |          |      |
| Surr: 2-Fluorophenol       | 94         |                | 200.0     |             | 47.1     | 22.7      | 98          |            |          |      |
| Surr: Phenol-d5            | 72         |                | 200.0     |             | 36.0     | 23.4      | 74.9        |            |          |      |
| Surr: 2,4,6-Tribromophenol | 130        |                | 200.0     |             | 63.8     | 23.3      | 111         |            |          |      |
| Surr: Nitrobenzene-d5      | 60         |                | 100.0     |             | 59.7     | 36.8      | 111         |            |          |      |
| Surr: 2-Fluorobiphenyl     | 68         |                | 100.0     |             | 67.9     | 38.3      | 110         |            |          |      |
| Surr: 4-Terphenyl-d14      | 72         |                | 100.0     |             | 71.6     | 52.1      | 116         |            |          |      |
| Sample ID Icsd-10980       | SampT      | ype: <b>LC</b> | SD        | Tes         | tCode: E | PA Method | 8270C: Semi | ivolatiles |          |      |

| Sample ID Icsd-10980       | Samp       | ype: LC   | 5D        | les         | (Code: El | PA Method | 82/0C: Semi | volatiles |          |      |
|----------------------------|------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: LCSS02          | Batch      | n ID: 10! | 980       | F           | RunNo: 1  | 5747      |             |           |          |      |
| Prep Date: 12/24/2013      | Analysis D | ate: 12   | 2/26/2013 | 8           | SeqNo: 4  | 54622     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL       | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 76         | 10        | 100.0     | 0           | 75.6      | 48        | 101         | 13.8      | 25       |      |
| 4-Chloro-3-methylphenol    | 150        | 10        | 200.0     | 0           | 74.3      | 47.9      | 109         | 11.1      | 32.7     |      |
| 2-Chlorophenol             | 120        | 10        | 200.0     | 0           | 62.4      | 40        | 105         | 4.89      | 20       |      |
| 1,4-Dichlorobenzene        | 60         | 10        | 100.0     | 0           | 60.1      | 40.8      | 94.3        | 4.94      | 20       |      |
| 2,4-Dinitrotoluene         | 68         | 10        | 100.0     | 0           | 68.5      | 28.3      | 131         | 6.64      | 29.9     |      |
| N-Nitrosodi-n-propylamine  | 69         | 10        | 100.0     | 0           | 69.0      | 46.2      | 119         | 5.17      | 23.1     |      |
| 4-Nitrophenol              | 48         | 10        | 200.0     | 0           | 24.0      | 10.5      | 67.9        | 8.93      | 40.5     |      |
| Pentachlorophenol          | 70         | 20        | 200.0     | 0           | 35.0      | 22.4      | 81.1        | 27.2      | 37.3     |      |
| Phenol                     | 77         | 10        | 200.0     | 0           | 38.4      | 21.4      | 72.9        | 4.45      | 20       |      |
| Pyrene                     | 74         | 10        | 100.0     | 0           | 73.8      | 46.9      | 109         | 19.2      | 26.5     |      |
| 1,2,4-Trichlorobenzene     | 59         | 10        | 100.0     | 0           | 59.4      | 43.1      | 98.4        | 8.32      | 27.2     |      |
| Surr: 2-Fluorophenol       | 92         |           | 200.0     |             | 45.9      | 22.7      | 98          | 0         | 0        |      |
| Surr: Phenol-d5            | 74         |           | 200.0     |             | 36.8      | 23.4      | 74.9        | 0         | 0        |      |
| Surr: 2,4,6-Tribromophenol | 140        |           | 200.0     |             | 70.5      | 23.3      | 111         | 0         | 0        |      |
| Surr: Nitrobenzene-d5      | 63         |           | 100.0     |             | 62.9      | 36.8      | 111         | 0         | 0        |      |
| Surr: 2-Fluorobiphenyl     | 73         |           | 100.0     |             | 72.6      | 38.3      | 110         | 0         | 0        |      |
|                            |            |           |           |             |           |           |             |           |          |      |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID Icsd-10980

SampType: LCSD

TestCode: EPA Method 8270C: Semivolatiles

Client ID: LCSS02

Batch ID: 10980

RunNo: 15747

Prep Date: 12/24/2013 Analysis Date: 12/26/2013

SeqNo: 454622

Units: µg/L

Analyte

PQL Result

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

**RPDLimit** Qual

Surr: 4-Terphenyl-d14

100.0

80.5

52.1

116

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range Ε

Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

Analyte detected in the associated Method Blank В

Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

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# 'all Environmental Analysis Laboratory, Inc.

WO#:

1312B40

16-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-10981    | SampT      | ype: MB         | LK        | Tes         | tCode: Ef | PA Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: PBW        | Batch      | 1D: <b>10</b> 9 | 981       | F           | RunNo: 1  | 5775      |             |      |          |      |
| Prep Date: 12/24/2013 | Analysis D | )ate: 12        | /27/2013  | 5           | SeqNo: 4  | 55252     | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | ND         | 2.0             |           |             |           |           |             |      |          |      |
| 1-Methylnaphthalene   | ND         | 2.0             |           |             |           |           |             |      |          |      |
| 2-Methylnaphthalene   | ND         | 2.0             |           |             |           |           |             |      |          |      |
| Acenaphthylene        | ND         | 2.5             |           |             |           |           |             |      |          |      |
| Acenaphthene          | ND         | 5.0             |           |             |           |           |             |      |          |      |
| Fluorene              | ND         | 0.80            |           |             |           |           |             |      |          |      |
| Phenanthrene          | ND         | 0.60            |           |             |           |           |             |      |          |      |
| Anthracene            | ND         | 0.60            |           |             |           |           |             |      |          |      |
| Fluoranthene          | ND         | 0.30            |           |             |           |           |             |      |          |      |
| Pyrene                | ND         | 0.30            |           |             |           |           |             |      |          |      |
| Benz(a)anthracene     | ND         | 0.070           |           |             |           |           |             |      |          |      |
| Chrysene              | ND         | 0.20            |           |             |           |           |             |      |          |      |
| Benzo(b)fluoranthene  | ND         | 0.10            |           |             |           |           |             |      |          |      |
| Benzo(k)fluoranthene  | ND         | 0.070           |           |             |           |           |             |      |          |      |
| Benzo(a)pyrene        | ND         | 0.070           |           |             |           |           |             |      |          |      |
| □ibenz(a,h)anthracene | ND         | 0.12            |           |             |           |           |             |      |          |      |
| nzo(g,h,i)perylene    | ND         | 0.12            |           |             |           |           |             |      |          |      |
| ueno(1,2,3-cd)pyrene  | ND         | 0.25            |           |             |           |           |             |      |          |      |
| Surr: Benzo(e)pyrene  | 22         |                 | 20.00     |             | 108       | 24.5      | 139         |      |          |      |

| Sample ID LCS-10981   | SampT      | Type: <b>LC</b> | S         | Test        | tCode: <b>EF</b> | A Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|-----------------|-----------|-------------|------------------|----------|-------------|------|----------|------|
| Client ID: LCSW       | Batch      | h ID: 109       | 981       | R           | RunNo: 1         | 5775     |             |      |          |      |
| Prep Date: 12/24/2013 | Analysis D | )ate: 12        | 2/27/2013 | S           | SeqNo: 4         | 55253    | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL             | SPK value | SPK Ref Val | %REC             | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 43         | 2.0             | 80.00     | 0           | 53.2             | 43.8     | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 36         | 2.0             | 80.20     | 0           | 45.1             | 41.3     | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 34         | 2.0             | 80.00     | 0           | 41.9             | 36.6     | 89.6        |      |          |      |
| Acenaphthylene        | 47         | 2.5             | 80.20     | 0           | 58.3             | 43.6     | 103         |      |          |      |
| Acenaphthene          | 37         | 5.0             | 80.00     | 0           | 46.6             | 42.4     | 87.6        |      |          |      |
| Fluorene              | 3.9        | 0.80            | 8.020     | 0           | 48.1             | 40.5     | 93.6        |      |          |      |
| Phenanthrene          | 2.4        | 0.60            | 4.020     | 0           | 60.4             | 43.9     | 111         |      |          |      |
| Anthracene            | 2.3        | 0.60            | 4.020     | 0           | 57.2             | 44.3     | 103         |      |          |      |
| Fluoranthene          | 4.5        | 0.30            | 8.020     | 0           | 56.2             | 43.5     | 109         |      |          |      |
| Pyrene                | 4.8        | 0.30            | 8.020     | 0           | 59.2             | 32.6     | 103         |      |          |      |
| Benz(a)anthracene     | 0.47       | 0.070           | 0.8020    | 0           | 58.6             | 43       | 114         |      |          |      |
| Chrysene              | 2.2        | 0.20            | 4.020     | Ō           | 55.2             | 40.2     | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.59       | 0.10            | 1.002     | 0           | 58.9             | 44.4     | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.32       | 0.070           | 0.5000    | 0           | 64.0             | 41.5     | 120         |      |          |      |

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID LCS-10981    | SampT      | ype: <b>LC</b> | s         | Tes         | tCode: El | PA Method | 8310: PAHs   |      |          |      |
|------------------------|------------|----------------|-----------|-------------|-----------|-----------|--------------|------|----------|------|
| Client ID: LCSW        | Batch      | n ID: 109      | 981       | F           | RunNo: 1  | 5775      |              |      |          |      |
| Prep Date: 12/24/2013  | Analysis D | ate: 12        | 2/27/2013 | S           | SeqNo: 4  | 55253     | Units: µg/L. |      |          |      |
| Analyte                | Result     | PQL            | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Benzo(a)pyrene         | 0.30       | 0.070          | 0.5020    | 0           | 59.8      | 34.5      | 118          |      |          |      |
| Dibenz(a,h)anthracene  | 0.60       | 0.12           | 1.002     | 0           | 59.9      | 38.3      | 107          |      |          |      |
| Benzo(g,h,i)perylene   | 0.55       | 0.12           | 1.000     | 0           | 55.0      | 38.4      | 110          |      |          |      |
| Indeno(1,2,3-cd)pyrene | 1.3        | 0.25           | 2.004     | 0           | 65.9      | 42.4      | 113          |      |          |      |
| Surr: Benzo(e)pyrene   | 16         |                | 20.00     |             | 77.8      | 24.5      | 139          |      |          |      |

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# 'all Environmental Analysis Laboratory, Inc.

WO#:

1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-11134           | SampType: MBLK          | TestCode: Total Pheno                    | ics by SW-846 9067           |  |  |  |  |
|------------------------------|-------------------------|--|------------------------------|--|--|--|--|
| Client ID: PBW               | Batch ID: 11134         | RunNo: 15937                             |                              |  |  |  |  |
| Prep Date: 1/8/2014          | Analysis Date: 1/8/2014 | SeqNo: <b>459499</b>                     | Units: µg/L                  |  |  |  |  |
| Analyte                      | Result PQL SPK value    | SPK Ref Val %REC LowLimit                | HighLimit %RPD RPDLimit Qual |  |  |  |  |
| Phenolics, Total Recoverable | ND 2.5                  |  |                              |  |  |  |  |
| Sample ID LCS-11134          | SampType: <b>LCS</b>    | TestCode: Total Pheno                    | lics by SW-846 9067          |  |  |  |  |
| Client ID: LCSW              | Batch ID: 11134         | RunNo: 15937                             |                              |  |  |  |  |
| Prep Date: 1/8/2014          | Analysis Date: 1/8/2014 | SeqNo: <b>459500</b>                     | Units: µg/L                  |  |  |  |  |
| Analyte                      | Result PQL SPK value    | SPK Ref Val %REC LowLimit                | HighLimit %RPD RPDLimit Qual |  |  |  |  |
| Phenolics, Total Recoverable | 22 2.5 20.00            | 0 110 73.7                               | 135                          |  |  |  |  |
| Sample ID LCSD-11134         | SampType: <b>LCSD</b>   | TestCode: Total Phenolics by SW-846 9067 |                              |  |  |  |  |
| Client ID: LCSS02            | Batch ID: 11134         | PunNo: 15027                             |                              |  |  |  |  |

| Sample ID LCSD-11134         | Samply      | pe: LC  | SD        | Test        | Code: To | otal Phenoi | ics by SW-846 | 5 9067 |          |      |
|------------------------------|-------------|---------|-----------|-------------|----------|-------------|---------------|--------|----------|------|
| Client ID: LCSS02            | Batch       | ID: 11  | 134       | R           | lunNo: 1 | 5937        |               |        |          |      |
| Prep Date: 1/8/2014          | Analysis Da | ite: 1/ | 8/2014    | S           | eqNo: 4  | 59505       | Units: µg/L   |        |          |      |
| Analyte                      | Result      | PQL     | SPK value | SPK Ref Val | %REC     | LowLimit    | HighLimit     | %RPD   | RPDLimit | Qual |
| Phenolics, Total Recoverable | 18          | 2.5     | 20.00     | 0           | 91.6     | 73.7        | 135           | 17.9   | 21.4     |      |

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
  - Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40 16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID mb-1

SampType: mblk

TestCode: SM2320B: Alkalinity

Client ID: **PBW** 

Batch ID: R15744

RunNo: 15744

HighLimit

Prep Date:

Result

SeqNo: 454539

Units: mg/L CaCO3

Analysis Date: 12/26/2013

%RPD

**RPDLimit** Qual

Analyte Total Alkalinity (as CaCO3)

ND 20

SampType: Ics

SPK value SPK Ref Val

TestCode: SM2320B: Alkalinity

%REC LowLimit

Sample ID Ics-1 Client ID: LCSW

Batch ID: R15744

RunNo: 15744

Prep Date:

Analysis Date: 12/26/2013

Result

SeqNo: 454540

Units: mg/L CaCO3

Analyte

**PQL** 

%RPD **RPDLimit** Qual

20

80.00

SPK value SPK Ref Val

98.6

HighLimit

110

Total Alkalinity (as CaCO3)

79

0

%REC LowLimit

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits R Spike Recovery outside accepted recovery limits

P

Analyte detected in the associated Method Blank Holding times for preparation or analysis exceeded Η

Sample pH greater than 2 for VOA and TOC only.

- ND Not Detected at the Reporting Limit
- Reporting Detection Limit

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### 'all Environmental Analysis Laboratory, Inc.

WO#:

1312B40

16-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10984

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW

LCSW

Prep Date: 12/25/2013

Batch ID: 10984

20.0

Batch ID: 10984

Analysis Date: 12/27/2013

RunNo: 15756

Prep Date: 12/25/2013

Analysis Date: 12/27/2013

SeqNo: 454897

Units: mg/L

**RPDLimit** 

Qual

Analyte

Client ID:

Result ND

PQL

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

**Total Dissolved Solids** 

TestCode: SM2540C MOD: Total Dissolved Solids

Sample ID LCS-10984

SampType: LCS

RunNo: 15756 SeqNo: 454898

%REC

Units: mg/L

Analyte

**PQL** SPK value SPK Ref Val

1000

0

102

HighLimit

**RPDLimit** %RPD

Qual

1020

20.0

80

LowLimit

Total Dissolved Solids

120

### Qualifiers:

Value exceeds Maximum Contaminant Level

Spike Recovery outside accepted recovery limits

- Value above quantitation range
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- Holding times for preparation or analysis exceeded
- Sample pH greater than 2 for VOA and TOC only.
- RLReporting Detection Limit

Η

- Analyte detected in the associated Method Blank В
- ND Not Detected at the Reporting Limit
- Page 34 of 34



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

# Sample Log-In Check List

| Client Name: AMEC  | Work Order Number                       | er: 1312B40 |  | RcptNo: 1                              |  |
|--|---|-------------|--|--|--|
| Received by/date:  | 12/24/13                                |             |  |  |  |
| Logged By: Michelle Garcia   | 12/24/2013 10:30:00                     | АМ          | Michell Gara   | <u>ن</u>                               |  |
| Completed By: Michelle Garcia  | 12/24/2013 12:30:27                     | PM          | Mirut Garu<br>Mirut Garu   | •>                                     |  |
| Reviewed By:   | 12/24/2013                              |             |  |  |  |
| Chain of Custody   | , |             |  |  |  |
| 1. Custody seals intact on sample bottles?   |   | Yes 🗍       | No 🗔   | Not Present                            |  |
| 2. Is Chain of Custody complete?   |   | Yes 🗹       | No 🗍   | Not Present                            |  |
| 3. How was the sample delivered?   |   | Client      |  |  |  |
| <u>Log In</u>  |   |             |  |  |  |
| 4. Was an attempt made to cool the sample  | es?                                     | Yes 🗸       | No ! '   | NA                                     |  |
| 5. Were all samples received at a temperat   | ure of >0° C to 6.0°C                   | Yes 🗹       | No 🗀   | NA                                     |  |
| 6. Sample(s) in proper container(s)?   |   | Yes 🔽       | No 🗌   |  |  |
| 7. Sufficient sample volume for indicated te   | st(s)?                                  | Yes 🗹       | No 🗆   |  |  |
| 8. Are samples (except VOA and ONG) pro  | perly preserved?                        | Yes 🗸       | No   |  |  |
| 9. Was preservative added to bottles?  |   | Yes         | No 🗹   | NA !                                   |  |
| 10.VOA vials have zero headspace?  |   | Yes 🗸       | No   | No VOA Vials                           |  |
| 11. Were any sample containers received by   | oken?                                   | Yes         | No 🗹   | # of preserved                         | ]  |
| 40   |   | v           | Na C   | bottles checked of for pH:             | 1  |
| 12. Does paperwork match bottle labels?<br>(Note discrepancies on chain of custody)                        | •                                       | Yes 🗸       | No 🗀   | (<2) or                                | 12 unless noted)   |
| 13. Are matrices correctly identified on Chair   |   | Yes 🔽       | No 🗔   | Adjusted?                              |  |
| 14, is it clear what analyses were requested   | ?                                       | Yes 🗸       | No 🗔   |  | The state of the s |
| 15. Were all holding times able to be met? (If no, notify customer for authorization.)                     |   | Yes 🗸       | No   | Checked by:                            | A.   |
| Special Handling (if applicable)   |   |             |  |  | \  |
| 16. Was client notified of all discrepancies w   | ith this order?                         | Yes 🗌       | No []  | NA 🗹                                   |  |
| Person Notified:   | Date                                    |             |  | ]                                      |  |
| By Whom:   | Via:                                    | # ·         | Phone 🗍 Fax  | In Person                              |  |
| Regarding:   |   |             |  | 7                                      |  |
|  |   |             | A STATE OF THE STA | The second second second second second | 10-101   |
| 17. Additional remarks: AS per an Sample,  18. Cooler Information  Cooler No Temp °C Condition  1 1.0 Good | alust reame                             | st nous     | red off  | from cerps                             | gener  |
| 17. Additional remarks: PS per W   | 6 Hered ou                              | ad mark     | ened for   | -additiona                             | Your   |
| 18 Cooler Information  | , ill or ou just                        | in pure     |  | ADV 4558011                            | id her   |
| 10. Godier intermediate  |   | •           |  | 10,000                                 | 1 100.16   |

| C                           | hain     | -ot-Cu                             | istody Record               | Tum-Around                 | nme.                 |                                    |             |                  |                |                    | AL  |               | RIL.  | /T E                       | 20          | RIB             | 4EI    | NTA |   |                      |
|-----------------------------|----------|------------------------------------|-----------------------------|----------------------------|----------------------|------------------------------------|-------------|------------------|----------------|--------------------|---|---------------|---|----------------------------|-------------|-----------------|--------|-----|---|----------------------|
| Client:                     | AM       | EC                                 |                             | X Standard                 | □ Rush               | 1                                  |             |                  |                |                    |   |               |   |                            |             |                 |        | TOI |   |                      |
|                             |          |                                    |                             | Project Name               | 3: Lightning         | DOCK GEOTHERM                      | ul.         | 2                |                |                    | ww.h                                      |               |   |                            |             |                 |        |     |   |                      |
| Mailing                     | Address  | 8519                               | Jefferson St NE             |                            | vality Mo            |                                    |             | 490              | )1 Ha          |                    | s NE                                      |               |   |                            |             |                 | 109    |     |   |                      |
|                             |          |                                    |                             | Project #:                 |                      |                                    |             |                  |                |                    | -3975                                     |               | -   | -                          |             | -4107           |        |     |   |                      |
| Phone :                     |          | 05.82                              | M 87113<br>21.1801          | 11-51                      | 7-00102              | .06                                |             |                  |                | 0 0 10             |   |               | ysis  |                            |             |                 |        |     |   |                      |
|                             |          |                                    | MARY CAMEC. COM             | Project Mana               | iger:                |                                    |             | ly)              | 0              |                    |   |               | -   |                            |             |                 | $\Box$ |     |   |                      |
|                             | Package: |                                    | ☐ Level 4 (Full Validation) | 7 "                        | Janney               | 7 _                                | (8021)      | + TPH (Gas only) | DRO / MRO)     |                    | SMIS                                      |               | 2O4,SC  | PCB's                      |             |                 |        |     |   |                      |
| Accredi                     |          |                                    |                             | Sampler                    | siles &              | Suil                               | TMB's       | H                | DR             |                    |   |               | 0,5   | 382                        |             |                 |        |     |   |                      |
| □ NEL                       | AP       | □ Othe                             |                             |                            |                      | Dio J                              | F +         | +                | 8              | 18.1               | 27.7                                      |               | )3,N  | 8/8                        |             | (F)             |        |     |   | 2                    |
| X EDD                       | (Type)_  | Ex                                 | ce 1 per DS 01/d6/19        | Sample Tem                 | perature: 📆          | 00                                 | .BE         |                  | 9              | bd 4               | 20 5                                      | stals         | N,  | ides                       | æ           | 9               |        |     |   | ح                    |
| Date                        | Time     | Matrix                             | Sample Request ID           | Container<br>Type and #    | Preservative<br>Type | HEAL NO.<br>1312846                | BTEX + MTBE | BTEX + MTBE      | TPH 8015B (GRO | TPH (Method 418.1) | EDB (Method 504.1)<br>PAH's (8310 or 8270 | RCRA 8 Metals | Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> ) | 8081 Pesticides / 8082 PCB | 8260B (VOA) | 8270 (Semi-VOA) |        |     | 4 | Air Bubbles (Y or N) |
| 2/21/13                     | 1300     | Water                              | LDG 47-7                    | 21                         |                      | -001                               |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |
|                             |          |                                    | Trip Black                  | 3                          |                      |                                    |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |
|                             |          |                                    | 2                           |                            |                      |                                    |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |
|                             |          | 1                                  | Note: 2 x 125               | HNO3:                      | Sargles              |                                    |             |                  |                | $\top$             |   |               |   |                            |             |                 |        |     |   |                      |
|                             |          |                                    | (Dissolved,                 | +                          | <del></del>          |                                    |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |
|                             |          |                                    | not fillege                 | 4                          |                      | (                                  |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |
|                             |          |                                    | 701 11170                   |                            |                      |                                    |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |
|                             |          |                                    |                             |                            |                      |                                    |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |
|                             |          |                                    |                             | _                          |                      |                                    |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |
|                             |          |                                    |                             |                            |                      |                                    |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |
|                             |          |                                    |                             |                            |                      |                                    |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |
|                             |          |                                    |                             |                            |                      |                                    |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |
| Date:<br>2 23   13<br>Date: |          | Relinquishe<br>Clud<br>Relinquishe | les & Suit                  | Received by:  Received by: | i Ga                 | Date Time 12,041,3,10,30 Date Time | Rem         |                  |                | a+                 | ache                                      | 1             | ana   | lyh                        | c 11        | ist.            |        |     |   |                      |
|                             |          |                                    |                             |                            |                      |                                    |             |                  |                |                    |   |               |   |                            |             |                 |        |     |   |                      |

12/02/13/AT Use this list

### CYRQ ENERGY WQCC BOTTLES FOR 1 SAMPLE

TEST

8260

EDB-504.1

1082-P€B

310-PAH

270-SV0C

'henols

inlons, TDS, pH,

Soy, Cl, PSoy, Carbonate, Bicarbonate, Total Alk
PS, pH

lercury

issolved Metals/Cations

1, As, As, B, Bu, Br, Cd, Cu, Co, Fr, F, / Ca, Nn, K, P, 2, Li, Ma, Mg, Mo, Ni, Pb, Se, Ry, W, Zn, U

otal Phosphorus

ladon

YN

adium 226/228

**BOTTLE TYPE/PRESERVATIVE** 

3 x 40 ml HCl Voa's

2 x 40 ml voa's Na2S203

1 x itr unpreserved amber

1 x itr unpreserved amber

1 x itr unpreserved amber

1 x !tr H2S04 amber

1 x 500 unpreserved plastic

1 x 125 H2S04 plastic

1 x 500 HN03 plastic

2 x 125 HN03 plastic

1 x 500 HCi amber

Ask Hall

- 1

Note Li, Ro, Won COC



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

December 16, 2013

David Janney
AMEC
8519 Jefferson Street, NE
Albuquerque, NM 87113
TEL: (505) 796-7276

RE: Lightning Dock Geothermal Water Quality Monitoring OrderNo.: 1311B14

### Dear David Janney:

FAX (505) 821-7371

Hall Environmental Analysis Laboratory received 8 sample(s) on 11/26/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andel

4901 Hawkins NE

Albuquerque, NM 87109



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

**Case Narrative** 

WO#:

1311B14

Date:

12/16/2013

**CLIENT:** 

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Analytical Notes Regarding EPA Method 418.1:

Sample MW-3 The addition of silica gel to the sample extract is performed to remove the grease portion in the sample result. The extract went through 10 silica gel steps before running out of extract. The sample result of 1.1 mg/L is likely to be non petroleum related hydrocarbons. The sample result should be considered estimated.

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-1

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/25/2013 11:45:00 AMLab ID:1311B14-001Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                          | Result | RL (     | Qual Ur | nits | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|---------|------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |         |      |    | Analyst:              | scc    |
| Naphthalene                       | ND     | 2.0      | μί      | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      | μί      | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      | μ       | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      | μ       | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      | μί      | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Fluorene                          | ND     | 0.80     | μ       | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     |         | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Anthracene                        | ND     | 0.60     | μς      | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     | μ       | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Pyrene                            | ND     | 0.30     | μ       | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    | μί      | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Chrysene                          | ND     | 0.20     | μ       | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     | μ       | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    | μί      | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    | μ       | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     | μ       | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     | μ       | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     | μ       | g/L  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 107    | 24.5-139 | %       | REC  | 1  | 12/3/2013 2:16:33 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |         |      |    | Analyst:              | JRR    |
| Fluoride                          | 7.7    | 0.50     | * m     | g/L  | 5  | 11/26/2013 6:48:08 PM | R15112 |
| Chloride                          | 100    | 10       | m       | g/L  | 20 | 11/26/2013 7:00:33 PM | R15112 |
| Bromide                           | ND     | 0.50     | m       | g/L  | 5  | 11/26/2013 6:48:08 PM | R15112 |
| Nitrogen, Nitrate (As N)          | 2.6    | 0.50     | m       | g/L  | 5  | 11/26/2013 6:48:08 PM | R15112 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | m       | g/L  | 5  | 11/26/2013 6:48:08 PM | R15112 |
| Sulfate                           | 670    | 10       | * m     | g/L  | 20 | 11/26/2013 7:00:33 PM | R15112 |
| EPA METHOD 200.7: DISSOLVED MI    | ETALS  |          |         |      |    | Analyst:              | JLF    |
| Aluminum                          | 0.034  | 0.020    | m       | g/L  | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Barium                            | 0.063  | 0.0020   | m       | ıg/L | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Boron                             | 0.70   | 0.20     | m       | ıg/L | 5  | 12/4/2013 6:32:25 PM  | R15245 |
| Cadmium                           | ND     | 0.0020   | m       | ıg/L | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Calcium                           | 51     | 1.0      | m       | g/L  | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Chromium                          | ND     | 0.0060   | m       | ıg/L | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Cobalt                            | ND     | 0.0060   | m       | ıg/L | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Copper                            | ND     | 0.0060   | m       | ıg/L | 1  | 12/5/2013 1:37:05 PM  | R15267 |
| Iron                              | ND     | 0.020    | m       | ıg/L | 1  | 12/5/2013 1:37:05 PM  | R15267 |
| Magnesium                         | 2.1    | 1.0      | m       | ıg/L | 1  | 12/4/2013 6:20:46 PM  | R15245 |
| Manganese                         | 0.21   | 0.0020   | * m     | ıg/L | 1  | 12/4/2013 6:20:46 PM  | R15245 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 2 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Analytical Report Lab Order 1311B14

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-1

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-001 Matrix: AQUEOUS

Received Date: 11/25/2013 11:45:00 AM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result  | RL Q    | ual Units | DF | Date Analyzed         | Batch    |
|--------------------------------|---------|---------|-----------|----|-----------------------|----------|
| EPA METHOD 200.7: DISSOLVED ME | TALS    |         |           |    | Analys                | : JLF    |
| Molybdenum                     | 0.058   | 0.0080  | mg/L      | 1  | 12/4/2013 6:20:46 PM  | R15245   |
| Nickel                         | ND      | 0.010   | mg/L      | 1  | 12/4/2013 6:20:46 PM  | R15245   |
| Potassium                      | 22      | 1.0     | mg/L      | 1  | 12/4/2013 6:20:46 PM  | R15245   |
| Silver                         | ND      | 0.0050  | mg/L      | 1  | 12/4/2013 6:20:46 PM  | R15245   |
| Sodium                         | 400     | 5.0     | mg/L      | 5  | 12/4/2013 6:32:25 PM  | R15245   |
| Zinc                           | ND      | 0.010   | mg/L      | 1  | 12/5/2013 1:37:05 PM  | R15267   |
| EPA 200.8: DISSOLVED METALS    |         |         |           |    | Analys                | t: DBD   |
| Arsenic                        | 0.0055  | 0.0010  | mg/L      | 1  | 12/10/2013 2:05:58 PM | 1 R15392 |
| Lead                           | ND      | 0.0010  | mg/L      | 1  | 12/10/2013 2:05:58 PM | 1 R15392 |
| Selenium                       | 0.0052  | 0.0010  | mg/L      | 1  | 12/10/2013 2:05:58 PM | 1 R15392 |
| Uranium                        | 0.011   | 0.0010  | mg/L      | 1  | 12/10/2013 2:05:58 PM | 1 R15392 |
| EPA METHOD 245.1: MERCURY      |         |         |           |    | Analys                | t: JML   |
| Mercury                        | 0.00079 | 0.00020 | mg/L      | 1  | 12/4/2013 5:46:41 PM  | 10596    |
| EPA METHOD 8270C: SEMIVOLATILE | ES      |         |           |    | Analys                | t: DAM   |
| Acenaphthene                   | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Acenaphthylene                 | ND      | 10      | µg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Aniline                        | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Anthracene                     | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Azobenzene                     | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Benz(a)anthracene              | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Benzo(a)pyrene                 | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Benzo(b)fluoranthene           | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Benzo(g,h,i)perylene           | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Benzo(k)fluoranthene           | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Benzoic acid                   | ND      | 40      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Benzył alcohol                 | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Bis(2-chloroethoxy)methane     | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Bis(2-chloroethyl)ether        | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Bis(2-chloroisopropyl)ether    | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Bis(2-ethylhexyl)phthalate     | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| 4-Bromophenyl phenyl ether     | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Butyl benzyl phthalate         | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| Carbazole                      | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| 4-Chloro-3-methylphenol        | ND      | 10      | µg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| 4-Chloroaniline                | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| 2-Chloronaphthalene            | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| 2-Chlorophenol                 | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |
| 4-Chlorophenyl phenyl ether    | ND      | 10      | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570    |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 3 of 71
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-1

Collection Date: 11/25/2013 11:45:00 AM Project: Lightning Dock Geothermal Water Qualit Lab ID: 1311B14-001 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                   | Result | RL Qu | al Units | DF | Date Analyzed        | Batch |
|----------------------------|--------|-------|----------|----|----------------------|-------|
| EPA METHOD 8270C: SEMIVOLA | TILES  |       |          |    | Analyst              | DAM   |
| Chrysene                   | ND     | 10    | µg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Di-n-butyl phthalate       | ND     | 10    | µg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Di-n-octyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Dibenz(a,h)anthracene      | ND     | 10    | µg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Dibenzofuran               | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 1,2-Dichlorobenzene        | ND     | 10    | µg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 1,3-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 1,4-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 3,3'-Dichlorobenzidine     | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Diethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Dimethyl phthalate         | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2,4-Dichlorophenol         | ND     | 20    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2,4-Dimethylphenol         | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 4,6-Dinitro-2-methylphenol | ND     | 20    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2,4-Dinitrophenol          | ND     | 20    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2,4-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2,6-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Fluoranthene               | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Fluorene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Hexachlorobenzene          | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Hexachlorobutadiene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Hexachlorocyclopentadiene  | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Hexachloroethane           | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Indeno(1,2,3-cd)pyrene     | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Isophorone                 | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 1-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2-Methylphenol             | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 3+4-Methylphenol           | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| N-Nitrosodi-n-propylamine  | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| N-Nitrosodimethylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| N-Nitrosodiphenylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Naphthalene                | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 3-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 4-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| Nitrobenzene               | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 2-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |
| 4-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 2:02:14 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- Page 4 of 71 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Analytical Report Lab Order 1311B14

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-1

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-001 Matrix: AQUEOUS

Collection Date: 11/25/2013 11:45:00 AM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                        | Result | RL Q      | ual Units | DF | Date Analyzed         | Batch  |
|---------------------------------|--------|-----------|-----------|----|-----------------------|--------|
| EPA METHOD 8270C: SEMIVOLATILES | -      |           |           |    | Analyst               | DAM    |
| Pentachlorophenol               | ND     | 20        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Phenanthrene                    | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Phenol                          | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Pyrene                          | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Pyridine                        | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 1,2,4-Trichlorobenzene          | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 2,4,5-Trichlorophenol           | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| 2,4,6-Trichlorophenol           | ND     | 10        | μg/L      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: 2-Fluorophenol            | 44.5   | 22.7-98   | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: Phenol-d5                 | 34.1   | 23.4-74.9 | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: 2,4,6-Tribromophenol      | 63.1   | 23.3-111  | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: Nitrobenzene-d5           | 52.3   | 36.8-111  | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: 2-Fluorobiphenyl          | 60.7   | 38.3-110  | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| Surr: 4-Terphenyl-d14           | 64.5   | 52.1-116  | %REC      | 1  | 12/2/2013 2:02:14 PM  | 10570  |
| EPA METHOD 8260B: VOLATILES     |        |           |           |    | Analyst               | cadg   |
| Benzene                         | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Toluene                         | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Ethylbenzene                    | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Methyl tert-butyl ether (MTBE)  | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,2,4-Trimethylbenzene          | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,3,5-Trimethylbenzene          | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,2-Dichloroethane (EDC)        | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,2-Dibromoethane (EDB)         | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Naphthalene                     | ND     | 2.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1-Methylnaphthalene             | ND     | 4.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 2-Methylnaphthalene             | ND     | 4.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Acetone                         | ND     | 10        | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Bromobenzene                    | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Bromodichloromethane            | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Bromoform                       | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Bromomethane                    | ND     | 3.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 2-Butanone                      | ND     | 10        | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Carbon disulfide                | ND     | 10        | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Carbon Tetrachloride            | ND     | 1.0       | µg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Chlorobenzene                   | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Chloroethane                    | ND     | 2.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Chloroform                      | 28     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Chloromethane                   | ND     | 3.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 2-Chiorotoluene                 | ND     | 1.0       | μg/L      | 1  | 11/26/2013 4:26:34 PM | R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

Client Sample ID: MW-1 **CLIENT: AMEC** 

Collection Date: 11/25/2013 11:45:00 AM Project: Lightning Dock Geothermal Water Qualit Lab ID: 1311B14-001 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qua | ıl Units | DF | Date Analyzed         | Batch  |
|-----------------------------|--------|--------|----------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |        |          |    | Analyst:              | cadg   |
| 4-Chlorotoluene             | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| cis-1,2-DCE                 | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| cis-1,3-Dichloropropene     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Dibromochloromethane        | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Dibromomethane              | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,2-Dichlorobenzene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,3-Dichlorobenzene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,4-Dichlorobenzene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Dichlorodifluoromethane     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,1-Dichloroethane          | ND     | 1.0    | µg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,1-Dichloroethene          | ND     | 1.0    | µg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,2-Dichloropropane         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,3-Dichloropropane         | ND     | 1.0    | µg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 2,2-Dichloropropane         | ND     | 2.0    | µg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,1-Dichloropropene         | ND     | 1.0    | µg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Hexachlorobutadiene         | ND     | 1.0    | µg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 2-Hexanone                  | ND     | 10     | µg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Isopropylbenzene            | ND ·   | 1.0    | µg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 4-Isopropyltoluene          | ND     | 1.0    | µg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 4-Methyl-2-pentanone        | ND     | 10     | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Methylene Chloride          | ND     | 3.0    | µg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| n-Butylbenzene              | ND     | 3.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| n-Propylbenzene             | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| sec-Butylbenzene            | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Styrene                     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| tert-Butylbenzene           | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Tetrachloroethene (PCE)     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| trans-1,2-DCE               | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| trans-1,3-Dichloropropene   | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,2,3-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,2,4-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,1,1-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,1,2-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Trichloroethene (TCE)       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Trichlorofluoromethane      | ND     | 1.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |
| 1,2,3-Trichloropropane      | ND     | 2.0    | μg/L     | 1  | 11/26/2013 4:26:34 PM | R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

### Qualifiers:

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- RPD outside accepted recovery limits

- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit Page 6 of 71
- Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

# Analytical Report Lab Order 1311B14

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-1

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-001 Matrix: AQUEOUS

Collection Date: 11/25/2013 11:45:00 AM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                     | Result | RL (   | Qual ( | J <b>nits</b> | DF | Date Analyzed         | Batch  |
|------------------------------|--------|--------|--------|---------------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES  |        |        |        |               |    | Analyst:              | cadg   |
| Vinyl chloride               | ND     | 1.0    |        | µg/L          | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Xylenes, Total               | ND     | 1.5    |        | μg/L          | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Surr: 1,2-Dichloroethane-d4  | 95.9   | 70-130 |        | %REC          | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Surr: 4-Bromofluorobenzene   | 107    | 70-130 |        | %REC          | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Surr: Dibromofluoromethane   | 103    | 70-130 |        | %REC          | 1  | 11/26/2013 4:26:34 PM | R15104 |
| Surr: Toluene-d8             | 96.6   | 70-130 |        | %REC          | 1  | 11/26/2013 4:26:34 PM | R15104 |
| EPA METHOD 418.1: TPH        |        |        |        |               |    | Analyst:              | JME    |
| Petroleum Hydrocarbons, TR   | ND     | 1.1    |        | mg/L          | 1  | 11/27/2013            | 10569  |
| SM2510B: SPECIFIC CONDUCTANO | E      |        |        |               |    | Analyst:              | JML    |
| Conductivity                 | 2000   | 0.010  |        | µmhos/cm      | 1  | 11/27/2013 8:57:38 PM | R15156 |
| SM4500-H+B: PH               |        |        |        |               |    | Analyst:              | JML    |
| pH                           | 7.69   | 1.68   | Н      | pH units      | 1  | 11/27/2013 8:57:38 PM | R15156 |
| SM2320B: ALKALINITY          |        |        |        |               |    | Analyst:              | JML    |
| Bicarbonate (As CaCO3)       | 220    | 20     |        | mg/L CaCO3    | 1  | 11/27/2013 8:57:38 PM | R15156 |
| Carbonate (As CaCO3)         | ND     | 2.0    |        | mg/L CaCO3    | 1  | 11/27/2013 8:57:38 PM | R15156 |
| Total Alkalinity (as CaCO3)  | 220    | 20     |        | mg/L CaCO3    | 1  | 11/27/2013 8:57:38 PM | R15156 |
| SM2540C MOD: TOTAL DISSOLVED | SOLIDS |        |        |               |    | Analyst:              | KS     |
| Total Dissolved Solids       | 1780   | 200    | *      | mg/L          | 1  | 11/29/2013 2:50:00 PM | 10567  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-2 **CLIENT: AMEC** 

Collection Date: 11/25/2013 9:00:00 AM Project: Lightning Dock Geothermal Water Qualit

Received Date: 11/26/2013 9:15:00 AM Lab ID: 1311B14-002 Matrix: AQUEOUS

| Analyses                          | Result | RL       | Qual Ur | nits | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|---------|------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |         |      |    | Analyst:              | scc    |
| Naphthalene                       | ND     | 2.0      | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Fluorene                          | ND     | 0.80     |         | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Anthracene                        | ND     | 0.60     | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Pyrene                            | ND     | 0.30     | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Chrysene                          | ND     | 0.20     | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     | μ       | g/L  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 135    | 24.5-139 | %       | REC  | 1  | 12/3/2013 2:45:54 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |         |      |    | Analyst:              | JRR    |
| Fluoride                          | 11     | 0.50     | * m     | ng/L | 5  | 11/26/2013 7:12:58 PM | R15112 |
| Chloride                          | 96     | 2.5      | m       | ng/L | 5  | 11/26/2013 7:12:58 PM | R15112 |
| Bromide                           | ND     | 0.50     | m       | ng/L | 5  | 11/26/2013 7:12:58 PM | R15112 |
| Nitrogen, Nitrate (As N)          | 3.1    | 0.50     | m       | ng/L | 5  | 11/26/2013 7:12:58 PM | R15112 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | m       | ng/L | 5  | 11/26/2013 7:12:58 PM | R15112 |
| Sulfate                           | 510    | 10       | * m     | ng/L | 20 | 11/26/2013 7:25:22 PM | R15112 |
| EPA METHOD 200.7: DISSOLVED MI    | ETALS  |          |         |      |    | Analyst               | JLF    |
| Aluminum                          | 0.049  | 0.020    | n       | ng/L | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Barium                            | 0.044  | 0.0020   | m       | ng/L | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Boron                             | 0.37   | 0.040    | m       | ng/L | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Cadmium                           | ND     | 0.0020   | m       | ng/L | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Calcium                           | 26     | 1.0      | m       | ng/L | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Chromium                          | ND     | 0.0060   | n       | ng/L | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Cobalt                            | ND     | 0.0060   | n       | ng/L | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Copper                            | ND     | 0.0060   | n       | ng/L | 1  | 12/5/2013 1:39:03 PM  | R15267 |
| Iron                              | ND     | 0.020    | n       | ng/L | 1  | 12/5/2013 1:39:03 PM  | R15267 |
| Magnesium                         | ND     | 1.0      | n       | ng/L | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Manganese                         | 0.041  | 0.0020   | n       | ng/L | 1  | 12/4/2013 6:43:12 PM  | R15245 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- Page 8 of 71 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-2

Lightning Dock Geothermal Water Qualit Collection Date: 11/25/2013 9:00:00 AM Project: 1311B14-002 Received Date: 11/26/2013 9:15:00 AM Lab ID: Matrix: AQUEOUS

| Analyses                       | Result | RL Qı   | nal Units     | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|---------|---------------|----|-----------------------|--------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |               |    | Analyst               | : JLF  |
| Molybdenum                     | 0.027  | 0.0080  | mg/L          | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Nickel                         | ND     | 0.010   | mg/L          | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Potassium                      | 14     | 1.0     | mg/L          | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Silver                         | ND     | 0.0050  | mg/L          | 1  | 12/4/2013 6:43:12 PM  | R15245 |
| Sodium                         | 310    | 5.0     | mg/L          | 5  | 12/4/2013 6:46:59 PM  | R15245 |
| Zinc                           | 0.015  | 0.010   | mg/L          | .1 | 12/5/2013 1:39:03 PM  | R15267 |
| EPA 200.8: DISSOLVED METALS    |        |         |               |    | Analyst               | : DBD  |
| Arsenic                        | 0.0082 | 0.0010  | mg/L          | 1  | 12/10/2013 2:11:18 PM | R15392 |
| Lead                           | ND     | 0.0010  | mg/L          | 1  | 12/10/2013 2:11:18 PM | R15392 |
| Selenium                       | 0.0035 | 0.0010  | mg/L          | 1  | 12/10/2013 2:11:18 PM | R15392 |
| Uranium                        | ND     | 0.0010  | mg/L          | 1  | 12/10/2013 2:11:18 PM | R15392 |
| EPA METHOD 245.1: MERCURY      |        |         |               |    | Analyst               | : JML  |
| Mercury                        | ND     | 0.00020 | mg/L          | 1  | 12/4/2013 5:48:29 PM  | 10596  |
| EPA METHOD 8270C: SEMIVOLATILE | S      |         |               |    | Analys                | :: DAM |
| Acenaphthene                   | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Acenaphthylene                 | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Aniline                        | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Anthracene                     | ND     | 10      | µg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Azobenzene                     | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benz(a)anthracene              | ND     | 10      | µg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzo(a)pyrene                 | ND     | 10      | µg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzo(b)fluoranthene           | ND     | 10      | µg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzo(g,h,i)perylene           | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzo(k)fluoranthene           | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzoic acid                   | ND     | 40      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Benzyl alcohol                 | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Bis(2-chloroethyl)ether        | ND     | 10      | μ <b>g</b> /L | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Bis(2-chloroisopropyl)ether    | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Bis(2-ethylhexyl)phthalate     | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 4-Bromophenyl phenyl ether     | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Butyl benzyl phthalate         | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| Carbazole                      | ND     | 10      | µg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 4-Chloro-3-methylphenol        | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 4-Chloroaniline                | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 2-Chloronaphthalene            | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 2-Chlorophenol                 | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |
| 4-Chlorophenyl phenyl ether    | ND     | 10      | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit Ο
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-2 CLIENT: AMEC

Collection Date: 11/25/2013 9:00:00 AM Project: Lightning Dock Geothermal Water Qualit

Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM Lab ID: 1311B14-002

| Analyses                   | Result | RL Qu                                 | al Units | DF | Date Analyzed        | Batch |
|----------------------------|--------|---------------------------------------|----------|----|----------------------|-------|
| EPA METHOD 8270C: SEMIVOLA | ATILES | · · · · · · · · · · · · · · · · · · · |          |    | Analyst              | DAM   |
| Chrysene                   | ND     | 10                                    | µg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Di-n-butyl phthalate       | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Di-n-octyl phthalate       | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Dibenz(a,h)anthracene      | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Dibenzofuran               | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 1,2-Dichlorobenzene        | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 1,3-Dichlorobenzene        | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 1,4-Dichlorobenzene        | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 3,3'-Dichlorobenzidine     | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Diethyl phthalate          | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Dimethyl phthalate         | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2,4-Dichlorophenol         | ND     | 20                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2,4-Dimethylphenol         | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 4,6-Dinitro-2-methylphenol | ND     | 20                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2,4-Dinitrophenol          | ND     | 20                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2,4-Dinitrotoluene         | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2,6-Dinitrotoluene         | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Fluoranthene               | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Fluorene                   | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Hexachlorobenzene          | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Hexachlorobutadiene        | ND     | 10                                    | µg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Hexachlorocyclopentadiene  | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Hexachloroethane           | ND     | 10                                    | µg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Indeno(1,2,3-cd)pyrene     | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Isophorone                 | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 1-Methylnaphthalene        | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2-Methylnaphthalene        | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2-Methylphenol             | ND     | 10                                    | µg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 3+4-Methylphenol           | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| N-Nitrosodi-n-propylamine  | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| N-Nitrosodimethylamine     | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| N-Nitrosodiphenylamine     | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Naphthalene                | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2-Nitroaniline             | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 3-Nitroaniline             | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 4-Nitroaniline             | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| Nitrobenzene               | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 2-Nitrophenol              | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |
| 4-Nitrophenol              | ND     | 10                                    | μg/L     | 1  | 12/2/2013 2:31:05 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Ε
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Not Detected at the Reporting Limit Page 10 of 71 Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

# Analytical Report Lab Order 1311B14

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-2

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/25/2013 9:00:00 AMLab ID:1311B14-002Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL        | Qual Units    | DF | Date Analyzed         | Batch    |
|--------------------------------|--------|-----------|---------------|----|-----------------------|----------|
| EPA METHOD 8270C: SEMIVOLATILE | S      |           |               |    | Analys                | : DAM    |
| Pentachlorophenol              | ND     | 20        | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| Phenanthrene                   | ND     | 10        | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| Phenol                         | ND     | 10        | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| Pyrene                         | ND     | 10        | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| Pyridine                       | ND     | 10        | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| Surr: 2-Fluorophenol           | 57.6   | 22.7-98   | %REC          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| Surr: Phenol-d5                | 42.0   | 23.4-74.9 | %REC          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| Surr: 2,4,6-Tribromophenol     | 78.5   | 23.3-111  | %REC          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| Surr: Nitrobenzene-d5          | 69.9   | 36.8-111  | %REC          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| Surr: 2-Fluorobiphenyl         | 69.2   | 38.3-110  | %REC          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| Surr: 4-Terphenyl-d14          | 78.5   | 52.1-116  | %REC          | 1  | 12/2/2013 2:31:05 PM  | 10570    |
| EPA METHOD 8260B: VOLATILES    |        |           |               |    | Analys                | t: cadg  |
| Benzene                        | ND     | 1.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | 1 R15104 |
| Toluene                        | ND     | 1.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | 1 R15104 |
| Ethylbenzene                   | ND     | 1.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | 1 R15104 |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L          | 1  | 11/26/2013 5:53:08 PN | 1 R15104 |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | 1 R15104 |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | µg/ኒ_         | 1  | 11/26/2013 5:53:08 PM | 1 R15104 |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | 1 R15104 |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | 1 R15104 |
| Naphthalene                    | ND     | 2.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | 1 R15104 |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | 1 R15104 |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| Acetone                        | ND     | 10        | μg/L          | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| Bromobenzene                   | ND     | 1.0       | μ <b>g</b> /L | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| Bromodichloromethane           | ND     | 1.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| Bromoform                      | ND     | 1.0       | μ <b>g</b> /L | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| Bromomethane                   | ND     | 3.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| 2-Butanone                     | ND     | 10        | μg/L          | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| Carbon disulfide               | ND     | 10        | μg/L          | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| Carbon Tetrachloride           | ND     | 1.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| Chlorobenzene                  | ND     | 1.0       | µg/ኒ₋         | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| Chloroethane                   | ND     | 2.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| Chloroform                     | 4.9    | 1.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| Chloromethane                  | ND     | 3.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | / R15104 |
| 2-Chlorotoluene                | ND     | 1.0       | μg/L          | 1  | 11/26/2013 5:53:08 PM | / R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 11
- ND Not Detected at the Reporting Limit Page 11 of 71

  P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-2

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-002 Matrix: AQUEOUS

Collection Date: 11/25/2013 9:00:00 AM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result   | RL Qu | al Units | DF 1 | Date Analyzed         | Batch     |
|-----------------------------|----------|-------|----------|------|-----------------------|-----------|
| EPA METHOD 8260B: VOLATILES | <u>.</u> |       |          |      | Analys                | t: cadg   |
| 4-Chlorotoluene             | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 PM | 1 R15104  |
| cis-1,2-DCE                 | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | 1 R15104  |
| cis-1,3-Dichloropropene     | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 PM | 1 R15104  |
| 1,2-Dibromo-3-chloropropane | ND       | 2.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | R15104    |
| Dibromochloromethane        | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | 1 R15104  |
| Dibromomethane              | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 PM | R15104    |
| 1,2-Dichlorobenzene         | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | R15104    |
| 1,3-Dichlorobenzene         | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | R15104    |
| 1,4-Dichlorobenzene         | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | / R15104  |
| Dichlorodifluoromethane     | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | 1 R15104  |
| 1,1-Dichloroethane          | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | / R15104  |
| 1,1-Dichloroethene          | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | / R15104  |
| 1,2-Dichloropropane         | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | / R15104  |
| 1,3-Dichloropropane         | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | R15104    |
| 2,2-Dichloropropane         | ND       | 2.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | R15104    |
| 1,1-Dichloropropene         | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 PM | R15104    |
| Hexachlorobutadiene         | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | R15104    |
| 2-Hexanone                  | ND       | 10    | µg/L     | 1    | 11/26/2013 5:53:08 PM | R15104    |
| Isopropylbenzene            | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | / R15104  |
| 4-Isopropyltoluene          | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 PM | / R15104  |
| 4-Methyl-2-pentanone        | ND       | 10    | µg/L     | 1    | 11/26/2013 5:53:08 PM | /I R15104 |
| Methylene Chloride          | ND       | 3.0   | µg/L     | 1    | 11/26/2013 5:53:08 PM | / R15104  |
| n-Butylbenzene              | ND       | 3.0   | μg/L     | 1    | 11/26/2013 5:53:08 PM | M R15104  |
| n-Propylbenzene             | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 Pt | M R15104  |
| sec-Butylbenzene            | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 Pt | M R15104  |
| Styrene                     | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 Pf | M R15104  |
| tert-Butylbenzene           | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 PI | M R15104  |
| 1,1,1,2-Tetrachloroethane   | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 Pt | M R15104  |
| 1,1,2,2-Tetrachloroethane   | ND       | 2.0   | μg/L     | 1    | 11/26/2013 5:53:08 PI | M R15104  |
| Tetrachloroethene (PCE)     | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 PI | M R15104  |
| trans-1,2-DCE               | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 Pt | M R15104  |
| trans-1,3-Dichloropropene   | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 PI | M R15104  |
| 1,2,3-Trichlorobenzene      | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 PI | M R15104  |
| 1,2,4-Trichlorobenzene      | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 P  | M R15104  |
| 1,1,1-Trichloroethane       | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 PI | M R15104  |
| 1,1,2-Trichloroethane       | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 P  | M R15104  |
| Trichloroethene (TCE)       | ND       | 1.0   | μg/L     | 1    | 11/26/2013 5:53:08 P  | M R15104  |
| Trichlorofluoromethane      | ND       | 1.0   | µg/L     | 1    | 11/26/2013 5:53:08 P  | M R15104  |
| 1,2,3-Trichloropropane      | ND       | 2.0   | µg/L     | 1    | 11/26/2013 5:53:08 P  | M R15104  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 12 of 7
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Analytical Report Lab Order 1311B14

Date Reported: 12/16/2013

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-2

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/25/2013 9:00:00 AMLab ID:1311B14-002Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                     | Result | RL (   | Qual | Units      | DF | Date Analyzed         | Batch   |
|------------------------------|--------|--------|------|------------|----|-----------------------|---------|
| EPA METHOD 8260B: VOLATILES  |        |        |      |            |    | Analyst               | cadg    |
| Vinyl chloride               | ND     | 1.0    |      | μg/L       | 1  | 11/26/2013 5:53:08 PM | R15104  |
| Xylenes, Total               | ND     | 1.5    |      | μg/L       | 1  | 11/26/2013 5:53:08 PM | R15104  |
| Surr: 1,2-Dichloroethane-d4  | 99.1   | 70-130 |      | %REC       | 1  | 11/26/2013 5:53:08 PM | R15104  |
| Surr: 4-Bromofluorobenzene   | 104    | 70-130 |      | %REC       | 1  | 11/26/2013 5:53:08 PM | R15104  |
| Surr: Dibromofluoromethane   | 103    | 70-130 |      | %REC       | 1  | 11/26/2013 5:53:08 PM | R15104  |
| Surr: Toluene-d8             | 100    | 70-130 |      | %REC       | 1  | 11/26/2013 5:53:08 PM | R15104  |
| EPA METHOD 418.1: TPH        |        |        |      |            |    | Analyst               | : JME   |
| Petroleum Hydrocarbons, TR   | ND     | 1.2    |      | mg/L       | 1  | 11/27/2013            | 10569   |
| SM2510B: SPECIFIC CONDUCTANC | E      |        |      |            |    | Analyst               | : JML   |
| Conductivity                 | 1600   | 0.010  |      | µmhos/cm   | 1  | 11/27/2013 9:09:43 PM | R15156  |
| SM4500-H+B: PH               |        |        |      |            |    | Analyst               | : JML   |
| рН                           | 7.60   | 1.68   | Н    | pH units   | 1  | 11/27/2013 9:09:43 PM | R15156  |
| SM2320B: ALKALINITY          |        |        |      |            |    | Analyst               | :: JML  |
| Bicarbonate (As CaCO3)       | 72     | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:09:43 PM | R15156  |
| Carbonate (As CaCO3)         | ND     | 2.0    |      | mg/L CaCO3 | 1  | 11/27/2013 9:09:43 PM | R15156  |
| Total Alkalinity (as CaCO3)  | 72     | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:09:43 PM | R15156  |
| SM2540C MOD: TOTAL DISSOLVED | SOLIDS |        |      |            |    | Analyst               | : KS    |
| Total Dissolved Solids       | 1380   | 200    | *    | mg/L       | 1  | 11/29/2013 2:50:00 PM | 1 10567 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 12
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-2B

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/25/2013 9:30:00 AM

Lab ID: 1311B14-003 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                          | Result | RL (     | Qual Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |            |    | Analyst               | scc    |
| Naphthalene                       | ND     | 2.0      | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Fluorene                          | ND     | 0.80     | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Anthracene                        | ND     | 0.60     | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Pyrene                            | ND     | 0.30     | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Chrysene                          | ND     | 0.20     | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     | μg/L       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 112    | 24.5-139 | %REC       | 1  | 12/3/2013 3:15:15 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |            |    | Analyst               | : JRR  |
| Fluoride                          | 11     | 0.50     | * mg/L     | 5  | 11/26/2013 7:37:47 PM | R15112 |
| Chloride                          | 96     | 2.5      | mg/L       | 5  | 11/26/2013 7:37:47 PM | R15112 |
| Bromide                           | ND     | 0.50     | mg/L       | 5  | 11/26/2013 7:37:47 PM | R15112 |
| Nitrogen, Nitrate (As N)          | 3.2    | 0.50     | mg/L       | 5  | 11/26/2013 7:37:47 PM | R15112 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | mg/L       | 5  | 11/26/2013 7:37:47 PM | R15112 |
| Sulfate                           | 510    | 10       | * mg/L     | 20 | 11/26/2013 7:50:11 PM | R15112 |
| EPA METHOD 200.7: DISSOLVED MI    | ETALS  |          |            |    | Analyst               | : JLF  |
| Aluminum                          | 0.024  | 0.020    | mg/L       | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Barium                            | 0.043  | 0.0020   | mg/L       | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Boron                             | 0.36   | 0.040    | mg/L       | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Cadmium                           | ND     | 0.0020   | mg/L       | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Calcium                           | 26     | 1.0      | mg/L       | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Chromium                          | ND     | 0.0060   | mg/L       | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Cobalt                            | ND     | 0.0060   | mg/L       | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Copper                            | ND     | 0.0060   | mg/L       | 1  | 12/5/2013 1:40:57 PM  | R15267 |
| Iron                              | ND     | 0.020    | mg/L       | 1  | 12/5/2013 1:40:57 PM  | R15267 |
| Magnesium                         | ND     | 1.0      | mg/L       | 1  | 12/4/2013 6:55:38 PM  | R15245 |
| Manganese                         | 0.036  | 0.0020   | mg/L       | 1  | 12/4/2013 6:55:38 PM  | R15245 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 14 of
- Page 14 of /1
  P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-2B

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/25/2013 9:30:00 AM

1311B14-003 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM Lab ID:

| Analyses                       | Result | RL Q    | ual Units | ÐF | Date Analyzed         | Batch         |
|--------------------------------|--------|---------|-----------|----|-----------------------|---------------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |           |    | Analyst               | : JLF         |
| Molybdenum                     | 0.026  | 0.0080  | mg/L      | 1  | 12/4/2013 6:55:38 PM  | R15245        |
| Nickel                         | ND     | 0.010   | mg/L      | 1  | 12/4/2013 6:55:38 PM  | R15245        |
| Potassium                      | 15     | 1.0     | mg/L      | 1  | 12/4/2013 6:55:38 PM  | R15245        |
| Silver                         | ND     | 0.0050  | mg/L      | 1  | 12/4/2013 6:55:38 PM  | R15245        |
| Sodium                         | 310    | 5.0     | mg/L      | 5  | 12/4/2013 6:59:27 PM  | R15245        |
| Zinc                           | ND     | 0.010   | mg/L      | 1  | 12/5/2013 1:40:57 PM  | R15267        |
| EPA 200.8: DISSOLVED METALS    |        |         |           |    | Analyst               | DBD           |
| Arsenic                        | 0.0083 | 0.0010  | mg/L      | 1  | 12/10/2013 2:13:58 PM | R15392        |
| Lead                           | ND     | 0.0010  | mg/L      | 1  | 12/10/2013 2:13:58 PM | R15392        |
| Selenium                       | 0.0035 | 0.0010  | mg/L      | 1  | 12/10/2013 2:13:58 PM | R15392        |
| Uranium                        | ND     | 0.0010  | mg/L      | 1  | 12/10/2013 2:13:58 PM | R15392        |
| EPA METHOD 245.1: MERCURY      |        |         |           |    | Analyst               | : JML         |
| Mercury                        | ND     | 0.00020 | mg/L      | 1  | 12/4/2013 5:53:59 PM  | 10596         |
| EPA METHOD 8270C: SEMIVOLATILI | ES     |         |           |    | Analyst               | : DAM         |
| Acenaphthene                   | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Acenaphthylene                 | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Aniline                        | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Anthracene                     | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Azobenzene                     | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benz(a)anthracene              | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzo(a)pyrene                 | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzo(b)fluoranthene           | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzo(g,h,i)perylene           | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzo(k)fluoranthene           | ND     | 10      | µg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzoic acid                   | ND     | 40      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Benzyl alcohol                 | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Bis(2-chloroisopropyl)ether    | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Bis(2-ethylhexyl)phthalate     | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| 4-Bromophenyl phenyl ether     | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Butyl benzyl phthalate         | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| Carbazole                      | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | <b>1057</b> 0 |
| 4-Chloro-3-methylphenol        | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| 4-Chloroaniline                | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| 2-Chloronaphthalene            | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| 2-Chlorophenol                 | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |
| 4-Chlorophenyl phenyl ether    | ND     | 10      | μg/L      | 1  | 12/2/2013 2:59:56 PM  | 10570         |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- Page 15 of 71 P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

**CLIENT: AMEC** Client Sample ID: MW-2B

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/25/2013 9:30:00 AM 1311B14-003 Received Date: 11/26/2013 9:15:00 AM Lab ID: Matrix: AQUEOUS

| Analyses                       | Result | RL Qua | al Units | DF | Date Analyzed        | Batch |
|--------------------------------|--------|--------|----------|----|----------------------|-------|
| EPA METHOD 8270C: SEMIVOLATION | LES    |        |          |    | Analyst              | DAM   |
| Chrysene                       | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Di-n-butyl phthalate           | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Di-n-octyl phthalate           | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Dibenz(a,h)anthracene          | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Dibenzofuran                   | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 1,2-Dichlorobenzene            | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 1,3-Dichlorobenzene            | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 1,4-Dichlorobenzene            | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 3,3´-Dichlorobenzidine         | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Diethyl phthalate              | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Dimethyl phthalate             | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2,4-Dichlorophenol             | ND     | 20     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2,4-Dimethylphenol             | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 4,6-Dinitro-2-methylphenol     | ND     | 20     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2,4-Dinitrophenol              | ND     | 20     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2,4-Dinitrotoluene             | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2,6-Dinitrotoluene             | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Fluoranthene                   | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Fluorene                       | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Hexachlorobenzene              | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Hexachlorobutadiene            | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Hexachlorocyclopentadiene      | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Hexachloroethane               | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Indeno(1,2,3-cd)pyrene         | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Isophorone                     | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 1-Methylnaphthalene            | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2-Methylnaphthalene            | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2-Methylphenol                 | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 3+4-Methylphenol               | ND     | 10     | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| N-Nitrosodi-n-propylamine      | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| N-Nitrosodimethylamine         | ND     | 10     | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| N-Nitrosodiphenylamine         | ND     | 10     | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Naphthalene                    | ND     | 10     | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2-Nitroaniline                 | ND     | 10     | µg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 3-Nitroaniline                 | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 4-Nitroaniline                 | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| Nitrobenzene                   | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 2-Nitrophenol                  | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |
| 4-Nitrophenol                  | ND     | 10     | μg/L     | 1  | 12/2/2013 2:59:56 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
  - Page 16 of 71 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc. Date Reported: 12/16/2013

**CLIENT: AMEC** Client Sample ID: MW-2B

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/25/2013 9:30:00 AM

1311B14-003 Lab ID: Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                        | Result | RL        | Qual Units | ÐF | Date Analyzed         | Batch  |
|---------------------------------|--------|-----------|------------|----|-----------------------|--------|
| EPA METHOD 8270C: SEMIVOLATILES | 3      |           |            |    | Analyst               | DAM    |
| Pentachlorophenol               | ND     | 20        | μg/L       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Phenanthrene                    | ND     | 10        | μg/L       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Phenol                          | ND     | 10        | μg/L       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Pyrene                          | ND     | 10        | μg/L       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Pyridine                        | ND     | 10        | μg/L       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| 1,2,4-Trichlorobenzene          | ND     | 10        | μg/L       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| 2,4,5-Trichlorophenol           | ND     | 10        | μg/L       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| 2,4,6-Trichlorophenol           | ND     | 10        | μg/L       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: 2-Fluorophenol            | 38.8   | 22.7-98   | %REC       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: Phenol-d5                 | 29.9   | 23.4-74.9 | %REC       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: 2,4,6-Tribromophenol      | 65.6   | 23.3-111  | %REC       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: Nitrobenzene-d5           | 49.1   | 36.8-111  | %REC       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: 2-Fluorobiphenyl          | 51.5   | 38.3-110  | %REC       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| Surr: 4-Terphenyl-d14           | 75.9   | 52.1-116  | %REC       | 1  | 12/2/2013 2:59:56 PM  | 10570  |
| EPA METHOD 8260B: VOLATILES     |        |           |            |    | Analyst               | cadg   |
| Benzene                         | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Toluene                         | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Ethylbenzene                    | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Methyl tert-butyl ether (MTBE)  | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2,4-Trimethylbenzene          | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,3,5-Trimethylbenzene          | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2-Dichloroethane (EDC)        | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2-Dibromoethane (EDB)         | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Naphthalene                     | ND     | 2.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1-Methylnaphthalene             | ND     | 4.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 2-Methylnaphthalene             | ND     | 4.0       | µg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Acetone                         | ND     | 10        | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Bromobenzene                    | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Bromodichloromethane            | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Bromoform                       | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Bromomethane                    | ND     | 3.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 2-Butanone                      | ND     | 10        | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Carbon disulfide                | ND     | 10        | µg/∟       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Carbon Tetrachloride            | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Chlorobenzene                   | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Chloroethane                    | ND     | 2.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Chloroform                      | 5.2    | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Chloromethane                   | NĐ     | 3.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 2-Chlorotoluene                 | ND     | 1.0       | μg/L       | 1  | 11/26/2013 6:50:39 PM | R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

- E Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits

- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- Page 17 of 71 Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

## Lab Order 1311B14

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-2B

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-003 Matrix: AQUEOUS

Collection Date: 11/25/2013 9:30:00 AM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu | al Units      | DF | Date Analyzed         | Batch  |
|-----------------------------|--------|-------|---------------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES | ·      |       |               |    | Analyst               | cadg   |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | µg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Dibromochloromethane        | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Dibromomethane              | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | µg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,1-Dichloroethane          | ND     | 1.0   | µg/∟          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Hexachiorobutadiene         | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 2-Hexanone                  | ND     | 10    | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Isopropylbenzene            | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Methylene Chloride          | ND     | 3.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| n-Butylbenzene              | ND     | 3.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| n-Propylbenzene             | ND     | 1.0   | μ <b>g</b> /L | 1  | 11/26/2013 6:50:39 PM | R15104 |
| sec-Butylbenzene            | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Styrene                     | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Tetrachloroethene (PCE)     | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| trans-1,2-DCE               | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| trans-1,3-Dichloropropene   | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2,3-Trichlorobenzene      | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2,4-Trichlorobenzene      | ND     | 1.0   | µg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,1,1-Trichloroethane       | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,1,2-Trichloroethane       | ND     | 1.0   | µg/∟          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Trichloroethene (TCE)       | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Trichlorofluoromethane      | ND     | 1.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| 1,2,3-Trichloropropane      | ND     | 2.0   | μg/L          | 1  | 11/26/2013 6:50:39 PM | R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 18 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-2B

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/25/2013 9:30:00 AM

Lab ID: 1311B14-003 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                      | Result | RL (   | Qual Uni | its         | DF | Date Analyzed         | Batch  |
|-------------------------------|--------|--------|----------|-------------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES   |        |        |          |             |    | Analyst:              | cadg   |
| Vinyl chloride                | ND     | 1.0    | μg       | /L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Xylenes, Total                | ND     | 1.5    | μg       | /L          | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Surr: 1,2-Dichloroethane-d4   | 98.0   | 70-130 | %F       | REC         | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Surr: 4-Bromofluorobenzene    | 109    | 70-130 | %F       | REC         | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Surr: Dibromofluoromethane    | 100    | 70-130 | %F       | REC         | 1  | 11/26/2013 6:50:39 PM | R15104 |
| Surr: Toluene-d8              | 93.7   | 70-130 | %F       | REC         | 1  | 11/26/2013 6:50:39 PM | R15104 |
| EPA METHOD 418.1: TPH         |        |        |          |             |    | Analyst               | JME    |
| Petroleum Hydrocarbons, TR    | ND     | 1.1    | mg       | <b>j</b> /∟ | 1  | 11/27/2013            | 10569  |
| SM2510B: SPECIFIC CONDUCTANCE |        |        |          |             |    | Analyst               | JML    |
| Conductivity                  | 1500   | 0.010  | μm       | nhos/cm     | 1  | 11/27/2013 9:17:47 PM | R15156 |
| SM4500-H+B: PH                |        |        |          |             |    | Analyst               | : JML  |
| pΗ                            | 7.58   | 1.68   | Н рН     | l units     | 1  | 11/27/2013 9:17:47 PM | R15156 |
| SM2320B: ALKALINITY           |        |        |          |             |    | Analyst               | : JML  |
| Bicarbonate (As CaCO3)        | 72     | 20     | mg       | g/L CaCO3   | 1  | 11/27/2013 9:17:47 PM | R15156 |
| Carbonate (As CaCO3)          | ND     | 2.0    | mį       | g/L CaCO3   | 1  | 11/27/2013 9:17:47 PM | R15156 |
| Total Alkalinity (as CaCO3)   | 72     | 20     | mg       | g/L CaCO3   | 1  | 11/27/2013 9:17:47 PM | R15156 |
| SM2540C MOD: TOTAL DISSOLVED  | SOLIDS |        |          |             |    | Analyst               | : KS   |
| Total Dissolved Solids        | 1210   | 200    | * mg     | g/L         | 1  | 11/29/2013 2:50:00 PM | 10567  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 10
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-3

Collection Date: 11/24/2013 5:50:00 PM Project: Lightning Dock Geothermal Water Qualit

Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM Lab ID: 1311B14-004

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst:              | scc    |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    |      | µg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | µg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 136    | 24.5-139 |      | %REC  | 1  | 12/3/2013 3:44:29 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst               | JRR    |
| Fluoride                          | 12     | 0.50     | *    | mg/L  | 5  | 11/26/2013 8:27:26 PM | R15112 |
| Chloride                          | 94     | 10       |      | mg/L  | 20 | 11/26/2013 8:39:50 PM | R15112 |
| Bromide                           | ND     | 0.50     |      | mg/L  | 5  | 11/26/2013 8:27:26 PM | R15112 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 11/26/2013 8:27:26 PM | R15112 |
| Sulfate                           | 540    | 10       | *    | mg/L  | 20 | 11/26/2013 8:39:50 PM | R15112 |
| Nitrate+Nitrite as N              | 2.1    | 1.0      |      | mg/L  | 5  | 12/7/2013 3:55:41 AM  | R15322 |
| EPA METHOD 200.7: DISSOLVED MI    | ETALS  |          |      |       |    | Analyst               | JLF    |
| Aluminum                          | 0.31   | 0.020    | *    | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Barium                            | 0.060  | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Boron                             | 0.44   | 0.040    |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R1524  |
| Cadmium                           | ND     | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R1524  |
| Calcium                           | 24     | 1.0      |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R1524  |
| Chromium                          | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R1524  |
| Cobalt                            | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R1524  |
| Copper                            | ND     | 0.0060   |      | mg/L  | 1  | 12/5/2013 1:42:50 PM  | R1526  |
| Iron                              | 0.24   | 0.020    |      | mg/L  | 1  | 12/5/2013 1:42:50 PM  | R1526  |
| Magnesium                         | ND     | 1.0      |      | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R1524  |
| Manganese                         | 0.18   | 0.0020   | *    | mg/L  | 1  | 12/4/2013 7:17:10 PM  | R1524  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- Page 20 of 71 Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-3

Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 5:50:00 PM Project:

1311B14-004 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM Lab ID:

| Analyses                       | Result  | RL Qu   | al Units     | DF | Date Analyzed         | Batch  |
|--------------------------------|---------|---------|--------------|----|-----------------------|--------|
| EPA METHOD 200.7: DISSOLVED ME | TALS    |         |              |    | Analyst               | JLF    |
| Molybdenum                     | 0.065   | 0.0080  | mg/L         | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Nickel                         | ND      | 0.010   | mg/L         | 1  | 12/5/2013 1:42:50 PM  | R15267 |
| Potassium                      | 17      | 1.0     | mg/L         | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Silver                         | ND      | 0.0050  | mg/L         | 1  | 12/4/2013 7:17:10 PM  | R15245 |
| Sodium                         | 330     | 5.0     | mg/L         | 5  | 12/4/2013 7:21:02 PM  | R15245 |
| Zinc                           | ND      | 0.010   | mg/L         | 1  | 12/5/2013 1:42:50 PM  | R15267 |
| EPA 200.8: DISSOLVED METALS    |         |         |              |    | Analyst               | DBD    |
| Arsenic                        | 0.019   | 0.0010  | * mg/L       | 1  | 12/10/2013 2:22:00 PM | R15392 |
| Lead                           | ND      | 0.0010  | mg/L         | 1  | 12/10/2013 2:22:00 PM | R15392 |
| Selenium                       | 0.0034  | 0.0010  | mg/L         | 1  | 12/10/2013 2:22:00 PM | R15392 |
| Uranium                        | ND      | 0.0010  | mg/L         | 1  | 12/10/2013 2:22:00 PM | R15392 |
| EPA METHOD 245.1: MERCURY      |         |         |              |    | Analyst               | : JML  |
| Mercury                        | 0.00034 | 0.00020 | mg/L         | 1  | 12/4/2013 5:55:47 PM  | 10596  |
| EPA METHOD 8270C: SEMIVOLATILE | S       |         |              |    | Analyst               | : DAM  |
| Acenaphthene                   | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Acenaphthylene                 | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Aniline                        | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Anthracene                     | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Azobenzene                     | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benz(a)anthracene              | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzo(a)pyrene                 | ND      | 10      | μ <b>g/L</b> | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzo(b)fluoranthene           | ND      | 10      | μ <b>g/L</b> | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzo(g,h,i)perylene           | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzo(k)fluoranthene           | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzoic acid                   | 41      | 40      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Benzyl alcohol                 | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Bis(2-chloroethoxy)methane     | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Bis(2-chloroethyl)ether        | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Bis(2-chloroisopropyl)ether    | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Bis(2-ethylhexyl)phthalate     | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 4-Bromophenyl phenyl ether     | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Butyl benzyl phthalate         | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| Carbazole                      | ПD      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 4-Chloro-3-methylphenol        | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 4-Chloroaniline                | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 2-Chloronaphthalene            | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 2-Chlorophenol                 | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |
| 4-Chlorophenyl phenyl ether    | ND      | 10      | μg/L         | 1  | 12/2/2013 3:28:59 PM  | 10570  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 21 of 71 Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

Received Date: 11/26/2013 9:15:00 AM

## Lab Order 1311B14

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-3

Lightning Dock Geothermal Water Qualit Project: Collection Date: 11/24/2013 5:50:00 PM Matrix: AQUEOUS

Result Analyses RL Qual Units DF Date Analyzed Batch **EPA METHOD 8270C: SEMIVOLATILES** Analyst: DAM Chrysene ND 10 μg/L 12/2/2013 3:28:59 PM 10570 Di-n-butyl phthalate ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 ND Di-n-octyl phthalate 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Dibenz(a,h)anthracene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Dibenzofuran ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 ND 10 1,2-Dichlorobenzene μg/L 1 12/2/2013 3:28:59 PM 10570 ND 1,3-Dichlorobenzene 10 1 μg/L 12/2/2013 3:28:59 PM 10570 1,4-Dichlorobenzene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 3,3'-Dichlorobenzidine ND 10 1 μg/L 12/2/2013 3:28:59 PM 10570 ND Diethyl phthalate 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Dimethyl phthalate ND 10 1 12/2/2013 3:28:59 PM µg/L 10570 2,4-Dichlorophenol ND 20 μg/L 1 12/2/2013 3:28:59 PM 10570 2,4-Dimethylphenol ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 4,6-Dinitro-2-methylphenol ND 20 μg/L 1 12/2/2013 3:28:59 PM 10570 2,4-Dinitrophenol ND 20 1 12/2/2013 3:28:59 PM μg/L 10570 2.4-Dinitrotoluene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 NΩ 2.6-Dinitrotoluene 10 μg/L 1 12/2/2013 3:28:59 PM 10570 ND 10 Fluoranthene μg/L 12/2/2013 3:28:59 PM 10570 ND 10 Fluorene 1 μg/L 12/2/2013 3:28:59 PM 10570 Hexachlorobenzene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 12/2/2013 3:28:59 PM Hexachlorobutadiene ND 10 μg/L 1 10570 Hexachlorocyclopentadiene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Hexachloroethane ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Indeno(1,2,3-cd)pyrene ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Isophorone ND 10 μg/L 12/2/2013 3:28:59 PM 10570 1-Methylnaphthalene ND 10 1 μg/L 12/2/2013 3:28:59 PM 10570 2-Methylnaphthalene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 2-Methylphenol ND 10 1 12/2/2013 3:28:59 PM μg/L 10570 NΩ 3+4-Methylphenol 10 1 μg/L 12/2/2013 3:28:59 PM 10570 N-Nitrosodi-n-propylamine ND 10 12/2/2013 3:28:59 PM µg/L 10570 N-Nitrosodimethylamine ND 10 12/2/2013 3:28:59 PM µg/L 1 10570 N-Nitrosodiphenylamine ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 Naphthalene ND 10 µg/L 12/2/2013 3:28:59 PM 10570 2-Nitroaniline ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 3-Nitroaniline ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 4-Nitroaniline ND 10 µg/L 1 12/2/2013 3:28:59 PM 10570 Nitrobenzene ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 2-Nitropheno! ND 10 μg/L 1 12/2/2013 3:28:59 PM 10570 ND 4-Nitrophenol 10 μg/L 12/2/2013 3:28:59 PM 10570

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

Lab ID:

1311B14-004

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Ρ Sample pH greater than 2 for VOA and TOC only
- Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

**CLIENT: AMEC** Client Sample ID: MW-3

Collection Date: 11/24/2013 5:50:00 PM Project: Lightning Dock Geothermal Water Qualit 1311B14-004 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM Lab ID:

| Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed         | Batch           |
|--------------------------------|--------|-----------|----------|----|-----------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLATILE | S      |           |          |    | Analyst               | : DAM           |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| Phenol                         | ND     | 10        | μg/L     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| Pyrene                         | ND     | 10        | μg/L     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| Pyridine                       | ND     | 10        | μg/L     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| Surr: 2-Fluorophenol           | 39.0   | 22.7-98   | %REC     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| Surr: Phenol-d5                | 30.9   | 23.4-74.9 | %REC     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| Surr: 2,4,6-Tribromophenol     | 64.6   | 23.3-111  | %REC     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| Surr: Nitrobenzene-d5          | 50.6   | 36.8-111  | %REC     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| Surr: 2-Fluorobiphenyl         | 59.8   | 38.3-110  | %REC     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| Surr: 4-Terphenyl-d14          | 59.8   | 52.1-116  | %REC     | 1  | 12/2/2013 3:28:59 PM  | 10570           |
| EPA METHOD 8260B: VOLATILES    |        |           |          |    | Analys                | t: cadg         |
| Benzene                        | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104          |
| Toluene                        | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104          |
| Ethylbenzene                   | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104          |
| Methyl tert-butyl ether (MTBE) | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104          |
| 1,2,4-Trimethylbenzene         | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104          |
| 1,3,5-Trimethylbenzene         | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104          |
| 1,2-Dichloroethane (EDC)       | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| 1,2-Dibromoethane (EDB)        | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| Naphthalene                    | ND     | 20        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| 1-Methylnaphthalene            | ND     | 40        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| 2-Methylnaphthalene            | ND     | 40        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| Acetone                        | ND     | 100       | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| Bromobenzene                   | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| Bromodichloromethane           | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | <b>1</b> R15104 |
| Bromoform                      | ND     | 10        | µg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| Bromomethane                   | ND     | 30        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| 2-Butanone                     | ND     | 100       | μg/L     | 10 | 11/26/2013 7:19:21 PM | <b>1</b> R15104 |
| Carbon disulfide               | ND     | 100       | μg/L     | 10 | 11/26/2013 7:19:21 PN | 1 R15104        |
| Carbon Tetrachloride           | ND     | 10        | µg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| Chlorobenzene                  | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| Chloroethane                   | ND     | 20        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| Chloroform                     | 21     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| Chloromethane                  | ND     | 30        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |
| 2-Chlorotoluene                | ND     | 10        | μg/L     | 10 | 11/26/2013 7:19:21 PM | 1 R15104        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Ε
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit
  Page 23 of 71
  Sample pH greater than 2 for VOA and TOC only.
- P
- RL Reporting Detection Limit

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-3

Project: Lightning Dock Geothermal Water Qualit

CLIENT: AMEC

**Collection Date:** 11/24/2013 5:50:00 PM

Lab ID: 1311B14-004 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed         | Batch  |
|-----------------------------|--------|-------|----------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Analyst:              | cadg   |
| 4-Chlorotoluene             | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| cis-1,2-DCE                 | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| cis-1,3-Dichloropropene     | ND     | 10    | µg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,2-Dibromo-3-chloropropane | ND     | 20    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Dibromochloromethane        | ND     | 10    | µg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Dibromomethane              | ND     | 10    | µg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,2-Dichlorobenzene         | ND     | 10    | µg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,3-Dichlorobenzene         | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,4-Dichlorobenzene         | ND     | 10    | µg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Dichlorodifluoromethane     | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,1-Dichloroethane          | ND     | 10    | µg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,1-Dichloroethene          | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,2-Dichloropropane         | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,3-Dichloropropane         | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 2,2-Dichloropropane         | ND     | 20    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,1-Dichloropropene         | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Hexachlorobutadiene         | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 2-Hexanone                  | ND     | 100   | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Isopropylbenzene            | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 4-Isopropyltoluene          | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 4-Methyl-2-pentanone        | ND     | 100   | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Methylene Chloride          | ND     | 30    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| n-Butylbenzene              | ND     | 30    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| n-Propylbenzene             | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| sec-Butylbenzene            | ND     | 10    | µg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Styrene                     | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| tert-Butylbenzene           | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,1,1,2-Tetrachloroethane   | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,1,2,2-Tetrachloroethane   | ND     | 20    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Tetrachloroethene (PCE)     | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| trans-1,2-DCE               | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| trans-1,3-Dichloropropene   | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,2,3-Trichlorobenzene      | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,2,4-Trichlorobenzene      | ND     | 10    | µg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,1,1-Trichloroethane       | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,1,2-Trichloroethane       | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Trichloroethene (TCE)       | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| Trichlorofluoromethane      | ND     | 10    | μg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
| 1,2,3-Trichloropropane      | ND     | 20    | µg/L     | 10 | 11/26/2013 7:19:21 PM | R15104 |
|                             |        |       |          |    |                       |        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2
  - Page 24 of 71
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc. Date Reported: 12/16/2013

**CLIENT: AMEC** Client Sample ID: MW-3

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 5:50:00 PM 1311B14-004 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM Lab ID:

| Analyses                      | Result | RL (   | Qual | Units       | DF | Date Analyzed         | Batch   |
|-------------------------------|--------|--------|------|-------------|----|-----------------------|---------|
| EPA METHOD 8260B: VOLATILES   |        |        |      |             |    | Analyst               | cadg    |
| Vinyl chloride                | ND     | 10     |      | μg/L        | 10 | 11/26/2013 7:19:21 PM | R15104  |
| Xylenes, Total                | ND     | 15     |      | μg/L        | 10 | 11/26/2013 7:19:21 PM | R15104  |
| Surr: 1,2-Dichloroethane-d4   | 93.0   | 70-130 |      | %REC        | 10 | 11/26/2013 7:19:21 PM | R15104  |
| Surr: 4-Bromofluorobenzene    | 103    | 70-130 |      | %REC        | 10 | 11/26/2013 7:19:21 PM | R15104  |
| Surr: Dibromofluoromethane    | 98.0   | 70-130 |      | %REC        | 10 | 11/26/2013 7:19:21 PM | R15104  |
| Surr: Toluene-d8              | 98.6   | 70-130 |      | %REC        | 10 | 11/26/2013 7:19:21 PM | R15104  |
| EPA METHOD 418.1: TPH         |        |        |      |             |    | Analyst               | : JME   |
| Petroleum Hydrocarbons, TR    | 1.1    | 1.1    | Ε    | mg/L        | 1  | 11/27/2013            | 10569   |
| SM2510B: SPECIFIC CONDUCTANCE | Ξ      |        |      |             |    | Analyst               | : JML   |
| Conductivity                  | 1600   | 0.010  |      | µmhos/cm    | 1  | 11/27/2013 9:25:49 PM | R15156  |
| SM4500-H+B: PH                |        |        |      |             |    | Analysi               | : JML   |
| рН                            | 8.00   | 1.68   | Н    | pH units    | 1  | 11/27/2013 9:25:49 PM | R15156  |
| SM2320B: ALKALINITY           |        |        |      |             |    | Analys                | : JML   |
| Bicarbonate (As CaCO3)        | 47     | 20     |      | mg/L CaCO3  | 1  | 11/27/2013 9:25:49 PM | R15156  |
| Carbonate (As CaCO3)          | ND     | 2.0    |      | mg/L. CaCO3 | 1  | 11/27/2013 9:25:49 PM | R15156  |
| Total Alkalinity (as CaCO3)   | 47     | 20     |      | mg/L CaCO3  | 1  | 11/27/2013 9:25:49 PM | R15156  |
| SM2540C MOD: TOTAL DISSOLVED  | SOLIDS |        |      |             |    | Analys                | t: KS   |
| Total Dissolved Solids        | 1380   | 200    | *    | mg/L        | 1  | 11/29/2013 2:50:00 PM | 1 10567 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Not Detected at the Reporting Limit Page 25 of 71 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

## Lab Order 1311B14

Date Reported: 12/16/2013

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-4

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-005 Matrix: AQUEOUS

Collection Date: 11/24/2013 2:35:00 PM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst:              | scc    |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 63.4   | 24.5-139 |      | %REC  | 1  | 12/3/2013 4:43:01 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst:              | JRR    |
| Fluoride                          | 4.3    | 2.0      | *    | mg/L  | 20 | 11/26/2013 9:04:40 PM | R15112 |
| Chloride                          | 710    | 25       | *    | mg/L  | 50 | 11/27/2013 7:56:32 PM | R15178 |
| Bromide                           | 2.2    | 0.10     |      | mg/L  | 1  | 12/7/2013 5:22:32 AM  | R15322 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 12/9/2013 10:24:41 PM | R15376 |
| Sulfate                           | 1200   | 25       | *    | mg/L  | 50 | 11/27/2013 7:56:32 PM | R15178 |
| Nitrate+Nitrite as N              | 12     | 2.0      | *    | mg/L  | 10 | 12/7/2013 4:08:05 AM  | R15322 |
| EPA METHOD 200.7: DISSOLVED ME    | ETALS  |          |      |       |    | Analyst:              | JLF    |
| Aluminum                          | ND     | 0.020    |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Barium                            | 0.059  | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Boron                             | 0.22   | 0.040    |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Cadmium                           | ND     | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Calcium                           | 200    | 5.0      |      | mg/L  | 5  | 12/4/2013 7:28:19 PM  | R15245 |
| Chromium                          | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Cobalt                            | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Copper                            | ND     | 0.0060   |      | mg/L  | 1  | 12/5/2013 1:44:48 PM  | R15267 |
| Iron                              | ND     | 0.020    |      | mg/L  | 1  | 12/5/2013 1:44:48 PM  | R15267 |
| Magnesium                         | 14     | 1.0      |      | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Manganese                         | 0.15   | 0.0020   | *    | mg/L  | 1  | 12/4/2013 7:24:33 PM  | R15245 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-4

Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 2:35:00 PM Project: Lab ID: 1311B14-005 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL Qu   | al Units      | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|---------|---------------|----|-----------------------|--------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |               |    | Analyst               | : JLF  |
| Molybdenum                     | 0.014  | 0.0080  | mg/L          | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Nickel                         | ND     | 0.010   | mg/L          | 1  | 12/5/2013 1:44:48 PM  | R15267 |
| Potassium                      | 40     | 1.0     | mg/L          | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Silver                         | ND     | 0.0050  | mg/L          | 1  | 12/4/2013 7:24:33 PM  | R15245 |
| Sodium                         | 860    | 20      | mg/L          | 20 | 12/5/2013 1:46:49 PM  | R15267 |
| Zinc                           | 0.048  | 0.010   | mg/L          | 1  | 12/5/2013 1:44:48 PM  | R15267 |
| EPA 200.8: DISSOLVED METALS    |        |         |               |    | Analyst               | DBD    |
| Arsenic                        | 0.012  | 0.0010  | * mg/L        | 1  | 12/10/2013 2:24:39 PM | R15392 |
| Lead                           | ND     | 0.0010  | mg/L          | 1  | 12/10/2013 2:24:39 PM | R15392 |
| Selenium                       | 0.033  | 0.0010  | mg/L          | 1  | 12/10/2013 2:24:39 PM | R15392 |
| Uranium                        | 0.0051 | 0.0010  | mg/L          | 1  | 12/10/2013 2:24:39 PM | R15392 |
| EPA METHOD 245.1: MERCURY      |        |         |               |    | Analyst               | : JML  |
| Mercury                        | ND     | 0.00020 | mg/L          | 1  | 12/4/2013 5:57:38 PM  | 10596  |
| EPA METHOD 8270C: SEMIVOLATILE | ES     |         |               |    | Analyst               | : DAM  |
| Acenaphthene                   | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Acenaphthylene                 | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Aniline                        | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Anthracene                     | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Azobenzene                     | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benz(a)anthracene              | ND     | 10      | μ <b>g/L</b>  | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzo(a)pyrene                 | ND     | 10      | μ <b>g</b> /L | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzo(b)fluoranthene           | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzo(g,h,i)perylene           | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzo(k)fluoranthene           | ND     | 10      | μ <b>g</b> /L | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzoic acid                   | ND     | 40      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Benzyl alcohol                 | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Bis(2-chloroisopropyl)ether    | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Bis(2-ethylhexyl)phthalate     | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 4-Bromophenyl phenyl ether     | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Butyl benzyl phthalate         | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| Carbazole                      | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 4-Chloro-3-methylphenol        | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 4-Chloroaniline                | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 2-Chloronaphthalene            | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 2-Chlorophenol                 | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |
| 4-Chlorophenyl phenyl ether    | ND     | 10      | μg/L          | 1  | 12/2/2013 3:57:51 PM  | 10570  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Not Detected at the Reporting Limit

    Page 27 of 71

    Sample pH greater than 2 for VOA and TOC only.
  - Reporting Detection Limit

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-4

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-005 Matrix: AQUEOUS

Collection Date: 11/24/2013 2:35:00 PM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                   | Result | RL Qu | al Units | DF | Date Analyzed        | Batch |
|----------------------------|--------|-------|----------|----|----------------------|-------|
| EPA METHOD 8270C: SEMIVOLA | ATILES |       |          |    | Analyst              | DAM   |
| Chrysene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Di-n-butyl phthalate       | ND     | 10    | µg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Di-n-octyl phthalate       | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Dibenz(a,h)anthracene      | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Dibenzofuran               | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 1,2-Dichlorobenzene        | ND     | 10    | µg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 1,3-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 1,4-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 3,3'-Dichlorobenzidine     | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Diethyl phthalate          | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Dimethyl phthalate         | ND     | 10    | µg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2,4-Dichlorophenol         | ND     | 20    | µg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2,4-Dimethylphenol         | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 4,6-Dinitro-2-methylphenol | ND     | 20    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2,4-Dinitrophenol          | ND     | 20    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2,4-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2,6-Dinitrotoluene         | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Fluoranthene               | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Fluorene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Hexachlorobenzene          | ND     | 10    | µg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Hexachlorobutadiene        | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Hexachlorocyclopentadiene  | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Hexachloroethane           | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Indeno(1,2,3-cd)pyrene     | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Isophorone                 | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 1-Methylnaphthalene        | ND     | 10    | µg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2-Methylnaphthalene        | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2-Methylphenol             | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 3+4-Methylphenol           | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| N-Nitrosodi-n-propylamine  | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| N-Nitrosodimethylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| N-Nitrosodiphenylamine     | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Naphthalene                | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 3-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 4-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| Nitrobenzene               | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 2-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |
| 4-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 3:57:51 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 28 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

**CLIENT: AMEC** Client Sample ID: MW-4

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 2:35:00 PM 1311B14-005 Received Date: 11/26/2013 9:15:00 AM Lab ID: Matrix: AQUEOUS

| Pentachlorophenol  | Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed         | Batch    |
|--|--------------------------------|--------|-----------|----------|----|-----------------------|----------|
| Phenanthrene   ND   10   | EPA METHOD 8270C: SEMIVOLATILE | s      |           | <u> </u> |    | Analyst               | DAM      |
| Phenol   | Pentachlorophenol              | ND     | 20        | µg/L     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Pyrene   | Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Pyridine   | Phenol                         | ND     | 10        | μg/L     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| 1,2,4-Trichlorobenzene   | Pyrene                         | ND     | 10        |          | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| 2.4,5-Trichlorophenol         ND         10         µg/l.         1         12/2/2013 3:57:51 PM         10570           2.4,6-Trichlorophenol         ND         10         µg/l.         1         12/2/2013 3:57:51 PM         10570           Surr: Penol-d5         36.4         23.4"-4.9         %REC         1         12/2/2013 3:57:51 PM         10570           Surr: Phenol-d5         36.4         23.4"-1.9         %REC         1         12/2/2013 3:57:51 PM         10570           Surr: Af-Fribromophenol         69.4         23.3"-111         %REC         1         12/2/2013 3:57:51 PM         10570           Surr: Phenol-d5         53.3         36.8"-111         %REC         1         12/2/2013 3:57:51 PM         10570           Surr: 2-Fluorobiphenyl         63.4         38.3"-110         %REC         1         12/2/2013 3:57:51 PM         10570           Surr: 4-Terphenyl-d14         68.5         52.1"-116         %REC         1         12/2/2013 3:57:51 PM         10570           EPA METHOD 8260B: VOLATILES         Turbit         VAREC         1         12/2/2013 3:57:51 PM         10570           Ebnylbenzene         ND         1.0         µg/l         1         11/26/2013 8:16:46 PM         R15104 <t< td=""><td>Pyridine</td><td>ND</td><td>10</td><td>μg/L</td><td>1</td><td>12/2/2013 3:57:51 PM</td><td>10570</td></t<>   | Pyridine                       | ND     | 10        | μg/L     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| 2.4,6-Trichlorophenol  | 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr: 2-Fluorophenol   | 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr: Phenol-d5 Surr: 24,6-Tribromophenol Su | 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr. 2,4,6-Tribromophenol   69.4   23.3-111   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. Nitrobenzene-d5   53.3   36.8-111   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 2-Fluorobiphenyl   63.4   38.3-110   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   68.5   52.1-116   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   68.5   52.1-116   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   68.5   52.1-116   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   68.5   52.1-116   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   68.5   52.1-116   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   68.5   52.1-116   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   68.5   52.1-116   %REC   1   12/2/2013 8:16:46 PM   R15104   Toluene   ND   1.0   µg/L   1   11/26/2013 8:16:46 PM   R15104    | Surr: 2-Fluorophenol           | 46.2   | 22.7-98   | %REC     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr. Nitrobenzene-d5   53.3   36.8-111   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 2-Fluorobiphenyl   63.4   38.3-110   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   68.5   52.1-116   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   68.5   52.1-116   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   68.5   52.1-116   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   68.5   52.1-116   %REC   1   12/2/2013 3:57:51 PM   10570   Surr. 4-Terphenyl-d14   Surr. 2-Terphenyl-d14   Surr. 2-Terphenyl-d15   Sur   | Surr: Phenol-d5                | 36.4   | 23.4-74.9 | %REC     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr: 2-Fluorobiphenyl         63.4         38.3-110         %REC         1         12/2/2013 3:57:51 PM         10570           Surr: 4-Terphenyl-d14         68.5         52.1-116         %REC         1         12/2/2013 3:57:51 PM         10570           EPA METHOD 8260B: VOLATILES           Benzene         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           Toluene         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           Ethylbenzene         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           Methyl tert-butyl ether (MTBE)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           Methyl tert-butyl ether (MTBE)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2,4-Trimethylbenzene         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2,2-Dichlorobethane (EDG)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dichlorobethane (EDB)         ND         1.0         µg/L         1  | Surr: 2,4,6-Tribromophenol     | 69.4   | 23.3-111  | %REC     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Surr: 4-Terphenyl-d14  | Surr: Nitrobenzene-d5          | 53.3   | 36.8-111  | %REC     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Benzene   ND   1.0   µg/L   1   11/26/2013 8:16:46 PM   R15104     | Surr: 2-Fluorobiphenyl         | 63.4   | 38.3-110  | %REC     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Benzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Toluene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Ethylbenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Methyl tert-butyl ether (MTBE)         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           1,2,4-Trimethylbenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           1,2,-Dichloroethane (EDC)         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dibromoethane (EDB)         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Naphthalene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           1-Methylnaphthalene         ND         4.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           2-Methylnaphthalene         ND         4.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Actone         ND<  | Surr: 4-Terphenyl-d14          | 68.5   | 52.1-116  | %REC     | 1  | 12/2/2013 3:57:51 PM  | 10570    |
| Toluene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Ethylbenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Methyl tert-butyl ether (MTBE)         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           1,2,4-Trimethylbenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           1,3,5-Trimethylbenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dichloroethane (EDC)         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dibromoethane (EDB)         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           1,-Methylnaphthalene         ND         2.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           2-Methylnaphthalene         ND         4.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           2-Methylnaphthalene         ND         4.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Acet   | EPA METHOD 8260B: VOLATILES    |        |           |          |    | Analyst               | cadg     |
| Ethylbenzene         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           Methyl tert-butyl ether (MTBE)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2,4-Trimethylbenzene         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,3,5-Trimethylbenzene         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dichloroethane (EDC)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dibromoethane (EDB)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dibromoethane (EDB)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dibromoethane (EDB)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dibromoethane (EDB)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dibromoethane (EDB)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104   | Benzene                        | ND     | 1.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Methyl tert-butyl ether (MTBE)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2,4-Trimethylbenzene         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,3,5-Trimethylbenzene         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dichloroethane (EDC)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1,2-Dibromoethane (EDB)         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           Naphthalene         ND         2.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           1-Methylnaphthalene         ND         4.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           2-Methylnaphthalene         ND         4.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           Acetone         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           Bromobenzene         ND         1.0         µg/L         1         11/26/2013 8:16:46 PM         R15104           Bromodichlorom  | Toluene                        | ND     | 1.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| 1,2,4-Trimethylbenzene       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         1,3,5-Trimethylbenzene       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         1,2-Dichloroethane (EDC)       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         1,2-Dibromoethane (EDB)       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Naphthalene       ND       2.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         1-Methylnaphthalene       ND       4.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         2-Methylnaphthalene       ND       4.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Acetone       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Bromobenzene       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Bromoform       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Bromoform       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104   | Ethylbenzene                   | ND     | 1.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| 1,3,5-Trimethylbenzene       ND       1.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         1,2-Dichloroethane (EDC)       ND       1.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         1,2-Dibromoethane (EDB)       ND       1.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         Naphthalene       ND       2.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         1-Methylnaphthalene       ND       4.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         2-Methylnaphthalene       ND       4.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         2-Methylnaphthalene       ND       4.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         Acetone       ND       10       µg/L       1       11/26/2013 8:16:46 PM       R15104         Bromobenzene       ND       1.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         Bromoform       ND       1.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         Bromoform       ND       3.0       µg/L       1       11/26/2013 8:16:46 PM       R15104   | Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| 1,3,5-Trimethylbenzene       ND       1.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         1,2-Dichloroethane (EDC)       ND       1.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         1,2-Dibromoethane (EDB)       ND       1.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         Naphthalene       ND       2.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         1-Methylnaphthalene       ND       4.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         2-Methylnaphthalene       ND       4.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         2-Methylnaphthalene       ND       4.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         Acetone       ND       10       µg/L       1       11/26/2013 8:16:46 PM       R15104         Bromobenzene       ND       1.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         Bromoform       ND       1.0       µg/L       1       11/26/2013 8:16:46 PM       R15104         Bromoform       ND       3.0       µg/L       1       11/26/2013 8:16:46 PM       R15104   | 1,2,4-Trimethylbenzene         | ND     | 1.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| 1,2-Dibromoethane (EDB)       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Naphthalene       ND       2.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         1-Methylnaphthalene       ND       4.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         2-Methylnaphthalene       ND       4.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Acetone       ND       10       μg/L       1       11/26/2013 8:16:46 PM       R15104         Bromobenzene       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Bromoform       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Bromomethane       ND       3.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         2-Butanone       ND       10       μg/L       1       11/26/2013 8:16:46 PM       R15104         Carbon disulfide       ND       10       μg/L       1       11/26/2013 8:16:46 PM       R15104         Carbon Tetrachloride       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Chloroethan   | 1,3,5-Trimethylbenzene         | ND     | 1.0       |          | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Naphthalene         ND         2.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           1-Methylnaphthalene         ND         4.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           2-Methylnaphthalene         ND         4.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Acetone         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromodichloromethane         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromomethane         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           2-Butanone         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon disulfide         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon Tetrachloride         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroethane         ND         2.0   | 1,2-Dichloroetharie (EDC)      | ND     | 1.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| 1-Methylnaphthalene       ND       4.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         2-Methylnaphthalene       ND       4.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Acetone       ND       10       μg/L       1       11/26/2013 8:16:46 PM       R15104         Bromobenzene       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Bromodichloromethane       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Bromomethane       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         2-Butanone       ND       10       μg/L       1       11/26/2013 8:16:46 PM       R15104         Carbon disulfide       ND       10       μg/L       1       11/26/2013 8:16:46 PM       R15104         Carbon Tetrachloride       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Chlorobenzene       ND       1.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Chloroform       ND       2.0       μg/L       1       11/26/2013 8:16:46 PM       R15104         Chlorometha   | 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| 2-Methylnaphthalene         ND         4.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Acetone         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromodichloromethane         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromoform         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromomethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           2-Butanone         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon disulfide         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon Tetrachloride         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chlorobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroform         ND         2.0 <t< td=""><td>Naphthalene</td><td>ND</td><td>2.0</td><td>μg/L</td><td>1</td><td>11/26/2013 8:16:46 PM</td><td>R15104</td></t<>  | Naphthalene                    | ND     | 2.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Acetone         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromodichloromethane         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromoform         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromomethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           2-Butanone         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon disulfide         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon Tetrachloride         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chlorobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroform         ND         2.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         3.0         μg/L  | 1-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Bromobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromodichloromethane         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromoform         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromomethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           2-Butanone         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon disulfide         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon Tetrachloride         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chlorobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroform         ND         2.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         3.0         <  | 2-Methylnaphthalene            | ND     | 4.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Bromodichloromethane         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromoform         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromomethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           2-Butanone         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon disulfide         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon Tetrachloride         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chlorobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroform         ND         2.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104  | Acetone                        | ND     | 10        | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Bromoform         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Bromomethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           2-Butanone         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon disulfide         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon Tetrachloride         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chlorobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroethane         ND         2.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104   | Bromobenzene                   | ND     | 1.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Bromomethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           2-Butanone         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon disulfide         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon Tetrachloride         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chlorobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroethane         ND         2.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104   | Bromodichloromethane           | ND     | 1.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| 2-Butanone ND 10 μg/L 1 11/26/2013 8:16:46 PM R15104 Carbon disulfide ND 10 μg/L 1 11/26/2013 8:16:46 PM R15104 Carbon Tetrachloride ND 1.0 μg/L 1 11/26/2013 8:16:46 PM R15104 Chlorobenzene ND 1.0 μg/L 1 11/26/2013 8:16:46 PM R15104 Chloroethane ND 2.0 μg/L 1 11/26/2013 8:16:46 PM R15104 Chloroform ND 1.0 μg/L 1 11/26/2013 8:16:46 PM R15104 Chloroform ND 1.0 μg/L 1 11/26/2013 8:16:46 PM R15104 Chloromethane ND 3.0 μg/L 1 11/26/2013 8:16:46 PM R15104 Chloromethane  | Bromoform                      | ND     | 1.0       | µg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Carbon disulfide         ND         10         μg/L         1         11/26/2013 8:16:46 PM         R15104           Carbon Tetrachloride         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chlorobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroethane         ND         2.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroform         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104   | Bromomethane                   | ND     | 3.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Carbon Tetrachloride         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chlorobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroethane         ND         2.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroform         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104  | 2-Butanone                     | ND     | 10        | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Carbon Tetrachloride         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chlorobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroethane         ND         2.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroform         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104  | Carbon disulfide               | ND     | 10        | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Chlorobenzene         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroethane         ND         2.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloroform         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104  | Carbon Tetrachloride           | ND     | 1.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Chloroform         ND         1.0         μg/L         1         11/26/2013 8:16:46 PM         R15104           Chloromethane         ND         3.0         μg/L         1         11/26/2013 8:16:46 PM         R15104   | Chlorobenzene                  | ND     | 1.0       |          | 1  | 11/26/2013 8:16:46 PM | R15104   |
| Chloromethane ND 3.0 μg/L 1 11/26/2013 8:16:46 PM R15104   | Chloroethane                   | ND     | 2.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| 10   | Chloroform                     | ND     | 1.0       | μg/L     | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
| 2-Chlorotoluene ND 1.0 μg/L 1 11/26/2013 8:16:46 PM R15104   | Chloromethane                  | ND     | 3.0       | µg/L     | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |
|  | 2-Chlorotoluene                | ND     | 1.0       | µg/L     | 1  | 11/26/2013 8:16:46 PM | 1 R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
  - Not Detected at the Reporting Limit
    Page 29 of 71
    Sample pH greater than 2 for VOA and TOC only.
  - P
- RL Reporting Detection Limit

## Lab Order 1311B14

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-4

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-005

Matrix: AQUEOUS

Collection Date: 11/24/2013 2:35:00 PM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu | al Units | DF Date Analyzed       | Batch     |
|-----------------------------|--------|-------|----------|------------------------|-----------|
| EPA METHOD 8260B: VOLATILES | ·      |       |          | Analy                  | st: cadg  |
| 4-Chlorotoluene             | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | M R15104  |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | M R15104  |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | M R15104  |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1 11/26/2013 8:16:46 F | M R15104  |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| Dibromomethane              | ND     | 1.0   | µg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,2-Dichloropropane         | ND     | 1.0   | µg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,3-Dichloropropane         | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 2,2~Dichloropropane         | ND     | 2.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| Hexachlorobutadiene         | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 2-Hexanone                  | ND     | 10    | µg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| sec-Butylbenzene            | ND     | 1.0   | µg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| Styrene                     | ND     | 1.0   | µg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| Tetrachloroethene (PCE)     | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| trans-1,2-DCE               | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| trans-1,3-Dichloropropene   | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,2,3-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46   | PM R15104 |
| 1,2,4-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,1,1-Trichloroethane       | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,1,2-Trichloroethane       | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46   | PM R15104 |
| Trichloroethene (TCE)       | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| Trichlorofluoromethane      | ND     | 1.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |
| 1,2,3-Trichloropropane      | ND     | 2.0   | μg/L     | 1 11/26/2013 8:16:46 F | PM R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 30 of 7
- Page 30 of 71
  P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-4

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 2:35:00 PM 1311B14-005 Matrix: AQUEOUS Lab ID: Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed         | Batch  |
|--------------------------------|--------|--------|------|------------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES    |        |        |      | •          |    | Analyst               | cadg   |
| Vinyl chloride                 | ND     | 1.0    |      | μg/L       | 1  | 11/26/2013 8:16:46 PM | R15104 |
| Xylenes, Total                 | ND     | 1.5    |      | μg/L       | 1  | 11/26/2013 8:16:46 PM | R15104 |
| Surr: 1,2-Dichloroethane-d4    | 97.2   | 70-130 |      | %REC       | 1  | 11/26/2013 8:16:46 PM | R15104 |
| Surr: 4-Bromofluorobenzene     | 107    | 70-130 |      | %REC       | 1  | 11/26/2013 8:16:46 PM | R15104 |
| Surr: Dibromofluoromethane     | 101    | 70-130 |      | %REC       | 1  | 11/26/2013 8:16:46 PM | R15104 |
| Surr: Toluene-d8               | 95.3   | 70-130 |      | %REC       | 1  | 11/26/2013 8:16:46 PM | R15104 |
| SM2510B: SPECIFIC CONDUCTANCE  |        |        |      |            |    | Analyst               | : JML  |
| Conductivity                   | 4300   | 0.010  |      | µmhos/cm   | 1  | 11/27/2013 9:33:03 PM | R15156 |
| SM4500-H+B: PH                 |        |        |      |            |    | Analyst               | : JML  |
| рН                             | 7.38   | 1.68   | Н    | pH units   | 1  | 11/27/2013 9:33:03 PM | R15156 |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analyst               | : JML  |
| Bicarbonate (As CaCO3)         | 110    | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:33:03 PM | R15156 |
| Carbonate (As CaCO3)           | ND     | 2.0    |      | mg/L CaCO3 | 1  | 11/27/2013 9:33:03 PM | R15156 |
| Total Alkalinity (as CaCO3)    | 110    | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:33:03 PM | R15156 |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analyst               | : KS   |
| Total Dissolved Solids         | 3210   | 40.0   | *    | mg/L       | 1  | 11/29/2013 2:50:00 PM | 10567  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 31 of 71 Sample pH greater than 2 for VOA and TOC only. Р
- RL Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

**CLIENT: AMEC** Client Sample ID: MW-5

Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 12:15:00 PM Project: Lab ID: 1311B14-006 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| EPA METHOD 8310: PAHS         Analyst           Naphthalene         ND         2.0         μg/L         1         12/3/2013 6:10:52 PM | SCC<br>10572<br>10572<br>10572<br>10572 |
|--|---|
| Naphthalene ND 2.0 μg/L 1 12/3/2013 6:10:52 PM   | 10572<br>10572                          |
|  | 10572                                   |
| 1-Methylnaphthalene ND 2.0 μg/L 1 12/3/2013 6:10:52 PM   |   |
| 2-Methylnaphthalene ND 2.0 μg/L 1 12/3/2013 6:10:52 PM   | 10572                                   |
| Acenaphthylene ND 2.5 μg/L 1 12/3/2013 6:10:52 PM  | 10372                                   |
| Acenaphthene ND 5.0 μg/L 1 12/3/2013 6:10:52 PM  | 10572                                   |
| Fluorene ND 0.80 μg/L 1 12/3/2013 6:10:52 PM   | 10572                                   |
| Phenanthrene ND 0.60 μg/L 1 12/3/2013 6:10:52 PM   | 10572                                   |
| Anthracene ND 0.60 μg/L 1 12/3/2013 6:10:52 PM   | 10572                                   |
| Fluoranthene ND 0.30 μg/L 1 12/3/2013 6:10:52 PM   | 10572                                   |
| Pyrene ND 0.30 μg/L 1 12/3/2013 6:10:52 PM   | 10572                                   |
| Benz(a)anthracene ND 0.070 μg/L 1 12/3/2013 6:10:52 PM   | 10572                                   |
| Chrysene ND 0.20 μg/L 1 12/3/2013 6:10:52 PM   | 10572                                   |
| Benzo(b)fluoranthene ND 0.10 μg/L 1 12/3/2013 6:10:52 PM   | 10572                                   |
| Benzo(k)fluoranthene ND 0.070 μg/L 1 12/3/2013 6:10:52 PM  | 10572                                   |
| Benzo(a)pyrene ND 0.070 μg/L 1 12/3/2013 6:10:52 PM  | 10572                                   |
| Dibenz(a,h)anthracene ND 0.12 μg/L 1 12/3/2013 6:10:52 PM  | 10572                                   |
| Benzo(g,h,i)perylene ND 0.12 μg/L 1 12/3/2013 6:10:52 PM   | 10572                                   |
| Indeno(1,2,3-cd)pyrene ND 0.25 μg/L 1 12/3/2013 6:10:52 PM   | 10572                                   |
| Surr: Benzo(e)pyrene 60.6 24.5-139 %REC 1 12/3/2013 6:10:52 PM   | 10572                                   |
| EPA METHOD 300.0: ANIONS Analyst   | JRR                                     |
| Fluoride 1.3 0.50 mg/L 5 11/26/2013 9:17:05 PM   | R15112                                  |
| Chloride 230 10 mg/L 20 11/26/2013 9:29:30 PM  | R15112                                  |
| Bromide 1.2 0.50 mg/L 5 11/26/2013 9:17:05 PM  | R15112                                  |
| Phosphorus, Orthophosphate (As P) ND 2.5 H mg/L 5 11/26/2013 9:17:05 PM  | R15112                                  |
| Sulfate 930 10 * mg/L 20 11/26/2013 9:29:30 PM   | R15112                                  |
| Nitrate+Nitrite as N 42 2.0 * mg/L 10 12/7/2013 4:20:30 AM   | R15322                                  |
| EPA METHOD 200.7: DISSOLVED METALS Analyst   | JLF                                     |
| Aluminum ND 0.020 mg/L 1 12/4/2013 7:31:59 PM  | R15245                                  |
| Barium 0.041 0.0020 mg/L 1 12/4/2013 7:31:59 PM  | R15245                                  |
| Boron 0.31 0.040 mg/L 1 12/4/2013 7:31:59 PM   | R15245                                  |
| Cadmium ND 0.0020 mg/L 1 12/4/2013 7:31:59 PM  | R15245                                  |
| Calcium 220 5.0 mg/L 5 12/4/2013 7:35:37 PM  | R15245                                  |
| Chromium ND 0.0060 mg/L 1 12/4/2013 7:31:59 PM   | R15245                                  |
| Cobalt ND 0.0060 mg/L 1 12/4/2013 7:31:59 PM   | R15245                                  |
| Copper ND 0.0060 mg/L 1 12/5/2013 1:48:49 PM   | R15267                                  |
| Iron 0.021 0.020 mg/L 1 12/5/2013 1:48:49 PM   | R15267                                  |
| Magnesium 38 1.0 mg/L 1 12/4/2013 7:31:59 PM   | R15245                                  |
| Manganese 0.27 0.0020 * mg/L 1 12/4/2013 7:31:59 PM  | R15245                                  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Not Detected at the Reporting Limit Page 32 of 71 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-5

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 12:15:00 PM

Lab ID: 1311B14-006 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL (    | Qual Units | DF | Date Analyzed         | Batch         |
|--------------------------------|--------|---------|------------|----|-----------------------|---------------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |            |    | Analyst               | : JLF         |
| Molybdenum                     | 0.031  | 0.0080  | mg/L       | 1  | 12/4/2013 7:31:59 PM  | R15245        |
| Nickel                         | ND     | 0.010   | mg/L       | 1  | 12/5/2013 1:48:49 PM  | R15267        |
| Potassium                      | 16     | 1.0     | mg/L       | 1  | 12/4/2013 7:31:59 PM  | R15245        |
| Silver                         | ND     | 0.0050  | mg/L       | 1  | 12/4/2013 7:31:59 PM  | R15245        |
| Sodium                         | 330    | 5.0     | mg/L       | 5  | 12/4/2013 7:35:37 PM  | R15245        |
| Zinc                           | 0.023  | 0.010   | mg/L       | 1  | 12/5/2013 1:48:49 PM  | R15267        |
| EPA 200.8: DISSOLVED METALS    |        |         |            |    | Analyst               | : DBD         |
| Arsenic                        | 0.0060 | 0.0010  | mg/L       | 1  | 12/10/2013 2:27:18 PM | R15392        |
| Lead                           | ND     | 0.0010  | mg/L       | 1  | 12/10/2013 2:27:18 PM | R15392        |
| Selenium                       | 0.028  | 0.0010  | mg/L       | 1  | 12/10/2013 2:27:18 PM | R15392        |
| Uranium                        | 0.014  | 0.0010  | mg/L       | 1  | 12/10/2013 2:27:18 PM | R15392        |
| EPA METHOD 245.1: MERCURY      |        |         |            |    | Analyst               | : JML         |
| Mercury                        | 0.0010 | 0.00020 | mg/L       | 1  | 12/4/2013 5:59:29 PM  | 10596         |
| EPA METHOD 8270C: SEMIVOLATILE | S      |         |            |    | Analyst               | : DAM         |
| Acenaphthene                   | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Acenaphthylene                 | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Aniline                        | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Anthracene                     | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Azobenzene                     | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Benz(a)anthracene              | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Benzo(a)pyrene                 | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Benzo(b)fluoranthene           | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Benzo(g,h,i)perylene           | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Benzo(k)fluoranthene           | ND     | 10      | µg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Benzoic acid                   | ND     | 40      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Benzyl alcohol                 | ND     | 10      | µg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Bis(2-chloroisopropyl)ether    | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Bis(2-ethylhexyl)phthalate     | ND     | 10      | μg/L       | 1. | 12/2/2013 5:24:15 PM  | 10570         |
| 4-Bromophenyl phenyl ether     | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | <b>1057</b> 0 |
| Butyl benzyl phthalate         | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| Carbazole                      | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| 4-Chloro-3-methylphenol        | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| 4-Chloroaniline                | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| 2-Chloronaphthalene            | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| 2-Chlorophenol                 | ND     | 10      | µg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |
| 4-Chlorophenyl phenyl ether    | ND     | 10      | μg/L       | 1  | 12/2/2013 5:24:15 PM  | 10570         |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 27
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

## Lab Order 1311B14

Date Reported: 12/16/2013

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-5

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-006 Matrix: AQUEOUS

Collection Date: 11/24/2013 12:15:00 PM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                   | Result | RL Qu | al Units | DF | Date Analyzed        | Batch  |
|----------------------------|--------|-------|----------|----|----------------------|--------|
| EPA METHOD 8270C: SEMIVOLA | ATILES | ***** |          |    | Analys               | t: DAM |
| Chrysene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Di-n-butyl phthalate       | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Di-n-octyl phthalate       | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Dibenz(a,h)anthracene      | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Dibenzofuran               | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 1,2-Dichlorobenzene        | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 1,3-Dichlorobenzene        | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 1,4-Dichlorobenzene        | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 3,3´-Dichlorobenzidine     | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Diethyl phthalate          | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Dimethyl phthalate         | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 2,4-Dichlorophenol         | ND     | 20    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 2,4-Dimethylphenol         | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 4,6-Dinitro-2-methylphenol | ND     | 20    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 2,4-Dinitrophenol          | ND     | 20    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 2,4-Dinitrotoluene         | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 2,6-Dinitrotoluene         | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Fluoranthene               | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Fluorene                   | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Hexachlorobenzene          | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Hexachlorobutadiene        | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Hexachlorocyclopentadiene  | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Hexachloroethane           | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Indeno(1,2,3-cd)pyrene     | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Isophorone                 | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 1-Methylnaphthalene        | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 2-Methylnaphthalene        | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 2-Methylphenol             | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 3+4-Methylphenol           | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| N-Nitrosodi-n-propylamine  | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| N-Nitrosodimethylamine     | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| N-Nitrosodiphenylamine     | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Naphthalene                | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 2-Nitroaniline             | ND     | 10    | µg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 3-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 4-Nitroaniline             | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| Nitrobenzene               | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 2-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |
| 4-Nitrophenol              | ND     | 10    | μg/L     | 1  | 12/2/2013 5:24:15 PM | 10570  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 34 of
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

**CLIENT:** AMEC Client Sample ID: MW-5

Collection Date: 11/24/2013 12:15:00 PM Project: Lightning Dock Geothermal Water Qualit Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM Lab ID: 1311B14-006

| Analyses                       | Result | RL Q      | ual Units | DF  | Date Analyzed         | Batch           |
|--------------------------------|--------|-----------|-----------|-----|-----------------------|-----------------|
| EPA METHOD 8270C: SEMIVOLATILE | s      |           |           |     | Analyst               | : DAM           |
| Pentachlorophenol              | ND     | 20        | μg/L      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| Phenanthrene                   | ND     | 10        | μg/L      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| Phenol                         | ND     | 10        | μg/L      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| Pyrene                         | ND     | 10        | μg/L      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| Pyridine                       | ND     | 10        | μg/L      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| Surr: 2-Fluorophenol           | 48.4   | 22.7-98   | %REC      | . 1 | 12/2/2013 5:24:15 PM  | 10570           |
| Surr: Phenol-d5                | 39.0   | 23.4-74.9 | %REC      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| Surr: 2,4,6-Tribromophenol     | 64.7   | 23.3-111  | %REC      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| Surr: Nitrobenzene-d5          | 60.9   | 36.8-111  | %REC      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| Surr: 2-Fluorobiphenyl         | 66.4   | 38.3-110  | %REC      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| Surr: 4-Terphenyl-d14          | 69.4   | 52.1-116  | %REC      | 1   | 12/2/2013 5:24:15 PM  | 10570           |
| EPA METHOD 8260B: VOLATILES    |        |           |           |     | Analys                | t: cadg         |
| Benzene                        | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PM | 1 R15104        |
| Toluene                        | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PM | 1 R15104        |
| Ethylbenzene                   | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PM | 1 R15104        |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PM | 1 R15104        |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | µg/L      | 1   | 11/26/2013 8:45:24 PM | 1 R15104        |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | µg/L      | 1   | 11/26/2013 8:45:24 PM | 1 R15104        |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PM | <b>1</b> R15104 |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PM | 1 R15104        |
| Naphthalene                    | ND     | 2.0       | μg/L      | 1   | 11/26/2013 8:45:24 PM | 1 R15104        |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L      | 1   | 11/26/2013 8:45:24 PM | 1 R15104        |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L      | 1   | 11/26/2013 8:45:24 PM | 1 R15104        |
| Acetone                        | ND     | 10        | μg/L      | 1   | 11/26/2013 8:45:24 PM | <b>1</b> R15104 |
| Bromobenzene                   | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PM | 1 R15104        |
| Bromodichloromethane           | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PN | / R15104        |
| Bromoform                      | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PN | 1 R15104        |
| Bromomethane                   | ND     | 3.0       | μg/L      | 1   | 11/26/2013 8:45:24 PN | / R15104        |
| 2-Butanone                     | ND     | 10        | μg/L      | 1   | 11/26/2013 8:45:24 PM | 4 R15104        |
| Carbon disulfide               | ND     | 10        | μg/L      | 1   | 11/26/2013 8:45:24 PM | / R15104        |
| Carbon Tetrachloride           | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PN | / R15104        |
| Chlorobenzene                  | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PN | 1 R15104        |
| Chloroethane                   | ND     | 2.0       | μg/L      | 1   | 11/26/2013 8:45:24 PN | 1 R15104        |
| Chloroform                     | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PN | / R15104        |
| Chloromethane                  | ND     | 3.0       | μg/L      | 1   | 11/26/2013 8:45:24 PN | / R15104        |
| 2-Chlorotoluene                | ND     | 1.0       | μg/L      | 1   | 11/26/2013 8:45:24 PN | / R15104        |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 35 of 71 Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

**CLIENT: AMEC** 

Client Sample ID: MW-5

Project: Lightning Dock Geothermal Water Qualit

Collection Date: 11/24/2013 12:15:00 PM

1311B14-006 Lab ID:

Matrix: AQUEOUS

Received Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed         | Batch  |
|-----------------------------|--------|-------|----------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Analyst               | cadg   |
| 4-Chlorotoluene             | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| cis-1,2-DCE                 | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| cis-1,3-Dichloropropene     | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Dibromochloromethane        | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Dibromomethane              | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,2-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,4-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,1-Dichloroethane          | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,1-Dichloroethene          | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,2-Dichloropropane         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,3-Dichloropropane         | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 2,2-Dichloropropane         | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Hexachlorobutadiene         | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 4-Isopropyltoluene          | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| sec-Butylbenzene            | ND     | 1.0   | µg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Styrene                     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Tetrachloroethene (PCE)     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| trans-1,2-DCE               | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| trans-1,3-Dichloropropene   | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,2,3-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,2,4-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,1,1-Trichloroethane       | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,1,2-Trichloroethane       | ND     | 1.0   | µg/∟     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Trichloroethene (TCE)       | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Trichlorofluoromethane      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |
| 1,2,3-Trichloropropane      | ND     | 2.0   | μg/L     | 1  | 11/26/2013 8:45:24 PM | R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 36 of 71
- Sample pH greater than 2 for VOA and TOC only. RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-5

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/24/2013 12:15:00 PM

Lab ID: 1311B14-006 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                        | Result | RL Q   | Qual | Units      | DF | Date Analyzed         | Batch  |
|---------------------------------|--------|--------|------|------------|----|-----------------------|--------|
| EPA METHOD 8260B: VOLATILES     |        |        |      |            |    | Analyst               | : cadg |
| Vinyl chloride                  | ND     | 1.0    |      | μg/L       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Xylenes, Total                  | ND     | 1.5    |      | μg/L       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Surr: 1,2-Dichloroethane-d4     | 96.0   | 70-130 |      | %REC       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Surr: 4-Bromofluorobenzene      | 109    | 70-130 |      | %REC       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Surr: Dibromofluoromethane      | 101    | 70-130 |      | %REC       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| Surr: Toluene-d8                | 102    | 70-130 |      | %REC       | 1  | 11/26/2013 8:45:24 PM | R15104 |
| SM2510B: SPECIFIC CONDUCTANCE   |        |        |      |            |    | Analyst               | : JML  |
| Conductivity                    | 2600   | 0.010  |      | µmhos/cm   | 1  | 11/27/2013 9:42:31 PM | R15156 |
| SM4500-H+B: PH                  |        |        |      |            |    | Analyst               | : JML  |
| рН                              | 7.62   | 1.68   | Н    | pH units   | 1  | 11/27/2013 9:42:31 PM | R15156 |
| SM2320B: ALKALINITY             |        |        |      |            |    | Analys                | : JML  |
| Bicarbonate (As CaCO3)          | 140    | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:42:31 PM | R15156 |
| Carbonate (As CaCO3)            | ND     | 2.0    |      | mg/L CaCO3 | 1  | 11/27/2013 9:42:31 PM | R15156 |
| Total Alkalinity (as CaCO3)     | 140    | 20     |      | mg/L CaCO3 | 1  | 11/27/2013 9:42:31 PM | R15156 |
| SM2540C MOD: TOTAL DISSOLVED SO | LIDS   |        |      |            |    | Analys                | t: KS  |
| Total Dissolved Solids          | 2010   | 200    | *    | mg/L       | 1  | 11/29/2013 2:50:00 PM | 10567  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 3
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-6

Project: Lightning Dock Geothermal Water Qualit

Lab ID: 1311B14-007 Matrix: AQUEOUS

Collection Date: 11/23/2013 12:00:00 PM

Received Date: 11/26/2013 9:15:00 AM

| Analyses                          | Result | RL       | Qual | Units | DF | Date Analyzed         | Batch  |
|-----------------------------------|--------|----------|------|-------|----|-----------------------|--------|
| EPA METHOD 8310: PAHS             |        |          |      |       |    | Analyst:              | scc    |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Chrysene                          | ND     | 0.20     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Dibenz(a,h)anthracene             | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| Surr: Benzo(e)pyrene              | 60.0   | 24.5-139 |      | %REC  | 1  | 12/3/2013 6:40:07 PM  | 10572  |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analyst               | JRR    |
| Fluoride                          | 6.9    | 0.50     | *    | mg/L  | 5  | 11/26/2013 9:41:54 PM | R15112 |
| Chloride                          | 130    | 10       |      | mg/L  | 20 | 11/26/2013 9:54:18 PM | R15112 |
| Bromide                           | ND     | 0.50     |      | mg/L  | 5  | 11/26/2013 9:41:54 PM | R15112 |
| Phosphorus, Orthophosphate (As P) | ND     | 2.5      | Н    | mg/L  | 5  | 11/26/2013 9:41:54 PM | R15112 |
| Sulfate                           | 950    | 10       | *    | mg/L  | 20 | 11/26/2013 9:54:18 PM | R15112 |
| Nitrate+Nitrite as N              | 9.6    | 1.0      |      | mg/L  | 5  | 12/7/2013 4:32:54 AM  | R15322 |
| EPA METHOD 200.7: DISSOLVED ME    | TALS   |          |      |       |    | Analyst               | JLF    |
| Aluminum                          | 0.63   | 0.020    | *    | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Barium                            | 0.047  | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Boron                             | 0.39   | 0.040    |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Cadmium                           | ND     | 0.0020   |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Calcium                           | 53     | 1.0      |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Chromium                          | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Cobalt                            | ND     | 0.0060   |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Copper                            | ND     | 0.0060   |      | mg/L  | 1  | 12/5/2013 1:50:45 PM  | R15267 |
| Iron                              | 0.39   | 0.020    | *    | mg/L  | 1  | 12/5/2013 1:50:45 PM  | R15267 |
| Magnesium                         | 6.0    | 1.0      |      | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Manganese                         | 0.074  | 0.0020   | *    | mg/L  | 1  | 12/4/2013 7:39:11 PM  | R15245 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 38 of 7
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

**CLIENT: AMEC** Client Sample ID: MW-6

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/23/2013 12:00:00 PM 1311B14-007 Lab ID: Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                         | Result  | RL      | Qual Units    | DF | Date Analyzed         | Batch  |
|----------------------------------|---------|---------|---------------|----|-----------------------|--------|
| EPA METHOD 200.7: DISSOLVED META | LS      |         |               |    | Analyst               | JLF    |
| Molybdenum                       | 0.035   | 0.0080  | mg/L          | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Nickel                           | ND      | 0.010   | mg/L          | 1  | 12/5/2013 1:50:45 PM  | R15267 |
| Potassium                        | 25      | 1.0     | mg/L          | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Silver                           | ND      | 0.0050  | mg/L          | 1  | 12/4/2013 7:39:11 PM  | R15245 |
| Sodium                           | 490     | 5.0     | mg/L          | 5  | 12/4/2013 7:47:57 PM  | R15245 |
| Zinc                             | 0.033   | 0.010   | mg/L          | 1  | 12/5/2013 1:50:45 PM  | R15267 |
| EPA 200.8: DISSOLVED METALS      |         |         |               |    | Analyst               | DBD    |
| Arsenic                          | 0.020   | 0.0010  | * mg/L        | 1  | 12/10/2013 2:29:58 PM | R15392 |
| Lead                             | ND      | 0.0010  | mg/L          | 1  | 12/10/2013 2:29:58 PM | R15392 |
| Selenium                         | 0.011   | 0.0010  | mg/L          | 1  | 12/10/2013 2:29:58 PM | R15392 |
| Uranium                          | 0.0012  | 0.0010  | mg/L          | 1  | 12/10/2013 2:29:58 PM | R15392 |
| EPA METHOD 245.1: MERCURY        |         |         |               |    | Analyst               | : JML  |
| Mercury                          | 0.00077 | 0.00020 | mg/L          | 1  | 12/4/2013 6:01:21 PM  | 10596  |
| EPA METHOD 8270C: SEMIVOLATILES  |         |         |               |    | Analyst               | DAM    |
| Acenaphthene                     | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Acenaphthylene                   | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Aniline                          | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Anthracene                       | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Azobenzene                       | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benz(a)anthracene                | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzo(a)pyrene                   | ND      | 10      | μ <b>g</b> /L | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzo(b)fluoranthene             | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzo(g,h,i)perylene             | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzo(k)fluoranthene             | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzoic acid                     | ND      | 40      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Benzyl alcohol                   | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Bis(2-chloroethoxy)methane       | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Bis(2-chloroethyl)ether          | ND      | 10      | µg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Bis(2-chloroisopropyl)ether      | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Bis(2-ethylhexyl)phthalate       | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 4-Bromophenyl phenyl ether       | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Butyl benzyl phthalate           | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| Carbazole                        | ND      | 10      | µg/∟          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 4-Chloro-3-methylphenol          | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 4-Chloroaniline                  | ND      | 10      | μ <b>g</b> /L | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 2-Chloronaphthalene              | ND      | 10      | µg/∟          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 2-Chlorophenol                   | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |
| 4-Chlorophenyl phenyl ether      | ND      | 10      | μg/L          | 1  | 12/2/2013 5:53:08 PM  | 10570  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level
- Е Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 39 of 71 P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: MW-6

Collection Date: 11/23/2013 12:00:00 PM Project: Lightning Dock Geothermal Water Qualit Lab ID: 1311B14-007 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                   | Result | RL Qu | al Units     | DF | Date Analyzed        | Batch |
|----------------------------|--------|-------|--------------|----|----------------------|-------|
| EPA METHOD 8270C: SEMIVOLA | ATILES |       |              |    | Analyst              | DAM   |
| Chrysene                   | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Di-n-butyl phthalate       | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Di-n-octyl phthalate       | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Dibenz(a,h)anthracene      | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Dibenzofuran               | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 1,2-Dichlorobenzene        | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 1,3-Dichlorobenzene        | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 1,4-Dichlorobenzene        | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 3,3'-Dichlorobenzidine     | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Diethyl phthalate          | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Dimethyl phthalate         | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2,4-Dichlorophenol         | ND     | 20    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2,4-Dimethylphenol         | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 4,6-Dinitro-2-methylphenol | ND     | 20    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2,4-Dinitrophenol          | ND     | 20    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2,4-Dinitrotoluene         | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2,6-Dinitrotoluene         | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Fluoranthene               | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Fluorene                   | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Hexachlorobenzene          | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Hexachlorobutadiene        | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Hexachlorocyclopentadiene  | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Hexachloroethane           | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Indeno(1,2,3-cd)pyrene     | ND     | 10    | μ <b>g/L</b> | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Isophorone                 | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 1-Methylnaphthalene        | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2-Methylnaphthalene        | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2-Methylphenoi             | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 3+4-Methylphenol           | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| N-Nitrosodi-n-propylamine  | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| N-Nitrosodimethylamine     | ND     | 10    | μ <b>g/L</b> | 1  | 12/2/2013 5:53:08 PM | 10570 |
| N-Nitrosodiphenylamine     | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Naphthalene                | ND ~   | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2-Nitroaniline             | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 3-Nitroaniline             | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 4-Nitroaniline             | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| Nitrobenzene               | ND     | 10    | µg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 2-Nitrophenol              | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |
| 4-Nitrophenol              | ND     | 10    | μg/L         | 1  | 12/2/2013 5:53:08 PM | 10570 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 40 of 71 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-6

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/23/2013 12:00:00 PM

Lab ID: 1311B14-007 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL Q      | ual Units | DF | Date Analyzed         | Batch    |
|--------------------------------|--------|-----------|-----------|----|-----------------------|----------|
| EPA METHOD 8270C: SEMIVOLATILE | S      |           |           |    | Analyst               | : DAM    |
| Pentachlorophenol              | ND     | 20        | μg/L      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| Phenanthrene                   | ND     | 10        | μg/L      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| Phenol                         | ND     | 10        | μg/L      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| Pyrene                         | ND     | 10        | μg/L      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| Pyridine                       | ND     | 10        | μg/L      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| Surr: 2-Fluorophenol           | 37.0   | 22.7-98   | %REC      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| Surr: Phenol-d5                | 28.9   | 23.4-74.9 | %REC      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| Surr: 2,4,6-Tribromophenol     | 55.8   | 23.3-111  | %REC      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| Surr: Nitrobenzene-d5          | 46.0   | 36.8-111  | %REC      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| Surr: 2-Fluorobiphenyl         | 53.6   | 38.3-110  | %REC      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| Surr: 4-Terphenyl-d14          | 57.1   | 52.1-116  | %REC      | 1  | 12/2/2013 5:53:08 PM  | 10570    |
| EPA METHOD 8260B: VOLATILES    |        |           |           |    | Analys                | t: cadg  |
| Benzene                        | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| Toluene                        | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| Ethylbenzene                   | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| 1,2,4-Trimethylbenzene         | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| 1,3,5-Trimethylbenzene         | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| Naphthalene                    | ND     | 2.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| 1-Methylnaphthalene            | ND     | 4.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| 2-Methylnaphthalene            | ND     | 4.0       | μg/L      | 1  | 11/26/2013 9:14:03 PN | 1 R15104 |
| Acetone                        | ND     | 10        | μg/L      | 1  | 11/26/2013 9:14:03 PN | 1 R15104 |
| Bromobenzene                   | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| Bromodichloromethane           | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM |          |
| Bromoform                      | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PN |          |
| Bromomethane                   | ND     | 3.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM |          |
| 2-Butanone                     | ND     | 10        | μg/L      | 1  | 11/26/2013 9:14:03 PM |          |
| Carbon disulfide               | ND     | 10        | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| Carbon Tetrachloride           | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| Chlorobenzene                  | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| Chloroethane                   | ND     | 2.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| Chloroform                     | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |
| Chloromethane                  | ND     | 3.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | / R15104 |
| 2-Chlorotoluene                | ND     | 1.0       | μg/L      | 1  | 11/26/2013 9:14:03 PM | / R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

**CLIENT: AMEC** 

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 41 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-6

Project: Lightning Dock Geothermal Water Qualit Collection Date: 11/23/2013 12:00:00 PM

Lab ID: 1311B14-007 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed         | Batch    |
|-----------------------------|--------|-------|----------|----|-----------------------|----------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Analyst               | cadg     |
| 4-Chlorotoluene             | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| cis-1,2-DCE                 | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| cis-1,3-Dichloropropene     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,2-Dibromo-3-chloropropane | ND     | 2.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Dibromochloromethane        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Dibromomethane              | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,2-Dichlorobenzene         | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,3-Dichlorobenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,4-Dichlorobenzene         | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Dichlorodifluoromethane     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,1-Dichloroethane          | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,1-Dichloroethene          | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,2-Dichloropropane         | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,3-Dichloropropane         | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 2,2-Dichloropropane         | ND     | 2.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,1-Dichloropropene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Hexachlorobutadiene         | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 2-Hexanone                  | ND     | 10    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Isopropylbenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 4-Isopropyltoluene          | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 4-Methyl-2-pentanone        | ND     | 10    | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Methylene Chloride          | ND     | 3.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| n-Butylbenzene              | ND     | 3.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| n-Propylbenzene             | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| sec-Butylbenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Styrene                     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| tert-Butylbenzene           | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Tetrachloroethene (PCE)     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| trans-1,2-DCE               | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| trans-1,3-Dichloropropene   | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,2,3-Trichlorobenzene      | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,2,4-Trichlorobenzene      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,1,1-Trichloroethane       | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,1,2-Trichloroethane       | ND     | 1.0   | µg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Trichloroethene (TCE)       | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Trichlorofluoromethane      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | R15104   |
| 1,2,3-Trichloropropane      | ND     | 2.0   | μg/L     | 1  | 11/26/2013 9:14:03 PM | 1 R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- Ο RSD is greater than RSDlimit
- RPD outside accepted recovery limits Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit Page 42 of 71 Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 12/16/2013

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-6

Project:Lightning Dock Geothermal Water QualitCollection Date: 11/23/2013 12:00:00 PMLab ID:1311B14-007Matrix: AQUEOUSReceived Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL (   | Qual U | J <b>nits</b> | DF | Date Analyzed         | Batch    |
|--------------------------------|--------|--------|--------|---------------|----|-----------------------|----------|
| EPA METHOD 8260B: VOLATILES    |        |        |        |               |    | Analyst               | ∷ cadg   |
| Vinyl chloride                 | ND     | 1.0    |        | μg/L          | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Xylenes, Total                 | ND     | 1.5    |        | μg/L          | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Surr: 1,2-Dichloroethane-d4    | 98.4   | 70-130 |        | %REC          | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Surr: 4-Bromofluorobenzene     | 104    | 70-130 |        | %REC          | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Surr: Dibromofluoromethane     | 98.8   | 70-130 |        | %REC          | 1  | 11/26/2013 9:14:03 PM | R15104   |
| Surr: Toluene-d8               | 97.7   | 70-130 |        | %REC          | 1  | 11/26/2013 9:14:03 PM | R15104   |
| EPA METHOD 418.1: TPH          |        |        |        |               |    | Analyst               | : JME    |
| Petroleum Hydrocarbons, TR     | ND     | 1.0    |        | mg/L          | 1  | 11/27/2013            | 10569    |
| SM2510B: SPECIFIC CONDUCTANCE  |        |        |        |               |    | Analyst               | : JML    |
| Conductivity                   | 2500   | 0.010  |        | µmhos/cm      | 1  | 11/27/2013 9:52:37 PM | R15156   |
| SM4500-H+B: PH                 |        |        |        |               |    | Analyst               | :: JML   |
| рН                             | 7.56   | 1.68   | Н      | pH units      | 1  | 11/27/2013 9:52:37 PM | 1 R15156 |
| SM2320B: ALKALINITY            |        |        |        |               |    | Analys                | : JML    |
| Bicarbonate (As CaCO3)         | 130    | 20     |        | mg/L CaCO3    | 1  | 11/27/2013 9:52:37 PM | R15156   |
| Carbonate (As CaCO3)           | ND     | 2.0    |        | mg/L CaCO3    | 1  | 11/27/2013 9:52:37 PM | R15156   |
| Total Alkalinity (as CaCO3)    | 130    | 20     |        | mg/L CaCO3    | 1  | 11/27/2013 9:52:37 PM | R15156   |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |        |               |    | Analys                | t: KS    |
| Total Dissolved Solids         | 1880   | 200    | *      | mg/L          | 1  | 11/29/2013 2:50:00 PM | 1 10567  |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Days
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

Client Sample ID: Trip Blank **CLIENT: AMEC** 

**Collection Date:** Lightning Dock Geothermal Water Qualit Project:

Lab ID: 1311B14-008 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed       | Batch       |
|--------------------------------|--------|-------|----------|----|---------------------|-------------|
| EPA METHOD 8260B: VOLATILES    |        |       |          |    | Anal                | yst: cadg   |
| Benzene                        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104   |
| Toluene                        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104   |
| Ethylbenzene                   | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 8 PM R15104 |
| Methyl tert-butyl ether (MTBE) | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104   |
| 1,2,4-Trimethylbenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 8 PM R15104 |
| 1,3,5-Trimethylbenzene         | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 8 PM R15104 |
| 1,2-Dichloroethane (EDC)       | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 8 PM R15104 |
| 1,2-Dibromoethane (EDB)        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104   |
| Naphthaiene                    | ND     | 2.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| 1-Methylnaphthalene            | ND     | 4.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| 2-Methylnaphthalene            | ND     | 4.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| Acetone                        | ND     | 10    | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| Bromobenzene                   | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 8 PM R15104 |
| Bromodichloromethane           | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| Bromoform                      | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| Bromomethane                   | ND     | 3.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| 2-Butanone                     | ND     | 10    | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| Carbon disulfide               | ND     | 10    | μg/L     | 1  | 11/26/2013 11:08:58 | B PM R15104 |
| Carbon Tetrachloride           | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| Chlorobenzene                  | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| Chloroethane                   | ND     | 2.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| Chloroform                     | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| Chloromethane                  | ND     | 3.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104 |
| 2-Chlorotoluene                | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:58 | 8 PM R15104 |
| 4-Chlorotoluene                | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| cis-1,2-DCE                    | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | B PM R15104 |
| cis-1,3-Dichloropropene        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| 1,2-Dibromo-3-chloropropane    | ND     | 2.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| Dibromochloromethane           | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| Dibromomethane                 | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| 1,2-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  |             |
| 1,3-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| 1,4-Dichlorobenzene            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| Dichlorodifluoromethane        | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| 1,1-Dichloroethane             | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| 1,1-Dichloroethene             | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| 1,2-Dichloropropane            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| 1,3-Dichloropropane            | ND     | 1.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |
| 2,2-Dichloropropane            | ND     | 2.0   | μg/L     | 1  | 11/26/2013 11:08:5  | 8 PM R15104 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Not Detected at the Reporting Limit Page 44 of 71 Sample pH greater than 2 for VOA and TOC only.
- P
- Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/16/2013

CLIENT: AMEC Client Sample ID: Trip Blank

Project: Lightning Dock Geothermal Water Qualit Collection Date:

Lab ID: 1311B14-008 Matrix: AQUEOUS Received Date: 11/26/2013 9:15:00 AM

| Analyses                    | Result | RL Qu  | al Units | DF | Date Analyzed       | Batch            |
|-----------------------------|--------|--------|----------|----|---------------------|------------------|
| EPA METHOD 8260B: VOLATILES |        |        |          |    | Anal                | yst: <b>cadg</b> |
| 1,1-Dichloropropene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| Hexachlorobutadiene         | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| 2-Hexanone                  | ND     | 10     | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| Isopropylbenzene            | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| 4-Isopropyltoluene          | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| 4-Methyl-2-pentanone        | ND     | 10     | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| Methylene Chloride          | ND     | 3.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| n-Butylbenzene              | ND     | 3.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| n-Propylbenzene             | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | 8 PM R15104      |
| sec-Butylbenzene            | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | 8 PM R15104      |
| Styrene                     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| tert-Butylbenzene           | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| 1,1,1,2-Tetrachloroethane   | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| 1,1,2,2-Tetrachloroethane   | ND     | 2.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| Tetrachloroethene (PCE)     | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | 8 PM R15104      |
| trans-1,2-DCE               | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| trans-1,3-Dichloropropene   | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | PM R15104        |
| 1,2,3-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| 1,2,4-Trichlorobenzene      | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| 1,1,1-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| 1,1,2-Trichloroethane       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| Trichloroethene (TCE)       | ND     | 1.0    | μg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| Trichlorofluoromethane      | ND     | 1.0    | µg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| 1,2,3-Trichloropropane      | ND     | 2.0    | µg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| Vinyl chloride              | ND     | 1.0    | µg/L     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| Xylenes, Total              | ND     | 1.5    | µg/L     | 1  | 11/26/2013 11:08:58 | BPM R15104       |
| Surr: 1,2-Dichloroethane-d4 | 97.8   | 70-130 | %REC     | 1  | 11/26/2013 11:08:58 | BPM R15104       |
| Surr: 4-Bromofluorobenzene  | 106    | 70-130 | %REC     | 1  | 11/26/2013 11:08:58 | BPM R15104       |
| Surr: Dibromofluoromethane  | 99.3   | 70-130 | %REC     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |
| Surr: Toluene-d8            | 94.5   | 70-130 | %REC     | 1  | 11/26/2013 11:08:58 | 3 PM R15104      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page A
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit



12065 Lebanon Rd. Mt. Juliet, TN 37122 (615) 758-5858 1-800-767-5859 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

ESC Sample # : L671947-01

REPORT OF ANALYSIS

Anne Thorne Hall Environmental Analysis Laborat

4901 Hawkins NE

Albuquerque, NM 87109

December 10, 2013

December 04, 2013 Date Received

Description

Site ID :

Sample ID

1311B14-001J MW-1

Project # :

Collected By Collection Date :

11/25/13 11:45

Result Det. Limit Units Method Date Dil. Parameter Phosphorus, Total 0.88 0.10 mg/1365.4 12/09/13

BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL) Note:

The reported analytical results relate only to the sample submitted. This report shall not be reproduced, except in full, without the written approval from ESC.



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REPORT OF ANALYSIS

Anne Thorne Hall Environmental Analysis Laborat

4901 Hawkins NE Albuquerque, NM 87109

December 10, 2013

Date Received :

December 04, 2013

ESC Sample # : L671947-02

Description

Sample ID

: 1311B14-002J MW-2

Site ID :

Project # :

Collected By : Collection Date : 11/25/13 09:00

|                   |        |            | •     |        |          |      |  |
|-------------------|--------|------------|-------|--------|----------|------|--|
| Parameter         | Result | Det. Limit | Units | Method | Date     | D11. |  |
| Phosphorus, Total | 1.3    | 0.10       | mg/l  | 365,4  | 12/09/13 | 1    |  |

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

The reported analytical results relate only to the sample submitted.

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Anne Thorne Hall Environmental Analysis Laborat

4901 Hawkins NE

Albuquerque, NM 87109

ESC Sample # : L671947-03

December 10, 2013

Date Received : December 04, 2013 Description :

Description

Site ID :

Sample ID : 1311B14-003J MW-2B

Project # :

Collected By

Collection Date: 11/25/13 09:30

| Parameter         | Result | Det. Limit | Units | Method | Date Dil.  |
|-------------------|--------|------------|-------|--------|------------|
| Phosphorus, Total | 1.4    | 0.10       | mq/l  | 365.4  | 12/09/13 1 |

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted. This report shall not be reproduced, except in full, without the written approval from ESC.



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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Anne Thorne Hall Environmental Analysis Laborat 4901 Hawkins NE Albuquerque, NM 87109

Date Received :

December 04, 2013 Description

Sample ID

: 1311B14-004J MW-3

Collected By : Collection Date : 11/24/13 17:50

ESC Sample # : L671947-04

December 10, 2013

Site ID :

Project # :

| Parameter         | Result | Det. Limit | Units | Method | Date Dil.  |
|-------------------|--------|------------|-------|--------|------------|
| Phosphorus, Total | 3.7    | 0.10       | mg/l  | 365.4  | 12/09/13 1 |

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted. This report shall not be reproduced, except in full, without the written approval from ESC.



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Est. 1970

REPORT OF ANALYSIS

Anne Thorne Hall Environmental Analysis Laborat

4901 Hawkins NE

Albuquerque, NM 87109

ESC Sample # : L671947-05

December 10, 2013

Date Received : December 04, 2013

Description

Sample ID

: 1311B14-005J MW-4

Site ID : Project # :

Collected By : Collection Date : 11/24/13 14:35

| Parameter         | Result | Det. Limit | Units | Method | Date     | Dil. |
|-------------------|--------|------------|-------|--------|----------|------|
| Phosphorus, Total | 0.28   | 0.10       | mg/l  | 365.4  | 12/09/13 | 1    |

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL) Note: The reported analytical results relate only to the sample submitted. This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 12/10/13 11:20 Printed: 12/10/13 11:20



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Tax I.D. 62-0814289

Est. 1970

ESC Sample # : L671947-06

December 10, 2013

Site ID :

REPORT OF ANALYSIS

Anne Thorne Hall Environmental Analysis Laborat

4901 Hawkins NE

Albuquerque, NM 87109

December 04, 2013 Date Received :

Description

: 1311B14-006J MW-5 Sample ID

Collected By : Collection Date : 11/24/13 12:15

Project # :

| Parameter         | Result | Det. Limit | Units | Method | Date     | Dil. |
|-------------------|--------|------------|-------|--------|----------|------|
| Phosphorus, Total | 1.2    | 0.10       | mg/l  | 365.4  | 12/09/13 | 1    |

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 12/10/13 11:20 Printed: 12/10/13 11:20



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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

December 10, 2013

Anne Thorne Hall Environmental Analysis Laborat 4901 Hawkins NE Albuquerque, NM 87109

ESC Sample # : L671947-07

December 04, 2013 Date Received :

Description

Site ID :

Sample ID

1311B14-007J MW-6

Project # :

Collected By Collection Date :

11/23/13 12:00

Parameter Result Det. Limit Units Method Date Dil. 2.6 0.10 365.4 12/09/13 Phosphorus, Total mg/l

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

The reported analytical results relate only to the sample submitted. This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 12/10/13 11:20 Printed: 12/10/13 11:20



Hall Environmental Analysis Laboratory

Anne Thorne 4901 Hawkins NE

Albuquerque, NM 87109

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Tax I.D. 62-0814289

Est. 1970

Quality Assurance Report Level II

L671947

December 10, 2013

|  |              | Labor          | atory Blank           | 29          |          |                          |                      |
|--|--------------|----------------|-----------------------|-------------|----------|--------------------------|----------------------|
| Analyte                                | Result       | Unit           | s %                   | Rec         | Limit    | Batch Date               | Analyzed             |
| Phosphorus, Total                      | < 1          |                | VSV COLU              |             |          | WG696162 12/09           | /13 15:52            |
| Analyte                                | Units        | Result         | uplicate<br>Duplicate | RPD         | Limit    | Ref Samp                 | Batch                |
| Analyte                                |              | REGULE         | Dapaseace             |             |          | TO LOS IND               | bacon                |
| Phosphorus, Total<br>Phosphorus, Total | mg/l<br>mg/l | 2,80<br>0.0    | 0.0                   | 7.41<br>0.0 | 20<br>20 | L671947-07<br>L671941-01 | WG696162<br>WG696162 |
|  |              | Laborator      | y Control S           | amole       |          |                          |                      |
| Analyte                                | Units        | Known Va       |                       | Result      | % Rec    | Limit                    | Batch                |
| Phosphorus, Total                      | mg/l         |                | 0.                    | 944         | 94.4     | 90-110                   | WG696162             |
|  |              | Laboratory Cor | trol Sample           | Duplicate   |          |                          |                      |
| Analyte                                |              |                |                       |             | Limit    | RPD Limit                | Batch                |
| Phosphorus, Total                      | mg/l         | 0.953 0.       | 944 95                | 70 (5-21)   | 90-110   | 0.949. 20                | WG696162             |
|  |              | Mat            | rix Spike             |             |          |                          |                      |
| Analyte                                | Units        |                | Ref Res T             | V % Rec     | Limit    | Ref Samp                 | Batch                |
| Phosphorus, Total                      | mg/l         | 2,69 (         | 2.280 2.              | 5 96.0      | 90-110   | L671947-05               | WG696162             |
|  |              | Matrix S       | Spike Duplic          | ate         |          |                          |                      |
| Analyte                                | Units        |                | %Rec_                 | Limit       | RPD      | Limit Ref Samp           | Batch                |
| Phosphorus, Total                      | mg/l         | 2.73 2.69      | 98.0                  | 90-110      | 1.48     | 20 L671947-05            | WG696162             |

Batch number /Run number / Sample number cross reference

WG696162: R2865363: L671947-01 02 03 04 05 06 07

 <sup>\*</sup> Calculations are performed prior to rounding of reported values.
 \* Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

Helena, MT 877-472-0711 · Billings, MT 800-735-4469 · Casper, WY 868-235-0515 Gilletts, WY 866-688-7175 • Rapid City, SD 868-672-1225 • College Station, TX 868-699-2218

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13111073-001

Client Sample ID: 1311B14-001 MW-1

Report Date: 12/13/13

Collection Date: 11/25/13 11:45

DateReceived: 11/27/13

| Analyses                | Result | Units | Qualifiers | RL  | MCL/<br>QCL | Method   | Analysis Date / By     |
|-------------------------|--------|-------|------------|-----|-------------|----------|------------------------|
| METALS - DISSOLVED      |        |       |            |     |             |          |                        |
| Lithium                 | 0.8    | mg/L  |            | 0.1 |             | E200.7   | 12/02/13 21:16 / sf    |
| Rubidium                |        | ma/L  |            | 0.1 |             | E200.8   | 12/13/13 10:33 / eli-t |
| Tungsten                | ND     | mg/L  |            | 0.2 |             | E200.8   | 12/13/13 10:33 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |             |          |                        |
| Radon 222               | 238    | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 45.2   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 73.0   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13111073-002

Client Sample ID: 1311B14-002 MW2

Report Date: 12/13/13

Collection Date: 11/25/13 09:00

DateReceived: 11/27/13

|                         |        |       |            |     | MCL/ |          |                        |
|-------------------------|--------|-------|------------|-----|------|----------|------------------------|
| Analyses                | Result | Units | Qualifiers | RL  | QCL  | Method   | Analysis Date / By     |
| METALS - DISSOLVED      |        |       |            |     |      |          |                        |
| Lithium                 | 0.7    | mg/L  |            | 0.1 |      | E200.7   | 12/02/13 21:20 / sf    |
| Rubidium                | 0.1    | mg/L  |            | 0.1 |      | E200.8   | 12/13/13 10:35 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2 |      | E200.8   | 12/13/13 10:35 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |      |          |                        |
| Radon 222               | 580    | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 50.5   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 74.0   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |



Helena, MT 877-472-0711 - Billings, MT 800-735-4489 - Casper, WY 898-235-0515 Gillette, Wy 868-988-7175 • Repid City, SD 888-672-1225 • College Station, TX 888-889-2218

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID: Client Sample ID: 1311B14-003 MW2B

C13111073-003

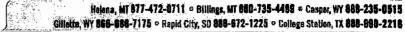
Report Date: 12/13/13

Collection Date: 11/25/13 09:30

DateReceived: 11/27/13

|                         |           |                | MC    | J        |                        |
|-------------------------|-----------|----------------|-------|----------|------------------------|
| Analyses                | Result Un | its Qualiflers | RL QC | L Method | Analysis Date / By     |
| METALS - DISSOLVED      |           |                |       |          |                        |
| Lithíum                 | 0.7 mg    | 1/L            | 0,1   | E200.7   | 12/02/13 21:24 / sf    |
| Rubidium                | 0.1 mg    | ]/L            | 0.1   | E200.8   | 12/13/13 10:37 / eli-b |
| Tungsten                | ND mg     | <b>3</b> /∟    | 0.2   | E200.8   | 12/13/13 10:37 / eli-b |
| RADIONUCLIDES - TOTAL   |           |                |       |          |                        |
| Radon <b>2</b> 22       | 567 pC    | i/L            |       | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 50.2 pC   | i/L            |       | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | . 74.0 pC | I/L            |       | D5072-92 | 11/27/13 15:50 / dpb   |





#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

C13111073-004

Lab ID: Client Sample ID: 1311B14-004 MW-3

Report Date: 12/13/13

Collection Date: 11/24/13 17:50

DateReceived: 11/27/13

| Analyses                | Result | Units | Qualifiers | RL  | MCL/<br>QCL | Method   | Analysis Date / By     |
|-------------------------|--------|-------|------------|-----|-------------|----------|------------------------|
| METALS - DISSOLVED      |        |       |            |     |             |          |                        |
| Lithium                 | 0.5    | mg/L  |            | 0.1 |             | E200.7   | 12/02/13 21:32 / sf    |
| Rubidium                | 0.2    | mg/L  |            | 0.1 |             | E200.8   | 12/13/13 10:40 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2 |             | E200.8   | 12/13/13 10:40 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |             |          |                        |
| Radon 222               | 781    | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 58.5   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 84.0   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |



Helena, MT 877-472-0711 · Billings, MT 800-735-4459 · Casper, WY 888-235-0515 Gillette, WY 868-888-7175 · Rapid City, SD 888-872-1225 · College Stetlen, TX 888-549-2218

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project: Lab ID:

Not Indicated

C13111073-005 Client Sample ID: 1311B14-005 MW-4 Report Date: 12/13/13

Collection Date: 11/24/13 14:35

DateReceived: 11/27/13

| Analyses                | Result | Units | Qualifiers | RL  | MCL/<br>QCL | Method   | Analysis Date / By     |
|-------------------------|--------|-------|------------|-----|-------------|----------|------------------------|
|                         |        |       |            |     |             |          | ,                      |
| METALS - DISSOLVED      |        |       |            |     |             |          |                        |
| Lithium                 | 1.7    | mg/L  |            | 0.1 |             | E200.7   | 12/02/13 21:36 / sf    |
| Rubidium                | 0.4    | mg/L  |            | 0.1 |             | E200.8   | 12/13/13 10:42 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2 |             | E200.8   | 12/13/13 10:42 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |             |          |                        |
| Radon 222               | 1090   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 63.4   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 86.0   | pCi/L |            |     |             | D5072-92 | 11/27/13 15:50 / dpb   |

#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13111073-006

Client Sample ID: 1311B14-006 MW-5

Report Date: 12/13/13

Collection Date: 11/24/13 12:15

DateReceived: 11/27/13

|                         |        |       |            |     | MCL/ |          |                        |
|-------------------------|--------|-------|------------|-----|------|----------|------------------------|
| Analyses                | Result | Units | Qualifiers | RL  | QCL  | Method   | Analysis Date / By     |
| METALS - DISSOLVED      |        |       |            |     |      |          |                        |
| ithium                  | 0.4    | mg/L  |            | 0.1 |      | E200.7   | 12/02/13 21:40 / sf    |
| Rubidium                | 0.1    | mg/L  |            | 0.1 |      | E200.8   | 12/13/13 10:45 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2 |      | E200.8   | 12/13/13 10:45 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |      |          |                        |
| Radon 222               | 197    | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 53.3   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 88.0   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |



#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Project:

Not Indicated

Lab ID:

C13111073-007

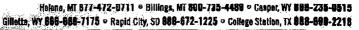
Client Sample ID: 1311B14-007 MW-6

Report Date: 12/13/13

Collection Date: 11/23/13 12:00

DateReceived: 11/27/13

|                         |        |       |            |     | MCL/ |          |                        |
|-------------------------|--------|-------|------------|-----|------|----------|------------------------|
| Analyses                | Result | Units | Qualifiers | RL  | QCL  | Method   | Analysis Date / By     |
| METALS - DISSOLVED      |        |       |            |     |      |          |                        |
| _ithium                 | 8.0    | mg/L  |            | 0.1 |      | E200.7   | 12/02/13 21:44 / sf    |
| Rubidium                | 0.1    | mg/L  |            | 0.1 |      | E200.8   | 12/13/13 10:47 / eli-b |
| Tungsten                | ND     | mg/L  |            | 0.2 |      | E200.8   | 12/13/13 10:47 / eli-b |
| RADIONUCLIDES - TOTAL   |        |       |            |     |      |          |                        |
| Radon 222               | 507    | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 precision (±) | 68.1   | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |
| Radon 222 MDC           | 106    | pCi/L |            |     |      | D5072-92 | 11/27/13 15:50 / dpb   |



### **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Report Date: 12/13/13

Project: Not Indicated

Work Order: C13111073

| Analyte                      | Count  | Result       | Units       | RL | %REC | Low Limit | High Limit  | RPD     | RPDLimit | Qual      |
|------------------------------|--------|--------------|-------------|----|------|-----------|-------------|---------|----------|-----------|
| Method: D5072-92             |        |              |             |    |      |           | ,           |         | Batch    | R181361   |
| Sample ID: C13111073-007BDUF | 9 3 Sa | mple Duplica | ite         |    |      | Run: PACK | ARD 3100TR_ | 131127A | 11/27    | /13 15:50 |
| Radon 222                    |        | 509          | pCi/L       |    |      |           |             | 0.4     | 20       |           |
| Radon 222 precision (±)      |        | 68.2         | pCi/L       |    |      |           |             |         |          |           |
| Radon 222 MDC                |        | 106          | pCi/L       |    |      |           |             |         |          |           |
| Sample ID: MB-R181361        | 3 Ме   | thod Blank   |             |    |      | Run: PACK | ARD 3100TR_ | 131127A | 11/27    | /13 15:50 |
| Radon 222                    |        | 6            | pCi/L       |    |      |           |             |         |          | Ų         |
| Radon 222 precision (±)      |        | 30           | pCi/L       |    |      |           |             |         |          |           |
| Radon 222 MDC                |        | 50           | pCi/L       |    |      |           |             |         |          |           |
| Sample ID: LCS-R181361       | Lat    | boratory Con | trol Sample |    |      | Run: PACK | ARD 3100TR_ | 131127A | 11/27    | /13 15:50 |
| Radon 222                    |        | 549          | pCi/L       |    | 96   | 80        | 120         |         |          |           |



# **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 12/13/13

Work Order: C13111073

| Analyte    |                   | Count        | Result          | Units              | RL     | %REC | Low Limit  | High Limit | RPD        | RPDLimit    | Qual       |
|------------|-------------------|--------------|-----------------|--------------------|--------|------|------------|------------|------------|-------------|------------|
| Method:    | E200.7            |              |                 |                    |        |      |            |            | Analytical | Run: ICP2-C | _131202B   |
| Sample ID; | ICV               | Initi        | ial Calibration | n Verification Sta | andard |      |            |            |            | 12/02       | /13 15:58  |
| Lithium    |                   |              | 0.992           | mg/L               | 0.10   | 99   | 95         | 105        |            |             |            |
| Sample ID: | ICSA              | Inte         | erference Ch    | eck Sample A       |        |      |            |            |            | 12/02       | /13 16:26  |
| Lithium    |                   |              | 0.00190         | mg/L               | 0.10   |      |            |            |            |             |            |
| Sample (D: | ICSAB             | Inte         | erference Ch    | eck Sample AB      |        |      |            |            |            | 12/02       | /13 16:30  |
| Lithium    |                   |              | 0.00210         | mg/L               | 0.10   |      |            |            |            |             |            |
| Method:    | E200.7            |              |                 |                    |        |      |            |            |            | Batch       | : R181387  |
| Sample ID: | MB-131202A        | Me           | thod Blank      |                    |        |      | Run: ICP2- | C_131202B  |            | 12/02       | /13 16:54  |
| Lithlum    |                   |              | ND              | mg/L               | 0.0002 |      |            |            |            |             |            |
| Sample ID: | LFB-131202A       | Lab          | oratory Forti   | ified Blank        |        |      | Run: ICP2- | C_131202B  |            | 12/02       | /13 16:58  |
| Lithium    |                   |              | 0.949           | mg/L               | 0.10   | 95   | 85         | 115        |            |             |            |
| Sample ID: | C13111038-001BMS2 | 2 Sau        | mple Matrix S   | Spike              |        |      | Run: ICP2- | C_131202B  |            | 12/02       | 2/13 21:04 |
| Lithium    |                   |              | 1.86            | mg/L               | 0.10   | 91   | 70         | 130        |            |             |            |
| Sample ID: | C13111038-001BMSI | <b>02</b> Sa | mple Matrix S   | Spike Duplicate    |        |      | Run: ICP2- | C_131202B  |            | 12/02       | 2/13 21:08 |
| Lithium    |                   |              | 1.89            | mg/L               | 0.10   | 93   | 70         | 130        | 1.6        | 20          |            |



### **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Report Date: 12/13/13

Project: Not Indicated

Work Order: C13111073

| Analyte    |                   | Coun | t Result            | Units                                    | RL     | %REC | Low Limit  | High Limit | RPD      | RPDLimit     | Quai      |
|------------|-------------------|------|---------------------|--|--------|------|------------|------------|----------|--------------|-----------|
| Method:    | E200.8            |      | •                   | T-17-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 |        |      |            |            | Analytic | cal Run: SUE | -B216493  |
| Sample ID: | QCS               | 2    | Initial Calibration | Verification Sta                         | andard |      |            |            |          | 12/13        | /13 09:32 |
| Rubidium   |                   |      | 0.0533              | mg/L                                     | 0.010  | 107  | 90         | 110        |          |              |           |
| Tungsten   |                   |      | 0.0534              | mg/L                                     | 0.10   | 107  | 90         | 110        |          |              |           |
| Method:    | E200.8            |      |                     |  |        |      |            |            |          | Batch: B     | R216493   |
| Sample ID: | LFB               | 2    | Laboratory Forti    | fied Blank                               |        |      | Run: SUB-E | 3216493    |          | 12/13        | /13 09:34 |
| Rubidium   |                   |      | 0.0476              | mg/L                                     | 0.010  | 95   | 85         | 115        |          |              |           |
| Tungsten   |                   |      | 0.0487              | mg/L                                     | 0.10   | 97   | 85         | 115        |          |              |           |
| Sample ID: | LRB               | 2    | Method Blank        |  |        |      | Run: SUB-E | 3216493    |          | 12/13        | /13 09:56 |
| Rubidium   |                   |      | 0.03                |  |        |      |            |            |          |              |           |
| Tungsten   |                   |      | 1.0                 |  |        |      |            |            |          |              |           |
| Sample ID: | B13120270-001CMS  | 2    | Sample Matrix S     | Spike                                    |        |      | Run: SUB-E | 3216493    |          | 12/13        | /13 10:52 |
| Rubidium   |                   |      | 0.713               | mg/L                                     | 0.010  |      | 70         | 130        |          |              | Α         |
| Tungsten   |                   |      | 0.113               | mg/L                                     | 0.10   | 120  | 70         | 130        |          |              |           |
| Sample ID: | B13120270-001CMSI | 2    | Sample Matrix 9     | Spike Duplicate                          |        |      | Run: SUB-E | 3216493    |          | 12/13        | /13 10:54 |
| Rubidium   |                   |      | 0.715               | mg/L                                     | 0.010  |      | 70         | 130        | 0.3      | 20           | Α         |
| Tungsten   |                   |      | 0.113               | mg/L                                     | 0.10   | 120  | 70         | 130        | 0.0      | 20           |           |

### all Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

CompTupo: LCC

| Sample ID MB   | Samp       | Type: ME        | BLK       | Tes         | tCode: El | PA Method | 200.7: Dissol | ved Meta | s        |      |
|----------------|------------|-----------------|-----------|-------------|-----------|-----------|---------------|----------|----------|------|
| Client ID: PBW |            | h ID: <b>R1</b> |           |             | RunNo: 1  |           |               |          |          |      |
| Prep Date:     | Analysis I | Date: 12        | 2/4/2013  | S           | SeqNo: 4  | 39555     | Units: mg/L   |          |          |      |
| Analyte        | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD_    | RPDLimit | Qual |
| Aluminum       | ND         | 0.020           |           |             |           |           |               |          |          |      |
| Barium         | ND         | 0.0020          |           |             |           |           |               |          |          |      |
| Boron          | ND         | 0.040           |           |             |           |           |               |          |          |      |
| Cadmium        | ND         | 0.0020          |           |             |           |           |               |          |          |      |
| Calcium        | ND         | 1.0             |           |             |           |           |               |          |          |      |
| Chromium       | ND         | 0.0060          |           |             |           |           |               |          |          |      |
| Cobalt         | ND         | 0.0060          |           |             |           |           |               |          |          |      |
| Magnesium      | ND         | 1.0             |           |             |           |           |               |          |          |      |
| Manganese      | ND         | 0.0020          |           |             |           |           |               |          |          |      |
| Molybdenum     | ND         | 0.0080          |           |             |           |           |               |          |          |      |
| Nickel         | ND         | 0.010           |           |             |           |           |               |          |          |      |
| Potassium      | ND         | 1.0             |           |             |           |           |               |          |          |      |
| Silver         | ND         | 0.0050          |           |             |           |           |               |          |          |      |
| Sodium         | ND         | 1.0             |           |             |           |           |               |          |          |      |

| Sample ID  | LCS  | Samp     | Type: <b>LC</b> | :S        | Tes         | tCode: El | PA Method | 200.7: Dissolv | ved Metal | s        |      |
|------------|------|----------|-----------------|-----------|-------------|-----------|-----------|----------------|-----------|----------|------|
| ient ID:   | LCSW | Bato     | h ID: R1        | 5245      | F           | RunNo: 1  | 5245      |                |           |          |      |
| rep Date:  |      | Analysis | Date: 12        | 2/4/2013  | 5           | SeqNo: 4  | 39556     | Units: mg/L    |           |          |      |
| Analyte    |      | Result   | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit      | %RPD      | RPDLimit | Qual |
| Aluminum   |      | 0.48     | 0.020           | 0.5000    | 0           | 96.9      | 85        | 115            |           |          |      |
| Barium     |      | 0.48     | 0.0020          | 0.5000    | 0           | 96.0      | 85        | 115            |           |          |      |
| Boron      |      | 0.51     | 0.040           | 0.5000    | 0           | 101       | 85        | 115            |           |          |      |
| Cadmium    |      | 0.49     | 0.0020          | 0.5000    | 0           | 97.5      | 85        | 115            |           |          |      |
| Calcium    |      | 50       | 1.0             | 50.00     | 0           | 100       | 85        | 115            |           |          |      |
| Chromium   |      | 0.48     | 0.0060          | 0.5000    | 0           | 95.0      | 85        | 115            |           |          |      |
| Cobalt     |      | 0.47     | 0.0060          | 0.5000    | 0           | 93.3      | 85        | 115            |           |          |      |
| Magnesium  |      | 50       | 1.0             | 50.00     | 0           | 100       | 85        | 115            |           |          |      |
| Manganese  |      | 0.47     | 0.0020          | 0.5000    | 0           | 93.7      | 85        | 115            |           |          |      |
| Molybdenum |      | 0.50     | 0.0080          | 0.5000    | 0           | 99.8      | 85        | 115            |           |          |      |
| Nickel     |      | 0.46     | 0.010           | 0.5000    | 0           | 92.1      | 85        | 115            |           |          |      |
| Potassium  |      | 48       | 1.0             | 50.00     | 0           | 96.1      | 85        | 115            |           |          |      |
| Silver     |      | 0.10     | 0.0050          | 0.1000    | 0           | 100       | 85        | 115            |           |          |      |
| Sodium     |      | 49       | 1.0             | 50.00     | 0           | 98.9      | 85        | 115            |           |          |      |

| Sample ID 1311B14-001GMS | SampType: MS             | TestCode: EPA Method 200.7: Dissolved Metals           |  |
|--------------------------|--------------------------|--|--|
| Client ID: MW-1          | Batch ID: R15245         | RunNo: 15245   |  |
| Prep Date:               | Analysis Date: 12/4/2013 | SeqNo: 439580 Units: mg/L                              |  |
| Analyte                  | Result PQL SPK value S   | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual |  |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- . Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

TootCode: EDA Mathad 200 7: Discalled Matala

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID  | 1311B14-001GMS | Samp       | Type: MS        | 3         | TestCode: EPA Method 200.7: Dissolved Metals |          |          |             |      |          |      |
|------------|----------------|------------|-----------------|-----------|--|----------|----------|-------------|------|----------|------|
| Client ID: | MW-1           | Bato       | h ID: R1        | 5245      | F  | RunNo: 1 | 5245     |             |      |          |      |
| Prep Date: |                | Analysis I | Date: <b>12</b> | 2/4/2013  | S  | SeqNo: 4 | 39580    | Units: mg/L |      |          |      |
| Analyte    |                | Result     | PQL             | SPK value | SPK Ref Val                                  | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Aluminum   |                | 0.54       | 0.020           | 0.5000    | 0.03447                                      | 102      | 70       | 130         |      |          |      |
| Barium     |                | 0.53       | 0.0020          | 0.5000    | 0.06312                                      | 93.7     | 70       | 130         |      |          |      |
| Cadmium    |                | 0.49       | 0.0020          | 0.5000    | 0  | 97.9     | 70       | 130         |      |          |      |
| Calcium    |                | 94         | 1.0             | 50.00     | 50.58  | 87.6     | 70       | 130         |      |          |      |
| Chromium   |                | 0.46       | 0.0060          | 0.5000    | 0  | 92.4     | 70       | 130         |      |          |      |
| Cobalt     |                | 0.46       | 0.0060          | 0.5000    | 0.001830                                     | 91.5     | 70       | 130         |      |          |      |
| Magnesium  |                | 51         | 1.0             | 50.00     | 2.055  | 98.8     | 70       | 130         |      |          |      |
| Manganese  |                | 0.67       | 0.0020          | 0.5000    | 0.2066                                       | 92.0     | 70       | 130         |      |          |      |
| Molybdenum |                | 0.55       | 0.0080          | 0.5000    | 0.05781                                      | 98.2     | 70       | 130         |      |          |      |
| Nickel     |                | 0.44       | 0.010           | 0.5000    | 0  | 87.5     | 70       | 130         |      |          |      |
| Potassium  |                | 70         | 1.0             | 50.00     | 21.70  | 96.8     | 70       | 130         |      |          |      |
| Silver     |                | 0.096      | 0.0050          | 0.1000    | 0  | 96.2     | 70       | 130         |      |          |      |

| Sample ID  | 1311B14-001GMSD | SampTy     | pe: MS        | SD        | les         | tCode: El | PA Method | 200.7: Disso | Ived Metal | s        |      |
|------------|-----------------|------------|---------------|-----------|-------------|-----------|-----------|--------------|------------|----------|------|
| Client ID: | MW-1            | Batch      | ID: <b>R1</b> | 5245      | F           | RunNo: 1  | 5245      |              |            |          |      |
| Prep Date: | А               | nalysis Da | ate: 12       | 2/4/2013  | S           | SeqNo: 4  | 39582     | Units: mg/L  |            |          |      |
| Analyte    |                 | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit    | %RPD       | RPDLimit | Qual |
| Aluminum   |                 | 0.54       | 0.020         | 0.5000    | 0.03447     | 101       | 70        | 130          | 0.437      | 20       |      |
| Barium     |                 | 0.53       | 0.0020        | 0.5000    | 0.06312     | 92.4      | 70        | 130          | 1.15       | 20       |      |
| Cadmium    |                 | 0.49       | 0.0020        | 0.5000    | 0           | 97.9      | 70        | 130          | 0.00817    | 20       |      |
| Calcium    |                 | 96         | 1.0           | 50.00     | 50.58       | 90.2      | 70        | 130          | 1.37       | 20       |      |
| Chromium   |                 | 0.46       | 0.0060        | 0.5000    | 0           | 91.8      | 70        | 130          | 0.651      | 20       |      |
| Cobalt     |                 | 0.46       | 0.0060        | 0.5000    | 0.001830    | 91.0      | 70        | 130          | 0.493      | 20       |      |
| Magnesium  |                 | 53         | 1.0           | 50.00     | 2.055       | 103       | 70        | 130          | 3.58       | 20       |      |
| Manganese  |                 | 0.66       | 0.0020        | 0.5000    | 0.2066      | 90.5      | 70        | 130          | 1.12       | 20       |      |
| Molybdenum |                 | 0.55       | 0.0080        | 0.5000    | 0.05781     | 98.4      | 70        | 130          | 0.186      | 20       |      |
| Nickel     |                 | 0.43       | 0.010         | 0.5000    | 0           | 86.8      | 70        | 130          | 0.718      | 20       |      |
| Potassium  |                 | 72         | 1.0           | 50.00     | 21.70       | 101       | 70        | 130          | 3.16       | 20       |      |
| Silver     |                 | 0.095      | 0.0050        | 0.1000    | 0           | 95.0      | 70        | 130          | 1.28       | 20       |      |

| Sample ID  | 1311B14-001GMS | SampTyp       | e: <b>M</b> \$ | S         | Tes         | tCode: <b>E</b> | PA Method | 200.7: Disso | ved Meta | ls       |      |  |
|------------|----------------|---------------|----------------|-----------|-------------|-----------------|-----------|--------------|----------|----------|------|--|
| Client ID: | MW-1           | Batch ID      | ): <b>R</b> 1  | 15245     | F           | RunNo: 1        | 5245      |              |          |          |      |  |
| Prep Date: |                | Analysis Date | e: 1           | 2/4/2013  | S           | SeqNo: 4        | 139584    | Units: mg/L  |          |          |      |  |
| Analyte    |                | Result F      | PQL            | SPK value | SPK Ref Val | %REC            | LowLimit  | HighLimit    | %RPD     | RPDLimit | Qual |  |
| Boron      |                | 3.1           | 0.20           | 2.500     | 0.7014      | 97.8            | 70        | 130          |          |          |      |  |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### 'all Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID 1311B14-001GMSD SampType: MSD

TestCode: EPA Method 200.7: Dissolved Metals

Client ID: MW-1 Batch ID: R15245

RunNo: 15245

Prep Date:

Analysis Date: 12/4/2013

SeqNo: 439585

101

Units: mg/L

Analyte

Result PQL

3.2

ND ND

ND

SPK value SPK Ref Val 2.500 0.7014

%REC LowLimit HighLimit

130

**RPDLimit** Qual 20

Boron

Sample ID MB

SampType: MBLK

0.20

SPK value SPK Ref Val %REC LowLimit

TestCode: EPA Method 200.7: Dissolved Metals

%RPD

2.30

**RPDLimit** 

Qual

Client ID: PBW Batch ID: R15267

RunNo: 15267 SeqNo: 440169

Units: mg/L

HighLimit

%RPD

%RPD

**RPDLimit** Qual

Analyte Copper Iron

Nickel

Sodium Zinc

Prep Date:

Result PQL ND 0.0060 ND 0.020

Analysis Date: 12/5/2013

0.010

SampType: LCS

1.0 0.010

TestCode: EPA Method 200.7: Dissolved Metals

Sample ID LCS Client ID: LCSW

Batch ID: R15267

RunNo: 15267 SeqNo: 440170

Units: mg/L

115

115

115

115

115

Prep Date: nalyte

Analysis Date: 12/5/2013

%REC LowLimit HighLimit

SPK value SPK Ref Val Result PQL Copper 0.48 0.0060 0.5000 0 95.4 85 Iron 0.51 0.020 0.5000 0 102 85 0.010 0.5000 0 93.0 85 0.46 Nickel 0 51 1.0 50.00 102 85 Sodium 0.49 0.010 0.5000 0 97.2 85 Zinc

#### Qualifiers:

S

- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits R
- Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

В Analyte detected in the associated Method Blank

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14 16-Dec-13

Client: **AMEC** 

Lightning Dock Geothermal Water Quality Moni Project:

| Sample ID                              | LCS                                     | Samp                             | Type: <b>LC</b>                      | s  | Test             | Code: EF                    | PA 200.8: D                         | Dissolved Me             | tals |          |      |
|--|---|----------------------------------|--------------------------------------|--|------------------|-----------------------------|-------------------------------------|--------------------------|------|----------|------|
| Client ID:                             | LCSW                                    | Bato                             | h ID: <b>R1</b>                      | 5392                                     | R                | unNo: 1                     | 5392                                |                          |      |          |      |
| Prep Date:                             |   | Analysis                         | Date: 12                             | 2/10/2013                                | S                | eqNo: 44                    | 43415                               | Units: mg/L              |      |          |      |
| Analyte                                |   | Result                           | PQL                                  | SPK value                                | SPK Ref Val      | %REC                        | LowLimit                            | HighLimit                | %RPD | RPDLimit | Qual |
| Arsenic                                |   | 0.025                            | 0.0010                               | 0.02500                                  | 0                | 98.1                        | 85                                  | 115                      |      |          |      |
| Lead                                   |   | 0.025                            | 0.0010                               | 0.02500                                  | 0                | 99.1                        | 85                                  | 115                      |      |          |      |
| Selenium                               |   | 0.024                            | 0.0010                               | 0.02500                                  | 0                | 97.7                        | 85                                  | 115                      |      |          |      |
| Uranium                                |   | 0.025                            | 0.0010                               | 0.02500                                  | 0                | 100                         | 85                                  | 115                      |      |          |      |
| Sample ID                              | LCS                                     | Samp                             | Type: LC                             | S  | Tes              | Code: El                    | PA 200.8: D                         | Dissolved Me             | tals | 7.1      |      |
| Client ID:                             | LCSW                                    | Bato                             | ch ID: <b>R1</b>                     | 5392                                     | F                | lunNo: 1                    | 5392                                |                          |      |          |      |
| Prep Date:                             |   | Analysis                         | Date: 12                             | 2/10/2013                                | 8                | eqNo: 4                     | 43416                               | Units: mg/L              |      |          |      |
|  |   |                                  |                                      |  |                  |                             |                                     |                          |      |          |      |
| Analyte                                |   | Result                           | PQL                                  | SPK value                                | SPK Ref Val      | %REC                        | LowLimit                            | HighLimit                | %RPD | RPDLimit | Qual |
| Analyte<br>Arsenic                     |   | Result<br>0.024                  | PQ <b>L</b> 0.0010                   | SPK value<br>0.02500                     | SPK Ref Val      | %REC<br>97.8                | LowLimit<br>85                      | HighLimit<br>115         | %RPD | RPDLimit | Qual |
| ·····                                  | , |                                  |                                      |  |                  |                             |                                     |                          | %RPD | RPDLimit | Qual |
| Arsenic                                | -                                       | 0.024                            | 0.0010                               | 0.02500                                  | 0                | 97.8                        | 85                                  | 115                      | %RPD | RPDLimit | Qual |
| Arsenic<br>Lead                        |   | 0.024<br>0.024                   | 0.0010<br>0.0010                     | 0.02500<br>0.02500                       | 0                | 97.8<br>96.8                | 85<br>85                            | 115<br>115               | %RPD | RPDLimit | Qual |
| Arsenic<br>Lead<br>Selenium            | MB                                      | 0.024<br>0.024<br>0.025<br>0.026 | 0.0010<br>0.0010<br>0.0010           | 0.02500<br>0.02500<br>0.02500<br>0.02500 | 0<br>0<br>0<br>0 | 97.8<br>96.8<br>99.3<br>102 | 85<br>85<br>85<br>85                | 115<br>115<br>115        |      | RPDLimit | Qual |
| Arsenic<br>Lead<br>Selenium<br>Uranium | MB<br>PBW                               | 0.024<br>0.024<br>0.025<br>0.026 | 0.0010<br>0.0010<br>0.0010<br>0.0010 | 0.02500<br>0.02500<br>0.02500<br>0.02500 | 0<br>0<br>0<br>0 | 97.8<br>96.8<br>99.3<br>102 | 85<br>85<br>85<br>85<br>PA 200.8: [ | 115<br>115<br>115<br>115 |      | RPDLimit | Qual |

| Sample ID MB   | Samp?      | Type: ME        | BLK       | Tes         | tCode: El | PA 200.8: | Dissolved Met | als  |          |      |
|----------------|------------|-----------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: PBW | Batc       | h ID: <b>R1</b> | 5392      | F           | RunNo: 1  | 5392      |               |      |          |      |
| Prep Date:     | Analysis [ | Date: <b>12</b> | 2/10/2013 | S           | SeqNo: 4  | 43417     | Units: mg/L   |      |          |      |
| Analyte        | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Arsenic        | ND         | 0.0010          |           |             |           |           |               |      |          |      |
| Lead           | ND         | 0.0010          |           |             |           |           |               |      |          |      |
| Selenium       | ND         | 0.0010          |           |             |           |           |               |      |          |      |
| Uranium        | ND         | 0.0010          |           |             |           |           |               |      |          |      |

| Sample ID MB   | Samp       | Type: ME        | BLK       | Test        | Code: E  | PA 200.8: | Dissolved Me | tals |          |      |
|----------------|------------|-----------------|-----------|-------------|----------|-----------|--------------|------|----------|------|
| Client ID: PBW | Bato       | h ID: <b>R1</b> | 5392      | R           | RunNo: 1 | 5392      |              |      |          |      |
| Prep Date:     | Analysis [ | Date: <b>12</b> | 2/10/2013 | S           | SeqNo: 4 | 43418     | Units: mg/L  |      |          |      |
| Analyte        | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Arsenic        | ND         | 0.0010          |           |             |          |           |              |      |          |      |
| Lead           | ND         | 0.0010          |           |             |          |           |              |      |          |      |
| Selenium       | ND         | 0.0010          |           |             |          |           |              |      |          |      |
| Uranium        | ND         | 0.0010          |           |             |          |           |              |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit О
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η
- NDNot Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

Holding times for preparation or analysis exceeded

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### all Environmental Analysis Laboratory, Inc.

WO#:

1311B14 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10596

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

PBW Client ID:

Batch ID: 10596

RunNo: 15236

Prep Date: 12/2/2013

Analysis Date: 12/4/2013

SeqNo: 439897 Units: mg/L

Analyte

SPK value SPK Ref Val %REC LowLimit Result PQL

%RPD **RPDLimit** 

Qual

Mercury

ND 0.00020

Sample ID LCS-10596

SampType: LCS

TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 10596

RunNo: 15236

%REC

Units: mg/L

HighLimit

Prep Date: 12/2/2013

Analysis Date: 12/4/2013 **PQL** 

SeqNo: 439898

HighLimit

**RPDLimit** Qual

Analyte

SPK value SPK Ref Val

105

80

%RPD

Mercury

0.0052 0.00020 0.005000 0

LowLimit

120

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

Analyte detected in the associated Method Blank В

Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client: **AMEC** 

Lightning Dock Geothermal Water Quality Moni Project:

| Sample ID A5                     | SampT      | ype: CC         | :V_5      | Tes         | tCode: EF | PA Method | 300.0: Anions | ı    |          |      |
|----------------------------------|------------|-----------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: BatchQC               | Batch      | n ID: <b>R1</b> | 5112      | F           | RunNo: 1  | 5112      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 11         | 1/26/2013 | 8           | SeqNo: 43 | 36040     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.5        | 0.10            | 1.600     | 0           | 95.8      | 90        | 1 <b>1</b> 0  |      |          |      |
| Chloride                         | 7.7        | 0.50            | 8.000     | 0           | 96.6      | 90        | 110           |      |          |      |
| Bromide                          | 8.0        | 0.10            | 8.000     | 0           | 99.5      | 90        | 110           |      |          |      |
| Nitrogen, Nitrate (As N)         | 4.9        | 0.10            | 4.800     | 0           | 102       | 90        | 110           |      |          |      |
| Phosphorus, Orthophosphate (As P | 7.5        | 7.5 0.50 8.000  |           | 0           | 94.3      | 90        | 110           |      |          |      |
| Sulfate                          | 20         | 20 0.50 20.00   |           |             | 98.4      | 90        | 110           |      |          |      |

| Sample ID MB                     | SampT      | ype: ME       | BLK       | Tes         | tCode: El | PA Method | 300.0; Anions | 6    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|-----------|-----------|---------------|------|----------|------|
| Client ID: PBW                   | Batch      | 1D: <b>R1</b> | 5112      | F           | RunNo: 1  | 5112      |               |      |          |      |
| Prep Date:                       | Analysis D | ate: 11       | 1/26/2013 | S           | SeqNo: 4  | 36042     | Units: mg/L   |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Fluoride                         | ND         | 0.10          |           |             |           |           |               |      |          |      |
| Chloride                         | ND         | 0.50          |           |             |           |           |               |      |          |      |
| Bromide                          | ND         | 0.10          |           |             |           |           |               |      |          |      |
| Nitrogen, Nitrate (As N)         | ND         | 0.10          |           |             |           |           |               |      |          |      |
| Phosphorus, Orthophosphate (As P | ND         | 0.50          |           |             |           |           |               |      |          |      |
| Culfata                          | ND         | 0.50          |           |             |           |           |               |      |          |      |

| Sample ID LCS                    | SampT                     | ype: <b>LC</b> | S         | TestCode: EPA Method 300.0: Anions |          |          |             |      |          |      |  |
|----------------------------------|---------------------------|----------------|-----------|------------------------------------|----------|----------|-------------|------|----------|------|--|
| Client ID: LCSW                  | Batch                     | 1D: <b>R1</b>  | 5112      | F                                  | RunNo: 1 | 5112     |             |      |          |      |  |
| Prep Date:                       | Analysis Date: 11/26/2013 |                |           | 5                                  | SeqNo: 4 | 36043    | Units: mg/L |      |          |      |  |
| Analyte                          | Result                    | PQL            | SPK value | SPK Ref Val                        | %REC     | LowLimit | HighLimit · | %RPD | RPDLimit | Qual |  |
| Fluoride                         | 0.49                      | 0.10           | 0.5000    | 0                                  | 97.9     | 90       | 110         |      |          |      |  |
| Chloride                         | 4.9                       | 0.50           | 5.000     | 0                                  | 97.5     | 90       | 110         |      |          |      |  |
| Bromide                          | 2.6                       | 0.10           | 2.500     | 0                                  | 102      | 90       | 110         |      |          |      |  |
| Nitrogen, Nitrate (As N)         | 2.6                       | 0.10           | 2.500     | 0                                  | 103      | 90       | 110         |      |          |      |  |
| Phosphorus, Orthophosphate (As P | 4.9                       | 0.50           | 5.000     | 0                                  | 97.3     | 90       | 110         |      |          |      |  |
| Sulfate                          | 10                        | 0.50           | 10.00     | 0                                  | 99.9     | 90       | 110         |      |          |      |  |

| Sample ID A6             | SampT      | ype: CC       | V_6       | Tes         | TestCode: EPA Method 300.0: Anions |          |             |      |          |      |
|--------------------------|------------|---------------|-----------|-------------|------------------------------------|----------|-------------|------|----------|------|
| Client ID: BatchQC       | Batch      | ID: <b>R1</b> | 5112      | F           | RunNo: 15112                       |          |             |      |          |      |
| Prep Date:               | Analysis D | ate: 11       | /26/2013  | 8           | SeqNo: 4                           | 36054    | Units: mg/L |      |          |      |
| Analyte                  | Result     | PQL           | SPK value | SPK Ref Val | %REC                               | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                 | 2.3        | 0.10          | 2.400     | 0           | 97.7                               | 90       | 110         |      |          |      |
| Chloride                 | 12         | 0.50          | 12 00     | 0           | 101                                | 90       | 110         |      |          |      |
| Bromide                  | 12         | 0.10          | 12.00     | 0           | 101                                | 90       | 110         |      |          |      |
| Nitrogen, Nitrate (As N) | 7.7        | 0.10          | 7.200     | 0           | 107                                | 90       | 110         |      |          |      |

P

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit О
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

4.6

4.8

2.9

4.6

12

0.50

0.10

0.10

0.50

0.50

5.000

5.000

3.000

5.000

12.50

WO#: 1311B14 16-Dec-13

Client:

**AMEC** 

Project:

Chloride

Bromide

Sulfate

Nitrogen, Nitrate (As N)

Phosphorus, Orthophosphate (As P

Lightning Dock Geothermal Water Quality Moni

| Sample ID A6                     | SampT                                       | ype: CC       | V_6       | Test        | Code: El             |           |                                 |      |          |      |
|----------------------------------|---|---------------|-----------|-------------|----------------------|-----------|---------------------------------|------|----------|------|
| Client ID: BatchQC               | Batch                                       | ID: <b>R1</b> | 5112      | R           | tunNo: 1             | 5112      |                                 |      |          |      |
| Prep Date:                       | Analysis D                                  | ate: 11       | /26/2013  | S           | SeqNo: <b>436054</b> |           |                                 |      |          |      |
| Analyte                          | Result                                      | PQL           | SPK value | SPK Ref Val | %REC                 | LowLimit  | HighLimit                       | %RPD | RPDLimit | Qual |
| Phosphorus, Orthophosphate (As P | 12  | 0.50          | 12.00     | 0           | 98.5                 | 90        | 110                             |      |          |      |
| Sulfate                          | 30  | 0.50          | 30.00     | 0           | 102                  | 90        | 110                             |      |          |      |
| Sample ID A4                     | SampT                                       | ype: CC       | V_4       | Tes         | tCode: El            | PA Method | 300.0: Anion                    | S    |          |      |
| Client ID: BatchQC               | Batch ID: <b>R15112</b> RunNo: <b>15112</b> |               |           |             |                      |           |                                 |      |          |      |
|                                  |   |               | · · · -   |             |                      | 3112      |                                 |      |          |      |
| Prep Date:                       | Analysis D                                  | ate: 11       | /26/2013  |             | SeqNo: 4             |           | Units: mg/L                     |      |          |      |
| Prep Date:                       | Analysis D<br>Result                        | ate: 11       | /26/2013  |             |                      |           | Units: <b>mg/L</b><br>HighLimit | %RPD | RPDLimit | Qual |

0

0

0

0

0

92.8

96.7

97.3

92.9

94.4

90

90

90

90

90

110 110

110

110

110

| Sample ID A5                     | SampT      | ype: CC       | :V_5      | Tes         | tCode: El    | s        |             |      |          |      |  |  |
|----------------------------------|------------|---------------|-----------|-------------|--------------|----------|-------------|------|----------|------|--|--|
| ient ID: BatchQC                 | Batch      | ID: <b>R1</b> | 5112      | F           | RunNo: 15112 |          |             |      |          |      |  |  |
| rep Date:                        | Analysis D | ate: 11       | /26/2013  | 8           | SeqNo: 4     | 36078    | Units: mg/L |      |          |      |  |  |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC         | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |  |  |
| Fluoride                         | 1.5        | 0.10          | 1.600     | 0           | 96.3         | 90       | 110         |      |          |      |  |  |
| Chloride                         | 7.8        | 0.50          | 8.000     | 0           | 96.9         | 90       | 110         |      |          |      |  |  |
| Bromide                          | 8.0        | 0.10          | 8.000     | 0           | 99.6         | 90       | 110         |      |          |      |  |  |
| Nitrogen, Nitrate (As N)         | 4.9        | 0.10          | 4.800     | 0           | 103          | 90       | 110         |      |          |      |  |  |
| Phosphorus, Orthophosphate (As P | 7.7        | 0.50          | 8.000     | 0           | 96.3         | 90       | 110         |      |          |      |  |  |
| Sulfate                          | 20         | 0.50          | 20.00     | 0           | 98.6         | 90       | 110         |      |          |      |  |  |

| Sample ID A4                     | SampT      | ype: CC       | V_4       | Tes           | tCode: El           |          |             |      |          |      |  |
|----------------------------------|------------|---------------|-----------|---------------|---------------------|----------|-------------|------|----------|------|--|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5112      | F             | RunNo: <b>15112</b> |          |             |      |          |      |  |
| Prep Date:                       | Analysis D | ate: 11       | 1/26/2013 | SeqNo: 436090 |                     |          | Units: mg/L |      |          |      |  |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val   | %REC                | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |  |
| Fluoride                         | 0.95       | 0.10          | 1.000     | 0             | 94.6                | 90       | 110         |      |          |      |  |
| Chloride                         | 4.6        | 0.50          | 5.000     | 0             | 92.7                | 90       | 110         |      |          |      |  |
| Bromide                          | 4.8        | 0.10          | 5.000     | 0             | 96.9                | 90       | 110         |      |          |      |  |
| Nitrogen, Nitrate (As N)         | 2.9        | 0.10          | 3.000     | 0             | 97.5                | 90       | 110         |      |          |      |  |
| Phosphorus, Orthophosphate (As P | 4.6        | 0.50          | 5.000     | 0             | 92.8                | 90       | 110         |      |          |      |  |
| Sulfate                          | 12         | 0.50          | 12.50     | 0             | 94.1                | 90       | 110         |      |          |      |  |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 52 of 71
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

WO#: **1311B14 16-Dec-13** 

Client:

**AMEC** 

Project: Lightning Dock Geothermal Water Quality Moni

| Sample ID A6                     | SampT                               | Гуре: СС         | V_6       | TestCode: EPA Method 300.0: Anions |                  |           |               |             |               |      |
|----------------------------------|-------------------------------------|------------------|-----------|------------------------------------|------------------|-----------|---------------|-------------|---------------|------|
| Client ID: BatchQC               | Batch                               | h ID: <b>R1</b>  | 5112      | F                                  | RunNo: 1         | 5112      |               |             |               |      |
| Prep Date:                       | Analysis D                          | Date: <b>1</b> 1 | 1/27/2013 | 8                                  | SeqNo: 4:        | 36102     | Units: mg/L   |             |               |      |
| Analyte                          | Result                              | PQL              | SPK value | SPK Ref Val                        | %REC             | LowLimit  | HighLimit     | %RPD        | RPDLimit      | Qual |
| Fluoride                         | 2.3                                 | 0.10             | 2.400     | 0                                  | 97.2             | 90        | 110           |             |               |      |
| Chloride                         | 12                                  | 0.50             | 12.00     | 0                                  | 100              | 90        | 110           |             |               |      |
| Bromide                          | 12                                  | 0.10             | 12.00     | 0                                  | 100              | 90        | 110           |             |               |      |
| Nitrogen, Nitrate (As N)         | 7.7                                 | 0.10             | 7.200     | 0                                  | 107              | 90        | 110           |             |               |      |
| Phosphorus, Orthophosphate (As P | 12                                  | 0.50             | 12.00     | 0                                  | 98.8             | 90        | 110           |             |               |      |
| Sulfate                          | 30                                  | 0.50             | 30.00     | 0                                  |                  |           |               |             |               |      |
| Sample ID A4                     | Samp1                               | Гуре: СС         | CV_4      | Tes                                | tCode: El        | PA Method | 6             |             |               |      |
| Client ID: BatchQC               | Batcl                               | h ID: <b>R1</b>  | 5112      | F                                  | RunNo: 1         | 5112      |               |             |               |      |
| Prep Date:                       | rep Date: Analysis Date: 11/27/2013 |                  |           |                                    |                  |           | Units: mg/L   |             |               |      |
| Analyte                          | Result                              | PQL              | SPK value | SPK Ref Val                        | %REC             | LowLimit  | HighLimit     | %RPD        | RPDLimit      | Qual |
| Fluoride                         | 0.96                                | 0.10             | 1.000     | 0                                  | 96.1             | 90        | 110           |             |               |      |
| Chloride                         | 4.6                                 | 0.50             | 5.000     | 0                                  | 93.0             | 90        | 110           |             |               |      |
| Bromide                          | 4.9                                 | 0.10             | 5.000     | 0                                  | 97.6             | 90        | 110           |             |               |      |
| Nitrogen, Nitrate (As N)         | 2.9                                 | 0.10             | 3.000     | 0                                  | 97.9             | 90        | 110           |             |               |      |
| Phosphorus, Orthophosphate (As P | 4.7                                 | 0.50             | 5.000     | 0                                  | 93.6             | 90        | 110           |             |               |      |
| Sulfate                          | 12                                  | 0.50             | 12.50     | 0                                  | 95.0             | 90        | 110           |             |               |      |
| Sample ID A5                     | Samp1                               | Гуре: СС         | V_5       | Tes                                | tCode: <b>El</b> | PA Method | 5             |             |               |      |
| Client ID: BatchQC               | Batcl                               | h ID: <b>R1</b>  | 5178      | F                                  | RunNo: 1         | 5178      |               |             |               |      |
| Prep Date:                       | Analysis [                          | Date: <b>1</b> ° | 1/27/2013 | 5                                  | SeqNo: 4         | 37559     | Units: mg/L   |             |               |      |
| Analyte                          | Result                              | PQL              | SPK value | SPK Ref Val                        | %REC             | LowLimit  | HighLimit     | %RPD        | RPDLimit      | Qual |
| Chloride                         | 7.8                                 | 0.50             | 8.000     | 0                                  | 98.0             | 90        | 110           |             |               |      |
| Sulfate                          | 20                                  | 0.50             | 20.00     | 0                                  | 101              | 90        | 110           |             |               |      |
| Sample ID MB                     | Samp                                | Гуре: М          | 3LK       | Tes                                | tCode: El        | PA Method | 300.0: Anions | <del></del> | -556666666666 |      |
| Client ID: PBW                   | Batc                                | h ID: <b>R1</b>  | 5178      | F                                  | RunNo: 1         | 5178      |               |             |               |      |
| Prep Date:                       | Analysis [                          | Date: <b>1</b>   | 1/27/2013 | ξ                                  | SeqNo: 4         | 37561     | Units: mg/L   |             |               |      |
| Analyte                          | Result                              | PQL              | SPK value | SPK Ref Val                        | %REC             | LowLimit  | HighLimit     | %RPD        | RPDLimit      | Qual |
| Chloride                         | ND                                  | 0.50             |           |                                    |                  |           |               |             |               |      |
| Sulfate                          | ND                                  | 0.50             |           | <del>.</del>                       |                  |           |               |             |               |      |
| Sample ID LCS                    | Samp                                | Гуре: <b>LC</b>  | S         | TestCode: EPA Method 300.0: Anions |                  |           |               |             |               |      |

#### Qualifiers:

Analyte

Prep Date:

Client ID: LCSW

\* Value exceeds Maximum Contaminant Level.

Batch ID: R15178

Analysis Date: 11/27/2013

Result

- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

Units: mg/L

HighLimit

%RPD

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

RunNo: 15178

SeqNo: 437562

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

SPK value SPK Ref Val %REC LowLimit

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**RPDLimit** 

### all Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

| Project:   | I       | Lightning D | ock Geo  | herma          | ıl Water Qu | ality Moni          |            |             |               |      |          |      |
|------------|---------|-------------|--|----------------|-------------|---------------------|------------|-------------|---------------|------|----------|------|
| Sample ID  | LCS     |             | SampTy   | pe: LC         | s           | Tes                 | tCode: EF  | PA Method   | 300.0: Anions | 3    |          |      |
| Client ID: | LCSW    |             | Batch  | ID: <b>R1</b>  | 5178        | F                   | RunNo: 1   | 5178        |               |      |          |      |
| Prep Date: |         | Α           | nalysis Da   | te: <b>1</b> 1 | 1/27/2013   | (                   | SeqNo: 43  | 37562       | Units: mg/L   |      |          |      |
| Analyte    |         |             | Result   | PQL            | SPK value   | SPK Ref Val         | %REC       | LowLimit    | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride   |         |             | 4.7  | 0.50           | 5.000       | 0                   | 94.4       | 90          | 110           |      |          |      |
| Sulfate    |         |             | 9.8  | 0.50           | 10.00       | 0                   | 97.7       | 90          | 110           |      |          |      |
| Sample ID  | A6      |             | SampTy   | pe: CC         | CV_6        | Tes                 | tCode: Ef  | PA Method   | 300.0: Anions | 3    |          |      |
| Client ID: | BatchQC | ;           | Batch  | ID: <b>R1</b>  | 5178        | F                   | RunNo: 1   | 5178        |               |      |          |      |
| Prep Date: |         | Α           | nalysis Da   | te: 11         | 1/27/2013   | \$                  | SeqNo: 4   | 37571       | Units: mg/L   |      |          |      |
| Analyte    |         |             | Result   | PQL            | SPK value   | SPK Ref Val         | %REC       | LowLimit    | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride   |         |             | 12   | 0.50           | 12.00       | 0                   | 102        | 90          | 110           |      |          |      |
| Sulfate    |         |             | 31<br>   | 0.50           | 30.00       | 0                   | 105        | 90          | 110           |      |          |      |
| Sample ID  | A4      |             | SampType: CCV_4 TestCode: EPA Method 300.0: Anions |                |             |                     |            |             |               |      |          |      |
| Client ID: | BatchQC | ;           | Batch  | D: <b>R1</b>   | 5178        | RunNo: <b>15178</b> |            |             |               |      |          |      |
| Prep Date: |         | Α           | nalysis Da   | te: 11         | 1/27/2013   | \$                  | 37583      | Units: mg/L |               |      |          |      |
| Analyte    |         |             | Result   | PQL            | SPK value   | SPK Ref Val         | %REC       | LowLimit    | HighLimit     | %RPD | RPDLimit | Qual |
| opide      |         |             | 4.7  | 0.50           | 5.000       | 0                   | 94.5       | 90          | 110           |      |          |      |
| .fate      | -       |             | 12   | 0.50           | 12.50       | 0                   | 96.7       | 90          | 110           |      |          |      |
| Sample ID  | A5      |             | SampTy   | pe: CC         | CV_5        | Tes                 | tCode: El  | PA Method   | 300.0: Anions | 5    |          |      |
| Client ID: | BatchQC | ;           | Batch  | ID: <b>R1</b>  | 5178        | RunNo: 15178        |            |             |               |      |          |      |
| Prep Date: |         | Α           | nalysis Da   | ite: 1         | 1/27/2013   | :                   | SeqNo: 4   | 37595       | Units: mg/L   |      |          |      |
| Analyte    |         |             | Result   | PQL            | SPK value   | SPK Ref Val         | %REC       | LowLimit    | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride   |         |             | 7.8  | 0.50           | 8.000       | 0                   | 97.7       | 90          | 110           |      |          |      |
| Sulfate    |         |             | 20   | 0.50           | 20.00       | 0                   | 100        | 90          | 110           |      |          |      |
| Sample ID  | A4      |             | SampTy   | pe: <b>C</b> ( | CV_4        | Tes                 | stCode: El | PA Method   | 300.0: Anion  | s    |          |      |
| Client ID: | BatchQC |             | Batch  | ID: <b>R1</b>  | 5178        | i                   | RunNo: 1   | 5178        |               |      |          |      |
| Prep Date: |         | Α           | nalysis Da   | ite: 1         | 1/27/2013   | ;                   | SeqNo: 4   | 37611       | Units: mg/L   |      |          |      |
| Analyte    |         |             | Result   | PQL            | SPK value   | SPK Ref Val         | %REC       | LowLimit    | HighLimit     | %RPD | RPDLimit | Qual |
| Chloride   |         |             | 4.7  | 0.50           | 5.000       | 0                   | 94.4       | 90          | 110           |      |          |      |
| Sulfate    |         |             | 12   | 0.50           | 12.50       | 0                   | 96.5       | 90          | 110           |      |          |      |
| Sample ID  | A6      |             | SampTy   | pe: <b>C</b> ( | CV_6        | Tes                 | stCode: E  | PA Method   | 300.0: Anion  | s    |          |      |
| Client ID: | BatchQC |             | Batch  | ID: <b>R</b> 1 | 5178        | 1                   | RunNo: 1   | 5178        |               |      |          |      |
| Prep Date: |         | А           | nalysis Da   | ite: 1         | 1/28/2013   | :                   | SeqNo: 4   | 37623       | Units: mg/L   |      |          |      |
| Analyte    |         |             | Result   | PQL            | SPK value   | SPK Ref Val         | %REC       | LowLimit    | HighLimit     | %RPD | RPDLimit | Qual |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit Ο
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. P

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Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14 16-Dec-13

Client:

**AMEC** 

| Project:        | Lightnin | g Dock Geo  | therma          | l Water Qu | ality Moni    |              |           |              |      |          |      |
|-----------------|----------|-------------|-----------------|------------|---------------|--------------|-----------|--------------|------|----------|------|
| Sample ID       | A6       | SampT       | ype: CC         | V_6        | Test          | Code: E      | PA Method | 300.0: Anion | 5    |          |      |
| Client ID:      | BatchQC  | Batch       | ID: <b>R1</b>   | 5178       | R             | lunNo: 1     | 5178      |              |      |          |      |
| Prep Date:      |          | Analysis Da | ate: 11         | 1/28/2013  | S             | eqNo: 4      | 37623     | Units: mg/L  |      |          |      |
| Analyte         |          | Result      | PQL             | SPK value  | SPK Ref Val   | %REC         | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Chloride        |          | 12          | 0.50            | 12.00      | 0             | 102          | 90        | 110          |      |          |      |
| Sulfate         |          | 31          | 0.50            | 30.00      | 0             | 105          | 90        | 110          |      |          |      |
| Sample ID       | A4       | SampT       | ype: CC         | CV_4       | Test          | Code: E      |           |              |      |          |      |
| Client ID:      | BatchQC  | Batch       | ID: <b>R1</b>   | 5178       | R             | lunNo: 1     | 5178      |              |      |          |      |
| Prep Date:      |          | Analysis Da | ate: 1          | 1/28/2013  | S             | SeqNo: 4     | 37635     | Units: mg/L  |      |          |      |
| Analyte         |          | Result      | PQL             | SPK value  | SPK Ref Val   | %REC         | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Chloride        |          | 4.7         | 0.50            | 5.000      | 0             | 94.6         | 90        | 110          |      |          |      |
| Sulfate         |          | 12<br>      | 0.50            | 12.50      | 0             | 97.0         | 90        | 110          |      |          |      |
| Sample ID       | A5       | SampT       | ype: CC         | CV_5       | Tes           | tCode: E     |           |              |      |          |      |
| Client ID:      | BatchQC  | Batch       | ID: <b>R1</b>   | 5178       | F             | RunNo: 1     | 5178      |              |      |          |      |
| Prep Date:      |          | Analysis D  | ate: 1'         | 1/28/2013  | SeqNo: 437647 |              |           | Units: mg/L  |      |          |      |
| Analyte         |          | Result      | PQL             | SPK value  | SPK Ref Val   | %REC         | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Chloride        |          | 7.8         | 0.50            | 8.000      | 0             | 98.0         | 90        | 110          |      |          |      |
| Sulfate         |          | 20          | 0.50            | 20.00      | 0             | 100          | 90        | 110          |      |          |      |
| Sample ID       | A4       | SampT       | ype: <b>C</b> ( | CV_4       | Tes           | tCode: E     | PA Method | 300.0: Anion | s    |          |      |
| Client ID:      | BatchQC  | Batch       | ID: <b>R1</b>   | 5178       | F             | RunNo: 15178 |           |              |      |          |      |
| Prep Date:      |          | Analysis D  | ate: 1          | 1/28/2013  | S             | SeqNo: 4     | 137653    | Units: mg/L  |      |          |      |
| Analyte         |          | Result      | PQL             | SPK value  | SPK Ref Val   | %REC         | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Chloride        |          | 4.7         | 0.50            | 5.000      | 0             | 94.8         | 90        | 110          |      |          |      |
| Sulfate         |          | 12          | 0.50            | 12.50      | 0             | 97.2         | 90        | 110          |      |          |      |
| Sample ID       | A5       | SampT       | ype: C0         | CV_5       | Tes           | tCode: E     | PA Method | 300.0: Anion | s    |          |      |
| Client ID:      | BatchQC  | Batch       | ID: R1          | 5322       | F             | RunNo: 1     | 15322     |              |      |          |      |
| Prep Date:      |          | Analysis D  | ate: 12         | 2/6/2013   | 8             | SeqNo: 4     | 141502    | Units: mg/L  |      |          |      |
| Analyte         |          | Result      | PQL             | SPK value  | SPK Ref Val   | %REC         | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Bromide         |          | 8.2         | 0.10            | 8.000      | 0             | 102          | 90        | 110          |      |          |      |
| Nitrate+Nitrite | as N     | 8.1         | 0.20            | 8.000      | 0             | 102          | 90        | 110          |      |          |      |
| Sample ID       | A6       | SampT       | уре: <b>С</b> С | CV_6       | Tes           | tCode: E     | PA Method | 300.0: Anion | s    |          | 1111 |
| Client ID:      | BatchQC  | Batch       | ID: <b>R</b> 1  | 5322       | F             | RunNo: 1     | 15322     |              |      |          |      |
| Prep Date:      |          | Analysis D  | ate: 12         | 2/6/2013   | 5             | SeqNo: 4     | 141514    | Units: mg/L  |      |          |      |
| Analyte         |          | Result      | PQL             | SDK value  | SPK Ref Val   | %PEC         | Lowl imit | HighLimit    | %RPD | RPDLimit | Qual |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits
- О RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

| Client: | AMEC |
|---------|------|
|         |      |

| Client:            | AMEC       |             |               |             |             |           |           |               |      |          |      |
|--------------------|------------|-------------|---------------|-------------|-------------|-----------|-----------|---------------|------|----------|------|
| Project:           | Lightning  | Dock Geo    | therma        | ıl Water Qu | ality Moni  |           |           |               |      |          |      |
| Sample ID A        | 16         | SampTy      | pe: CC        | :V_6        | Tes         | tCode: El | PA Method | 300.0: Anions |      |          |      |
| Client ID: E       | BatchQC    | Batch       | ID: <b>R1</b> | 5322        | F           | RunNo: 1  | 5322      |               |      |          |      |
| Prep Date:         |            | Analysis Da | ate: 12       | 2/6/2013    | 5           | SeqNo: 4  | 41514     | Units: mg/L   |      |          |      |
| Analyte            |            | Result      | PQL           | SPK value   | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Bromide            |            | 13          | 0.10          | 12.00       | 0           | 104       | 90        | 110           |      |          |      |
| Nitrate+Nitrite as | N          | 13          | 0.20          | 12.00       | 0           | 105       | 90        | 110           |      |          |      |
| Sample ID A        | 4          | SampTy      | pe: CC        | CV_4        | Tes         | tCode: El | PA Method | 300.0: Anions | 5    |          |      |
| Client ID: E       | BatchQC    | Batch       | ID: <b>R1</b> | 5322        | F           | RunNo: 1  | 5322      |               |      |          |      |
| Prep Date:         |            | Analysis Da | ate: 12       | 2/6/2013    | \$          | SeqNo: 4  | 41526     | Units: mg/L   |      |          |      |
| Analyte            |            | Result      | PQL           | SPK value   | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Bromide            |            | 5.0         | 0.10          | 5.000       | 0           | 99.7      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as | N          | 4.8         | 0.20          | 5.000       | 0           | 96.5      | 90        | 110           |      |          |      |
| Sample ID N        | ИВ         | SampT       | ype: ME       | BLK         | Tes         | tCode: E  | PA Method | 300.0: Anions | 3    |          |      |
| Client ID: F       | PBW        | Batch       | ID: <b>R1</b> | 5322        | F           | RunNo: 1  | 5322      |               |      |          |      |
| Prep Date:         |            | Analysis Da | ate: 12       | 2/6/2013    | 5           | SeqNo: 4  |           |               |      |          |      |
| Analyte            |            | Result      | PQL           | SPK value   | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| mide               |            | ND          | 0.10          |             |             |           |           |               |      |          |      |
| ate+Nitrite as     | N          | ND          | 0.20          |             |             |           |           |               |      |          |      |
| Sample ID L        | .cs        | SampT       | ype: LC       | s           | Tes         | tCode: E  | PA Method | 300.0: Anions | 5    |          |      |
| Client ID: L       | .csw       | Batch       | ID: <b>R1</b> | 5322        | F           | RunNo: 1  | 5322      |               |      |          |      |
| Prep Date:         |            | Analysis Da | ate: 12       | 2/6/2013    | 5           | SeqNo: 4  | 41531     | Units: mg/L   |      |          |      |
| Analyte            |            | Result      | PQL           | SPK value   | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Bromide            |            | 2.3         | 0.10          | 2.500       | 0           | 93.8      | 90        | 110           |      |          |      |
| Nitrate+Nitrite as | N          | 3.4         | 0.20          | 3.500       | 0           | 97.8      | 90        | 110           |      |          |      |
| Sample ID A        | <b>\</b> 5 | SampT       | ype: CC       | V_5         | Tes         | tCode: E  | PA Method | 300.0: Anion  | 5    |          |      |
| Client ID:         | BatchQC    | Batch       | ID: <b>R1</b> | 5322        | F           | RunNo: 1  | 5322      |               |      |          |      |
| Prep Date:         |            | Analysis Da | ate: 12       | 2/6/2013    | 5           | SeqNo: 4  | 41538     | Units: mg/L   |      |          |      |
| Analyte            |            | Result      | PQL           | SPK value   | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |
| Bromide            |            | 8.1         | 0.10          | 8.000       | 0           | 102       | 90        | 110           |      |          |      |
| Nitrate+Nitrite as | N          | 8.0         | 0.20          | 8.000       | 0           | 100       | 90        | 110           |      |          |      |
| Sample ID A        | 76         | SampT       | ype: CC       | CV_6        | Tes         | tCode: E  | PA Method | 300.0: Anion  | 5    |          |      |
| Client ID: E       | BatchQC    | Batch       | ID: R1        | 5322        | F           | RunNo: 1  | 5322      |               |      |          |      |
| Prep Date:         |            | Analysis Da | ate: 12       | 2/7/2013    | :           | SeqNo: 4  | 41550     | Units: mg/L   |      |          |      |
| Analyte            |            | Result      | PQL           | SPK value   | SPK Ref Val | %REC      | LowLimit  | HighLimit     | %RPD | RPDLimit | Qual |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- Ο RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1311B14** *16-Dec-13* 

| Client: AMEC Project: Lightning  | Dock Geoth    | ermal Water Qu | ality Moni  |                     |                   |               |      |          |      |
|----------------------------------|---------------|----------------|-------------|---------------------|-------------------|---------------|------|----------|------|
| Sample ID A6                     | SampType      | e: CCV_6       | Tes         | tCode: EPA          | Method            | 300.0: Anions | ;    |          |      |
| Client ID: BatchQC               | Batch ID      | : R15322       | F           | RunNo: <b>153</b> 2 | 22                |               |      |          |      |
| Prep Date:                       | Analysis Date | : 12/7/2013    | S           | SeqNo: <b>441</b> ! | 550               | Units: mg/L   |      |          |      |
| Analyte                          | Result P      | QL SPK value   | SPK Ref Val | %REC L              | _owLimit          | HighLimit     | %RPD | RPDLimit | Qual |
| Bromide                          |               | 0.10 12.00     | 0           | 104                 | 90                | 110           |      |          |      |
| Nitrate+Nitrite as N             | 13            | 0.20 12.00     | 0           | 104                 | 90                | 110           |      |          |      |
| Sample ID A4                     | SampType      | e: CCV_4       | Tes         | tCode: EPA          | Method            | 300.0: Anions | 3    |          |      |
| Client ID: BatchQC               | Batch ID      | : R15322       | F           | RunNo: <b>153</b> 2 | 22                |               |      |          |      |
| Prep Date:                       | Analysis Date | 12/7/2013      | S           | SeqNo: <b>441</b>   | 562               | Units: mg/L   |      |          |      |
| Analyte                          | Result P      | QL SPK value   | SPK Ref Val | %REC L              | _owLimit          | HighLimit     | %RPD | RPDLimit | Quai |
| Bromide                          | 5.0           | 0.10 5.000     | 0           | 99.7                | 90                | 110           |      |          |      |
| Nitrate+Nitrite as N             | 4.8           | 0.20 5.000     | 0           | 96.6<br>            | 90                | 110           |      |          |      |
| Sample ID A5                     | SampType      | e: CCV_5       | Tes         | tCode: <b>EPA</b>   | ;                 |               |      |          |      |
| Client ID: BatchQC               | Batch ID      | : R15322       | F           | RunNo: <b>153</b> : | 22                |               |      |          |      |
| Prep Date:                       | Analysis Date | : 12/7/2013    | 8           | SeqNo: 441568 Unit  |                   |               |      |          |      |
| Analyte                          | Result F      | QL SPK value   | SPK Ref Val | %REC L              | _ow <b>L</b> imit | HighLimit     | %RPD | RPDLimit | Qual |
| Bromide                          | 8.2           | 0.10 8.000     | 0           | 102                 | 90                | 110           |      |          |      |
| Nitrate+Nitrite as N             | 8.0           | 0.20 8.000     | 0           | 101                 | 90                | 110           |      |          |      |
| Sample ID A4                     | SampType      | e: CCV_4       | Tes         | tCode: EPA          | Method            | 300.0: Anions | 3    |          | ·    |
| Client ID: BatchQC               | Batch ID      | : R15376       | F           | RunNo: <b>153</b>   | 76                |               |      |          |      |
| Prep Date:                       | Analysis Date | 12/9/2013      | 8           | SeqNo: <b>443</b>   | 035               | Units: mg/L   |      |          |      |
| Analyte                          | Result F      | QL SPK value   | SPK Ref Val | %REC L              | _owLimit          | HighLimit     | %RPD | RPDLimit | Qual |
| Phosphorus, Orthophosphate (As P | 4.6           | 0.50 5.000     | 0           | 92.7                | 90                | 110           |      |          |      |
| Sample ID A5                     | SampType      | : CCV_5        | Tes         | tCode: EPA          | Method            | 300.0: Anions | ;    |          |      |
| Client ID: BatchQC               | Batch ID      | : R15376       | F           | RunNo: <b>153</b>   | 76                |               |      |          |      |
| Prep Date:                       | Analysis Date | 12/9/2013      | S           | SeqNo: <b>443</b>   | 047               | Units: mg/L   |      |          |      |
| Analyte                          | Result F      | QL SPK value   | SPK Ref Val | %REC L              | LowLimit          | HighLimit     | %RPD | RPDLimit | Qual |
| Phosphorus, Orthophosphate (As P |               | 0.50 8.000     | 0           | 96.5                | 90                | 110           |      |          |      |
| Sample ID A6                     | SampType      | e: CCV_6       | Tes         | tCode: <b>EPA</b>   | Method            | 300.0: Anions | ;    |          |      |
| Client ID: BatchQC               |               | R15376         |             | RunNo: 153          |                   |               |      |          |      |
| Prep Date:                       | Analysis Date |                |             | SeqNo: 443          |                   | Units: mg/L   |      |          |      |
| Analyte                          | Result F      | QL SPK value   | SPK Ref Val | %REC L              | _owLimit          | HighLimit     | %RPD | RPDLimit | Qual |

#### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

12

0.50

12.00

E Value above quantitation range

Phosphorus, Orthophosphate (As P

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
  S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

90

110

ND Not Detected at the Reporting Limit

99.7

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

0

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#### all Environmental Analysis Laboratory, Inc.

WO#: 1311B14 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB

SampType: MBLK

TestCode: EPA Method 300.0; Anions

Client ID:

PBW

Batch ID: R15376

RunNo: 15376

Prep Date:

Analyte

Analysis Date: 12/9/2013 PQL

SeqNo: 443069

Units: mg/L

HighLimit

%RPD **RPDLimit** 

Qual

Phosphorus, Orthophosphate (As P

ND 0.50

Result

Sample ID LCS

SampType: LCS

TestCode: EPA Method 300.0: Anions

Client ID: LCSW

Batch ID: R15376

RunNo: 15376

Units: mg/L

Prep Date:

Analysis Date: 12/9/2013

SeqNo: 443070

Analyte Phosphorus, Orthophosphate (As P Result **PQL** 0.50 SPK value SPK Ref Val

%REC 0

SPK value SPK Ref Val %REC LowLimit

HighLimit LowLimit

**RPDLimit** Qual

4.8

5.000

95.5

90

Sample ID A4

SampType: CCV\_4

Analysis Date: 12/9/2013

TestCode: EPA Method 300.0: Anions

HighLimit

110

Client ID: BatchQC Batch ID: R15376

Result

RunNo: 15376 SeqNo: 443071

Units: mg/L

Analyte

Prep Date:

**PQL** 

SPK value SPK Ref Val

%REC LowLimit

%RPD

%RPD

**RPDLimit** Qual

Phosphorus, Orthophosphate (As P

4.7

0.50

5.000

0

94.5

90

110

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded

Sample pH greater than 2 for VOA and TOC only.

- Not Detected at the Reporting Limit ND
- Reporting Detection Limit RL

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10569 SampType: MBLK TestCode: EPA Method 418.1: TPH

Client ID: PBW Batch ID: 10569 RunNo: 15129

Prep Date: 11/27/2013 Analysis Date: 11/27/2013 SeqNo: 436536 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Petroleum Hydrocarbons, TR ND 1.0

Sample ID LCS-10569 SampType: LCS TestCode: EPA Method 418.1: TPH

Client ID: LCSW Batch ID: 10569 RunNo: 15129

Prep Date: 11/27/2013 Analysis Date: 11/27/2013 SeqNo: 436537 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Petroleum Hydrocarbons, TR 4.6 1.0 5.000 0 91.4 80 120

Sample ID LCSD-10569 SampType: LCSD TestCode: EPA Method 418.1: TPH

Client ID: LCSS02 Batch ID: 10569

Prep Date: 11/27/2013 Analysis Date: 11/27/2013 SeqNo: 436538 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

RunNo: 15129

Petroleum Hydrocarbons, TR 4.6 1.0 5.000 0 91.4 80 120 0 20

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Analyte detected in the associated Method Biant

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### all Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb               | SampT      | ype: Mi       | BLK       | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|--------------------------------|------------|---------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: PBW                 | Batch      | ID: R1        | 5104      | F           | RunNo: 1  | 5104      |             |        |          |      |
| Prep Date:                     | Analysis D | ate: <b>1</b> | 1/26/2013 | S           | SeqNo: 4  | 35717     | Units: µg/L |        |          |      |
| Analyte                        | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Toluene                        | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Ethylbenzene                   | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Naphthalene                    | ND         | 2.0           |           |             |           |           |             |        |          |      |
| 1-Methylnaphthalene            | ND         | 4.0           |           |             |           | •         |             |        |          |      |
| 2-Methylnaphthalene            | ND         | 4.0           |           |             |           |           |             |        |          |      |
| Acetone                        | ND         | 10            |           |             |           |           |             |        |          |      |
| Bromobenzene                   | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Bromodichloromethane           | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Bromoform                      | ND         | 1.0           |           |             |           |           |             |        |          |      |
| comomethane                    | ND         | 3.0           |           |             |           |           |             |        |          |      |
| Rutanone                       | ND         | 10            |           |             |           |           |             |        |          |      |
| arbon disulfide                | ND         | 10            |           |             |           |           |             |        |          |      |
| Carbon Tetrachloride           | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Chlorobenzene                  | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Chloroethane                   | ND         | 2.0           |           |             |           |           |             |        |          |      |
| Chloroform                     | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Chloromethane                  | ND         | 3.0           |           |             |           |           |             |        |          |      |
| 2-Chlorotoluene                | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 4-Chlorotoluene                | ND         | 1.0           |           |             |           |           |             |        |          |      |
| cis-1,2-DCE                    | ND         | 1.0           |           |             |           |           |             |        |          |      |
| cis-1,3-Dichloropropene        | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2-Dibromo-3-chloropropane    | ND         | 2.0           |           |             |           |           |             |        |          |      |
| Dibromochloromethane           | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Dibromomethane                 | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2-Dichlorobenzene            | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,3-Dichlorobenzene            | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,4-Dichlorobenzene            | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Dichlorodifluoromethane        | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethane             | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethene             | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2-Dichloropropane            | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,3-Dichloropropane            | ND         | 1.0           |           |             |           |           |             |        |          |      |
|                                | ND         | 2.0           |           |             |           |           |             |        |          |      |
| 2,2-Dichloropropane            | ND         | 2.0           |           |             |           |           |             |        |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1311B14** *16-Dec-13* 

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 5mL rb            | SampT      | ype: MB         | LK        | Test        | tCode: E | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|-----------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch      | 1D: <b>R1</b> 5 | 5104      | R           | RunNo: 1 | 5104      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 11         | /26/2013  | S           | SeqNo: 4 | 35717     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,1-Dichloropropene         | ND         | 1.0             |           |             |          |           |             |        |          |      |
| Hexachlorobutadiene         | ND         | 1.0             |           |             |          |           |             |        |          |      |
| 2-Hexanone                  | ND         | 10              |           |             |          |           |             |        |          |      |
| Isopropylbenzene            | ND         | 1.0             |           |             |          |           |             |        |          |      |
| 4-Isopropyltoluene          | ND         | 1.0             |           |             |          |           |             |        |          |      |
| 4-Methyl-2-pentanone        | ND         | 10              |           |             |          |           |             |        |          |      |
| Methylene Chloride          | ND         | 3.0             |           |             |          |           |             |        |          |      |
| n-Butylbenzene              | ND         | 3.0             |           |             |          |           |             |        |          |      |
| n-Propylbenzene             | ND         | 1.0             |           |             |          |           |             |        |          |      |
| sec-Butylbenzene            | ND         | 1.0             |           |             |          |           |             |        |          |      |
| Styrene                     | ND         | 1.0             |           |             |          |           |             |        |          |      |
| tert-Butylbenzene           | ND         | 1.0             |           |             |          |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND         | 1.0             |           |             |          |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND         | 2.0             |           |             |          |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND         | 1.0             |           |             |          |           |             |        |          |      |
| trans-1,2-DCE               | ND         | 1.0             |           |             |          |           |             |        |          |      |
| trans-1,3-Dichloropropene   | ND         | 1.0             |           |             |          |           |             |        |          |      |
| 1,2,3-Trichlorobenzene      | ND         | 1.0             |           |             |          |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND         | 1.0             |           |             |          |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND         | 1.0             |           |             |          |           |             |        |          |      |
| 1,1,2-Trichloroethane       | ND         | 1.0             |           |             |          |           |             |        |          |      |
| Trichloroethene (TCE)       | ND         | 1.0             |           |             |          |           |             |        |          |      |
| Trichlorofluoromethane      | ND         | 1.0             |           |             |          |           |             |        |          |      |
| 1,2,3-Trichloropropane      | ND         | 2.0             |           |             |          |           |             |        |          |      |
| Vinyl chloride              | ND         | 1.0             |           |             |          |           |             |        |          |      |
| Xylenes, Total              | ND         | 1.5             |           |             |          |           |             |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.8        |                 | 10.00     |             | 97.9     | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 10         |                 | 10.00     |             | 104      | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 10         |                 | 10.00     |             | 103      | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 9.7        |                 | 10.00     |             | 97.4     | 70        | 130         |        |          |      |

| Sample ID 100ng ics | SampT      | ype: LC       | S         | Tes         | tCode: El | ATILES   |             |      |          |      |
|---------------------|------------|---------------|-----------|-------------|-----------|----------|-------------|------|----------|------|
| Client ID: LCSW     | Batch      | ID: <b>R1</b> | 5104      | R           | RunNo: 1  | 5104     |             |      |          |      |
| Prep Date:          | Analysis D | ate: 11       | 1/26/2013 | S           | SeqNo: 4  | 35719    | Units: µg/L |      |          |      |
| Analyte             | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene             | 20         | 1.0           | 20.00     | 0           | 98.6      | 70       | 130         |      |          |      |
| Toluene             | 18         | 1.0           | 20.00     | 0           | 90.9      | 82.2     | 124         |      |          |      |
| Chlorobenzene       | 17         | 1.0           | 20.00     | 0           | 87.5      | 70       | 130         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### 'all Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 100ng lcs         | •                         | ype: LC       |           |             | Code: El | ATILES   |             | -    |          |      |
|-----------------------------|---------------------------|---------------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: LCSW             | Batch                     | 1D: <b>R1</b> | 5104      | F           | lunNo: 1 | 5104     |             |      |          |      |
| Prep Date:                  | Analysis Date: 11/26/2013 |               |           | S           | eqNo: 4  | 35719    | Units: µg/L |      |          |      |
| Analyte                     | Result                    | PQL           | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| 1,1-Dichloroethene          | 21                        | 1.0           | 20.00     | 0           | 106      | 83.5     | 155         |      |          |      |
| Trichloroethene (TCE)       | 17                        | 1.0           | 20.00     | 0           | 85.1     | 70       | 130         |      |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.8                       |               | 10.00     |             | 98.3     | 70       | 130         |      |          |      |
| Surr: 4-Bromofluorobenzene  | 11                        |               | 10.00     |             | 110      | 70       | 130         |      |          |      |
| Surr: Dibromofluoromethane  | 9.9                       |               | 10.00     |             | 99.1     | 70       | 130         |      |          |      |
| Surr: Toluene-d8            | 9.8                       |               | 10.00     |             | 98.2     | 70       | 130         |      |          |      |

| Sample ID 1311b14-001a ms   | SampT      | ype: MS       | 3         | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|---------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: MW-1             | Batch      | 1D: <b>R1</b> | 5104      | F           | RunNo: 1  | 5104      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 11       | /26/2013  | 8           | SeqNo: 4  | 35726     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                     | 19         | 1.0           | 20.00     | 0           | 96.9      | 67.9      | 137         |        |          |      |
| Toluene                     | 19         | 1.0           | 20.00     | 0           | 95.4      | 77        | 127         |        |          |      |
| Chlorobenzene               | 17         | 1.0           | 20.00     | 0           | 87.2      | 70        | 130         |        |          |      |
| 1 1-Dichloroethene          | 20         | 1.0           | 20.00     | 0           | 99.0      | 66.5      | 131         |        |          |      |
| :hloroethene (TCE)          | 17         | 1.0           | 20.00     | 0           | 87.2      | 66.3      | 134         |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.9        |               | 10.00     |             | 98.6      | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 10         |               | 10.00     |             | 102       | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 10         |               | 10.00     |             | 102       | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 9.9        |               | 10.00     |             | 99.4      | 70        | 130         |        |          |      |

| Sample ID 1311b14-001a ms   | d SampT    | ype: MS       | SD        | TestCode: EPA Method 8260B: VOLATILE |          |          |             |      |          |      |
|-----------------------------|------------|---------------|-----------|--------------------------------------|----------|----------|-------------|------|----------|------|
| Client ID: MW-1             | Batch      | 1D: <b>R1</b> | 5104      | R                                    | lunNo: 1 | 5104     |             |      |          |      |
| Prep Date:                  | Analysis D | ate: 11       | /26/2013  | S                                    | SeqNo: 4 | 35727    | Units: µg/L |      |          |      |
| Analyte                     | Result     | PQL           | SPK value | SPK Ref Val                          | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Benzene                     | 18         | 1.0           | 20.00     | 0                                    | 91.6     | 67.9     | 137         | 5.59 | 20       |      |
| Toluene                     | 18         | 1.0           | 20.00     | 0                                    | 88.5     | 77       | 127         | 7.44 | 20       |      |
| Chlorobenzene               | 17         | 1.0           | 20.00     | 0                                    | 82.6     | 70       | 130         | 5.41 | 20       |      |
| 1,1-Dichloroethene          | 19         | 1.0           | 20.00     | 0                                    | 94.9     | 66.5     | 131         | 4.19 | 20       |      |
| Trichloroethene (TCE)       | 17         | 1.0           | 20.00     | 0                                    | 83.1     | 66.3     | 134         | 4.90 | 20       |      |
| Surr: 1,2-Dichloroethane-d4 | 10         |               | 10.00     |                                      | 102      | 70       | 130         | 0    | 0        |      |
| Surr: 4-Bromofluorobenzene  | 10         |               | 10.00     |                                      | 104      | 70       | 130         | 0    | 0        |      |
| Surr: Dibromofluoromethane  | 10         |               | 10.00     |                                      | 99.7     | 70       | 130         | 0    | 0        |      |
| Surr: Toluene-d8            | 9.7        |               | 10.00     |                                      | 97.0     | 70       | 130         | 0    | 0        |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID mb-10570          | SampTy      | /pe: MBLI         | K        | Test        | Code: El | PA Method | 8270C: Semi | olatiles |          |      |
|-----------------------------|-------------|-------------------|----------|-------------|----------|-----------|-------------|----------|----------|------|
| Client ID: PBW              | Batch       | ID: <b>1057</b> ( | 0        | R           | unNo: 1  | 5177      |             |          |          |      |
| Prep Date: 11/27/2013       | Analysis Da | ate: 12/2         | /2013    | S           | eqNo: 4  | 37548     | Units: µg/L |          |          |      |
| Analyte                     | Result      | PQL S             | PK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD     | RPDLimit | Qual |
| Acenaphthene                | ND          | 10                |          |             |          |           |             |          |          |      |
| Acenaphthylene              | ND          | 10                |          |             |          |           |             |          |          |      |
| Aniline                     | ND          | 10                |          |             |          |           |             |          |          |      |
| Anthracene                  | ND          | 10                |          |             |          |           |             |          |          |      |
| Azobenzene                  | ND          | 10                |          |             |          |           |             |          |          |      |
| Benz(a)anthracene           | ND          | 10                |          |             |          |           |             |          |          |      |
| Benzo(a)pyrene              | ND          | 10                |          |             |          |           |             |          |          |      |
| Benzo(b)fluoranthene        | ND          | 10                |          |             |          |           |             |          |          |      |
| Benzo(g,h,i)perylene        | ND          | 10                |          |             |          |           |             |          |          |      |
| Benzo(k)fluoranthene        | ND          | 10                |          |             |          |           |             |          |          |      |
| Benzoic acid                | ND          | 40                |          |             |          |           |             |          |          |      |
| Benzyl alcohol              | ND          | 10                |          |             |          |           |             |          |          |      |
| Bis(2-chloroethoxy)methane  | ND          | 10                |          |             |          |           |             |          |          |      |
| Bis(2-chloroethyl)ether     | ND          | 10                |          |             |          |           |             |          |          |      |
| Bis(2-chloroisopropyl)ether | ND          | 10                |          |             |          |           |             |          |          |      |
| Bis(2-ethylhexyl)phthalate  | ND          | 10                |          |             |          |           |             |          |          |      |
| 4-Bromophenyl phenyl ether  | ND          | 10                |          |             |          |           |             |          |          |      |
| Butyl benzyl phthalate      | ND          | 10                |          |             |          |           |             |          |          |      |
| Carbazole                   | ND          | 10                |          |             |          |           |             |          |          |      |
| 4-Chloro-3-methylphenol     | ND          | 10                |          |             |          |           |             |          |          |      |
| 4-Chloroaniline             | ND          | 10                |          |             |          |           |             |          |          |      |
| 2-Chloronaphthalene         | ND          | 10                |          |             |          |           |             |          |          |      |
| 2-Chlorophenol              | ND          | 10                |          |             |          |           |             |          |          |      |
| 4-Chlorophenyl phenyl ether | ND          | 10                |          |             |          |           |             |          |          |      |
| Chrysene                    | ND          | 10                |          |             |          |           |             |          |          |      |
| Di-n-butyl phthalate        | ND          | 10                |          |             |          |           |             |          |          |      |
| Di-n-octyl phthalate        | ND          | 10                |          |             |          |           |             |          |          |      |
| Dibenz(a,h)anthracene       | ND          | 10                |          |             |          |           |             |          |          |      |
| Dibenzofuran                | ND          | 10                |          |             |          |           |             |          |          |      |
| 1,2-Dichlorobenzene         | ND          | 10                |          |             |          |           |             |          |          |      |
| 1,3-Dichlorobenzene         | ND          | 10                |          |             |          |           |             |          |          |      |
| 1,4-Dichlorobenzene         | ND          | 10                |          |             |          |           |             |          |          |      |
| 3,3'-Dichlorobenzidine      | ND          | 10                |          |             |          |           |             |          |          |      |
| Diethyl phthalate           | ND          | 10                |          |             |          |           |             |          |          |      |
| Dimethyl phthalate          | ND          | 10                |          |             |          |           |             |          |          |      |
| 2,4-Dichlorophenol          | ND          | 20                |          |             |          |           |             |          |          |      |
| 2,4-Dimethylphenol          | ND          | 10                |          |             |          |           |             |          |          |      |
| 4,6-Dinitro-2-methylphenol  | ND          | 20                |          |             |          |           |             |          |          |      |
| 2,4-Dinitrophenol           | ND          | 20                |          |             |          |           |             |          |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#:

1311B14 16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID mb-10570         | SampT       | ype: MBLK     | Tes               | tCode: EP          | A Method | 8270C: Semi | olatiles |          |      |
|----------------------------|-------------|---------------|-------------------|--------------------|----------|-------------|----------|----------|------|
| Client ID: PBW             | Batch       | ID: 10570     | F                 | RunNo: <b>15</b> 1 | 177      |             |          |          |      |
| Prep Date: 11/27/2013      | Analysis Da | ate: 12/2/201 | 3                 | SeqNo: 437         | 7548     | Units: µg/L |          |          |      |
| Analyte                    | Result      | PQL SPK       | value SPK Ref Val | %REC               | LowLimit | HighLimit   | %RPD     | RPDLimit | Qual |
| 2,4-Dinitrotoluene         | ND          | 10            |                   |                    |          |             |          |          |      |
| 2,6-Dinitrotoluene         | ND          | 10            |                   |                    |          |             |          |          |      |
| Fluoranthene               | ND          | 10            |                   |                    |          |             |          |          |      |
| Fluorene                   | ND          | 10            |                   |                    |          |             |          |          |      |
| Hexachlorobenzene          | ND          | 10            |                   |                    |          |             |          |          |      |
| Hexachlorobutadiene        | ND          | 10            |                   |                    |          |             |          |          |      |
| Hexachlorocyclopentadiene  | ND          | 10            |                   |                    |          |             |          |          |      |
| Hexachloroethane           | ND          | 10            |                   |                    |          |             |          |          |      |
| Indeno(1,2,3-cd)pyrene     | ND          | 10            |                   |                    |          |             |          |          |      |
| Isophorone                 | ND          | 10            |                   |                    |          |             |          |          |      |
| 1-Methylnaphthalene        | ND          | 10            |                   |                    |          |             |          |          |      |
| 2-Methylnaphthalene        | ND          | 10            |                   |                    |          |             |          |          |      |
| 2-Methylphenol             | ND          | 10            |                   |                    |          |             |          |          |      |
| 3+4-Methylphenol           | ND          | 10            |                   |                    |          |             |          |          |      |
| N-Nitrosodi-n-propylamine  | ND          | 10            |                   |                    |          |             |          |          |      |
| " Nitrosodimethylamine     | ND          | 10            |                   |                    |          |             |          |          |      |
| 4itrosodiphenylamine       | ND          | 10            |                   |                    |          |             |          |          |      |
| ₄phthalene                 | ND          | 10            |                   |                    |          |             |          |          |      |
| 2-Nitroaniline             | ND          | 10            |                   |                    |          |             |          |          |      |
| 3-Nitroaniline             | ND          | 10            |                   |                    |          |             |          |          |      |
| 4-Nitroaniline             | ND          | 10            |                   |                    |          |             |          |          |      |
| Nitrobenzene               | ND          | 10            |                   |                    |          |             |          |          |      |
| 2-Nitrophenol              | ND          | 10            |                   |                    |          |             |          |          |      |
| 4-Nitrophenol              | ND          | 10            |                   |                    |          |             |          |          |      |
| Pentachlorophenol          | ND          | 20            |                   |                    |          |             |          |          |      |
| Phenanthrene               | ND          | 10            |                   |                    |          |             |          |          |      |
| Phenoi                     | ND          | 10            |                   |                    |          |             |          |          |      |
| Pyrene                     | ND          | 10            |                   |                    |          |             |          |          |      |
| Pyridine                   | ND          | 10            |                   |                    |          |             |          |          |      |
| 1,2,4-Trichlorobenzene     | ND          | 10            |                   |                    |          |             |          |          |      |
| 2,4,5-Trichlorophenol      | ND          | 10            |                   |                    |          |             |          |          |      |
| 2,4,6-Trichlorophenol      | ND          | 10            |                   |                    |          |             |          |          |      |
| Surr: 2-Fluorophenol       | 110         |               | 200.0             | 53.3               | 22.7     | 98          |          |          |      |
| Surr: Phenol-d5            | 87          | :             | 200. <b>0</b>     | 43.3               | 23.4     | 74.9        |          |          |      |
| Surr: 2,4,6-Tribromophenol | 140         |               | 200.0             | 71.3               | 23.3     | 111         |          |          |      |
| Surr: Nitrobenzene-d5      | 66          |               | 100.0             | 65.8               | 36.8     | 111         |          |          |      |
| Surr: 2-Fluorobiphenyl     | 61          |               | 100.0             | 61.2               | 38.3     | 110         |          |          |      |
| Surr: 4-Terphenyl-d14      | 76          |               | 100.0             | 75.9               | 52.1     | 116         |          |          |      |
|                            |             |               |                   |                    |          |             |          |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
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- P Sample pH greater than 2 for VOA and TOC only.
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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID lcs-10570        | SampT      | ype: <b>LC</b>  | S         | Tes         | tCode: El | PA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: LCSW            | Batch      | 1D: <b>10</b> : | 570       | F           | RunNo: 1  | 5177      |             |           |          |      |
| Prep Date: 11/27/2013      | Analysis D | ate: 12         | 2/2/2013  | 8           | SeqNo: 4  | 37549     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 72         | 10              | 100.0     | 0           | 72.0      | 48        | 101         |           |          |      |
| 4-Chloro-3-methylphenol    | 150        | 10              | 200.0     | 0           | 76.0      | 47.9      | 109         |           |          |      |
| 2-Chlorophenol             | 140        | 10              | 200.0     | 0           | 67.7      | 40        | 105         |           |          |      |
| 1,4-Dichlorobenzene        | 63         | 10              | 100.0     | 0           | 62.8      | 40.8      | 94.3        |           |          |      |
| 2,4-Dinitrotoluene         | 69         | 10              | 100.0     | 0           | 69.2      | 28.3      | 131         |           |          |      |
| N-Nitrosodi-n-propylamine  | 76         | 10              | 100.0     | 0           | 76.1      | 46.2      | 119         |           |          |      |
| 4-Nitrophenol              | 70         | 10              | 200.0     | 0           | 35.0      | 10.5      | 67.9        |           |          |      |
| Pentachlorophenol          | 100        | 20              | 200.0     | 0           | 52.5      | 22.4      | 81.1        |           |          |      |
| Phenol                     | 83         | 10              | 200.0     | 0           | 41.5      | 21.4      | 72.9        |           |          |      |
| Pyrene                     | 74         | 10              | 100.0     | 0           | 74.4      | 46.9      | 109         |           |          |      |
| 1,2,4-Trichlorobenzene     | 65         | 10              | 100.0     | 0           | 64.8      | 43.1      | 98.4        |           |          |      |
| Surr: 2-Fluorophenol       | 100        |                 | 200.0     |             | 51.1      | 22.7      | 98          |           |          |      |
| Surr: Phenol-d5            | 80         |                 | 200.0     |             | 40.1      | 23.4      | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 150        |                 | 200.0     |             | 75.6      | 23.3      | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 68         |                 | 100.0     |             | 67.8      | 36.8      | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 69         |                 | 100.0     |             | 68.9      | 38.3      | 110         |           |          |      |
| Surr: 4-Terphenyl-d14      | 83         |                 | 100.0     |             | 82.7      | 52.1      | 116         |           |          |      |

| Sample ID 1311b14-005dms   | SampT      | ype: MS         | ;         | Tes         | tCode: El | PA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: MW-4            | Batch      | 1D: <b>10</b> : | 570       | F           | RunNo: 1  | 5177      |             |           |          |      |
| Prep Date: 11/27/2013      | Analysis D | ate: 12         | 2/2/2013  | S           | SeqNo: 4  | 37557     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 80         | 10              | 100.0     | 0           | 79.7      | 52.5      | 94.5        |           |          |      |
| 4-Chloro-3-methylphenol    | 140        | 10              | 200.0     | 0           | 70.3      | 45        | 103         |           |          |      |
| 2-Chlorophenol             | 140        | 10              | 200.0     | 0           | 67.7      | 32.3      | 101         |           |          |      |
| 1,4-Dichlorobenzene        | 65         | 10              | 100.0     | 0           | 65.3      | 34.5      | 97.5        |           |          |      |
| 2,4-Dinitrotoluene         | 75         | 10              | 100.0     | 0           | 75.3      | 20.1      | 123         |           |          |      |
| N-Nitrosodi-n-propylamine  | 70         | 10              | 100.0     | 0           | 70.1      | 26.9      | 131         |           |          |      |
| 4-Nitrophenol              | 90         | 10              | 200.0     | 0           | 44.9      | 11.6      | 55.4        |           |          |      |
| Pentachlorophenol          | 130        | 20              | 200.0     | 0           | 65.9      | 17.6      | 88.9        |           |          |      |
| Phenol                     | 79         | 10              | 200.0     | 0           | 39.4      | 18.4      | 66.5        |           |          |      |
| Pyrene                     | 76         | 10              | 100.0     | 0           | 76.2      | 43.1      | 111         |           |          |      |
| 1,2,4-Trichlorobenzene     | 71         | 10              | 100.0     | 0           | 70.8      | 38.8      | 95.6        |           |          |      |
| Surr: 2-Fluorophenol       | 110        |                 | 200.0     |             | 53.8      | 22.7      | 98          |           |          |      |
| Surr: Phenol-d5            | 83         |                 | 200.0     |             | 41.6      | 23.4      | 74.9        |           |          |      |
| Surr: 2,4,6-Tribromophenol | 170        |                 | 200.0     |             | 86.7      | 23.3      | 111         |           |          |      |
| Surr: Nitrobenzene-d5      | 76         |                 | 100.0     |             | 75.9      | 36.8      | 111         |           |          |      |
| Surr: 2-Fluorobiphenyl     | 83         |                 | 100.0     |             | 83.0      | 38.3      | 110         |           |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Iall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID 1311b14-005dms SampType: MS TestCode: EPA Method 8270C: Semivolatiles

Client ID: MW-4 Batch ID: 10570 RunNo: 15177

Prep Date: 11/27/2013 Analysis Date: 12/2/2013 SeqNo: 437557 Units: μg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Surr: 4-Terphenyl-d14 78 100.0 78.4 52.1 116

| Sample ID 1311b14-005dmsd  | SampT      | ype: MS | D         | Test        | tCode: <b>EF</b> | PA Method | 8270C: Semi | volatiles |          |      |
|----------------------------|------------|---------|-----------|-------------|------------------|-----------|-------------|-----------|----------|------|
| Client ID: MW-4            | Batch      | ID: 10  | 570       | R           | RunNo: 1         | 5177      |             |           |          |      |
| Prep Date: 11/27/2013      | Analysis D | ate: 12 | 2/2/2013  | S           | SeqNo: 4         | 37558     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL     | SPK value | SPK Ref Val | %REC             | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 63         | 10      | 100.0     | 0           | 62.7             | 52.5      | 94.5        | 23.9      | 20       | R    |
| 4-Chloro-3-methylphenol    | 130        | 10      | 200.0     | 0           | 66.1             | 45        | 103         | 6.14      | 20       |      |
| 2-Chlorophenol             | 120        | 10      | 200.0     | 0           | 61.7             | 32.3      | 101         | 9.40      | 20       |      |
| 1,4-Dichlorobenzene        | 57         | 10      | 100.0     | 0           | 56.6             | 34.5      | 97.5        | 14.3      | 20       |      |
| 2,4-Dinitrotoluene         | 65         | 10      | 100.0     | 0           | 64.7             | 20.1      | 123         | 15.1      | 20       |      |
| N-Nitrosodi-n-propylamine  | 70         | 10      | 100.0     | 0           | 70.0             | 26.9      | 131         | 0.200     | 20       |      |
| 4-Nitrophenol              | 72         | 10      | 200.0     | 0           | 35.9             | 11.6      | 55.4        | 22.3      | 20       | R    |
| Pentachlorophenol          | 130        | 20      | 200.0     | 0           | 64.0             | 17.6      | 88.9        | 2.80      | 20       |      |
| Phenol                     | 75         | 10      | 200.0     | 0           | 37.4             | 18.4      | 66.5        | 5.34      | 20       |      |
| ene                        | 69         | 10      | 100.0     | 0           | 69.3             | 43.1      | 111         | 9.54      | 20       |      |
| .,4-Trichlorobenzene       | 56         | 10      | 100.0     | 0           | 56.2             | 38.8      | 95.6        | 23.1      | 20       | R    |
| Surr: 2-Fluorophenol       | 89         |         | 200.0     |             | 44.3             | 22.7      | 98          | 0         | 0        |      |
| Surr: Phenol-d5            | 72         |         | 200.0     |             | 35.9             | 23.4      | 74.9        | 0         | 0        |      |
| Surr: 2,4,6-Tribromophenol | 150        |         | 200.0     |             | 75.6             | 23.3      | 111         | 0         | 0        |      |
| Surr: Nitrobenzene-d5      | 65         |         | 100.0     |             | 65.1             | 36.8      | 111         | 0         | 0        |      |
| Surr: 2-Fluorobiphenyl     | 65         |         | 100.0     |             | 65.4             | 38.3      | 110         | 0         | 0        |      |
| Surr: 4-Terphenyl-d14      | 67         |         | 100.0     |             | 67.5             | 52.1      | 116         | 0         | 0        |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 3 Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID MB-10572     | SampT      | SampType: MBLK  |           | Tes         | tCode: El | PA Method | 8310: PAHs  |      |          |      |
|------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: PBW         | Batch      | 1D: <b>10</b> : | 572       | F           | RunNo: 1  | 5191      |             |      |          |      |
| Prep Date: 11/27/2013  | Analysis D | ate: 12         | 2/3/2013  | \$          | SeqNo: 4  | 38044     | Units: µg/L |      |          |      |
| Analyte                | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene            | ND         | 2.0             |           |             |           |           |             |      |          |      |
| 1-Methylnaphthalene    | ND         | 2.0             |           |             |           |           |             |      |          |      |
| 2-Methyinaphthalene    | ND         | 2.0             |           |             |           |           |             |      |          |      |
| Acenaphthylene         | ND         | 2.5             |           |             |           |           |             |      |          |      |
| Acenaphthene           | ND         | 5.0             |           |             |           |           |             |      |          |      |
| Fluorene               | ND         | 0.80            |           |             |           |           |             |      |          |      |
| Phenanthrene           | ND         | 0.60            |           |             |           |           |             |      |          |      |
| Anthracene             | ND         | 0.60            |           |             |           |           |             |      |          |      |
| Fluoranthene           | ND         | 0.30            |           |             |           |           |             |      |          |      |
| Pyrene                 | ND         | 0.30            |           |             |           |           |             |      |          |      |
| Benz(a)anthracene      | ND         | 0.070           |           |             |           |           |             |      |          |      |
| Chrysene               | ND         | 0.20            |           |             |           |           |             |      |          |      |
| Benzo(b)fluoranthene   | ND         | 0.10            |           |             |           |           |             |      |          |      |
| Benzo(k)fluoranthene   | ND         | 0.070           |           |             |           |           |             |      |          |      |
| Benzo(a)pyrene         | ND         | 0.070           |           |             |           |           |             |      |          |      |
| Dibenz(a,h)anthracene  | ND         | 0.12            |           |             |           |           |             |      |          |      |
| Benzo(g,h,i)perylene   | ND         | 0.12            |           |             |           |           |             |      |          |      |
| Indeno(1,2,3-cd)pyrene | ND         | 0.25            |           |             |           |           |             |      |          |      |
| Surr: Benzo(e)pyrene   | 29         |                 | 20.00     |             | 144       | 24.5      | 139         |      |          | S    |

| Sample ID LCS-10572   | , |       |           | TestCode: EPA Method 8310: PAHs |      |          |             |      |          |      |
|-----------------------|---|-------|-----------|---------------------------------|------|----------|-------------|------|----------|------|
| Client ID: LCSW       |   |       |           | RunNo: <b>15191</b>             |      |          |             |      |          |      |
| Prep Date: 11/27/2013 | Analysis Date: 12/3/2013                |       |           | SeqNo: <b>438046</b>            |      |          | Units: µg/L |      |          |      |
| Analyte               | Result                                  | PQL   | SPK value | SPK Ref Val                     | %REC | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 49                                      | 2.0   | 80.00     | 0                               | 60.8 | 43.8     | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 44                                      | 2.0   | 80.20     | 0                               | 55.1 | 41.3     | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 42                                      | 2.0   | 80.00     | 0                               | 52.0 | 36.6     | 89.6        |      |          |      |
| Acenaphthylene        | 52                                      | 2.5   | 80.20     | 0                               | 64.8 | 43.6     | 103         |      |          |      |
| Acenaphthene          | 44                                      | 5.0   | 80.00     | 0                               | 54.6 | 42.4     | 87.6        |      |          |      |
| Fluorene              | 4.5                                     | 0.80  | 8.020     | 0                               | 56.2 | 40.5     | 93.6        |      |          |      |
| Phenanthrene          | 2.6                                     | 0.60  | 4.020     | 0                               | 63.7 | 43.9     | 111         |      |          |      |
| Anthracene            | 2.5                                     | 0.60  | 4.020     | 0                               | 62.9 | 44.3     | 103         |      |          |      |
| Fluoranthene          | 4.7                                     | 0.30  | 8.020     | 0                               | 58.4 | 43.5     | 109         |      |          |      |
| Pyrene                | 5.0                                     | 0.30  | 8.020     | 0                               | 62.6 | 32.6     | 103         |      |          |      |
| Benz(a)anthracene     | 0.50                                    | 0.070 | 0.8020    | 0                               | 62.3 | 43       | 114         |      |          |      |
| Chrysene              | 2.4                                     | 0.20  | 4.020     | 0                               | 59.5 | 40.2     | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.64                                    | 0.10  | 1.002     | 0                               | 63.9 | 44.4     | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.32                                    | 0.070 | 0.5000    | 0                               | 64.0 | 41.5     | 120         |      |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- Analyte detected below quantitation limits J
- Ο RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

AMEC

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID LCS-10572      | SampType: LCS TestCode: EPA Method 8310: PAHs |         |           |             |           |           |             |      |          |      |
|--------------------------|---|---------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: LCSW          | Batch   | ID: 10  | 572       | F           | lunNo: 1  | 5191      |             |      |          |      |
| Prep Date: 11/27/2013    | Analysis D                                    | ate: 12 | 2/3/2013  | S           | eqNo: 4   | 38046     | Units: µg/L |      |          |      |
| Analyte                  | Result  | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Benzo(a)pyrene           | 0.33  | 0.070   | 0.5020    | 0           | 65.7      | 34.5      | 118         |      |          |      |
| Dibenz(a,h)anthracene    | 0.66  | 0.12    | 1.002     | 0           | 65.9      | 38.3      | 107         |      |          |      |
| 3enzo(g,h,i)perylene     | 0.64  | 0.12    | 1.000     | 0           | 64.0      | 38.4      | 110         |      |          |      |
| ndeno(1,2,3-cd)pyrene    | 1.5   | 0.25    | 2.004     | 0           | 73.4      | 42.4      | 113         |      |          |      |
| Surr: Benzo(e)pyrene     | 26  |         | 20.00     |             | 132       | 24.5      | 139         |      |          |      |
| Sample ID 1311B14-005CMS | SampT   | ype: MS | }         | Tes         | tCode: El | PA Method | 8310: PAHs  |      |          |      |
| Client ID: MW-4          | Batch   | ID: 10  | 572       | F           | RunNo: 1  | 5191      |             |      |          |      |
| Prep Date: 11/27/2013    | Analysis D                                    | ate: 12 | 2/3/2013  | 8           | SeqNo: 4  | 38531     | Units: µg/L |      |          |      |
| Analyte                  | Result  | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene              | 40  | 2.0     | 80.00     | 0           | 50.3      | 70        | 130         |      |          | S    |
| 1-Methylnaphthalene      | 33  | 2.0     | 80.20     | 0           | 41.0      | 70        | 130         |      |          | S    |

| Analyte                | Result | PQL   | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | <b>RPDLimit</b> | Qual |
|------------------------|--------|-------|-----------|-------------|------|----------|-----------|------|-----------------|------|
| Naphthalene            | 40     | 2.0   | 80.00     | 0           | 50.3 | 70       | 130       |      |                 | S    |
| 1-Methylnaphthalene    | 33     | 2.0   | 80.20     | 0           | 41.0 | 70       | 130       |      |                 | S    |
| 2-Methylnaphthalene    | 29     | 2.0   | 80.00     | 0           | 36.1 | 70       | 130       |      |                 | S    |
| Acenaphthylene         | 46     | 2.5   | 80.20     | 0           | 57.6 | 70       | 130       |      |                 | S    |
| ·\cenaphthene          | 34     | 5.0   | 80.00     | 0           | 42.1 | 70       | 130       |      |                 | S    |
| orene                  | 3.4    | 0.80  | 8.020     | 0           | 42.3 | 70       | 130       |      |                 | S    |
| enanthrene             | 2.2    | 0.60  | 4.020     | 0           | 54.2 | 70       | 130       |      |                 | S    |
| Anthracene             | 2.1    | 0.60  | 4.020     | 0           | 52.5 | 70       | 130       |      |                 | S    |
| Fluoranthene           | 5.8    | 0.30  | 8.020     | 0           | 71.8 | 70       | 130       |      |                 |      |
| Pyrene                 | 4.2    | 0.30  | 8.020     | 0           | 53.0 | 70       | 130       |      |                 | S    |
| Benz(a)anthracene      | 0.43   | 0.070 | 0.8020    | 0           | 53.6 | 70       | 130       |      |                 | S    |
| Chrysene               | 2.1    | 0.20  | 4.020     | 0.1100      | 50.5 | 70       | 130       |      |                 | S    |
| Benzo(b)fluoranthene   | 0.61   | 0.10  | 1.002     | 0           | 60.9 | 70       | 130       |      |                 | S    |
| Benzo(k)fluoranthene   | 0.33   | 0.070 | 0.5000    | 0           | 66.0 | 70       | 130       |      |                 | S    |
| Benzo(a)pyrene         | 0.26   | 0.070 | 0.5020    | 0           | 51.8 | 70       | 130       |      |                 | S    |
| Dibenz(a,h)anthracene  | 0.57   | 0.12  | 1.002     | 0           | 56.9 | 70       | 130       |      |                 | S    |
| Benzo(g,h,i)perylene   | 0.51   | 0.12  | 1.000     | 0           | 51.0 | 70       | 130       |      |                 | S    |
| Indeno(1,2,3-cd)pyrene | 1.3    | 0.25  | 2.004     | 0           | 65.9 | 70       | 130       |      |                 | S    |
| Surr: Benzo(e)pyrene   | 12     |       | 20.00     |             | 58.2 | 24.5     | 139       |      |                 |      |

| Sample ID 1311B14-005CMS   | Sample ID 1311B14-005CMSD SampType: MSD TestCode: EPA Method 8310: PAHs |     |           |             |      |          |           |       |          |      |  |  |
|--|---|-----|-----------|-------------|------|----------|-----------|-------|----------|------|--|--|
| Client ID: MW-4  | 572   | R   | RunNo: 1  |             |      |          |           |       |          |      |  |  |
| Prep Date: 11/27/2013 Analysis Date: 12/3/2013 SeqNo: 438532 Units: μg/L |   |     |           |             |      |          |           |       |          |      |  |  |
| Analyte  | Result  | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD  | RPDLimit | Qual |  |  |
| Naphthalene  | 40  | 2.0 | 80.00     | 0           | 50.2 | 70       | 130       | 0.199 | 20       | S    |  |  |
| 1-Methylnaphthalene  | 34  | 2.0 | 80.20     | 0           | 41.9 | 70       | 130       | 2.32  | 20       | S    |  |  |
| 2-Methylnaphthalene  | 31  | 2.0 | 80.00     | 0           | 38.4 | 70       | 130       | 6.14  | 20       | S    |  |  |
| Acenaphthylene   | 47  | 2.5 | 80.20     | 0           | 59.2 | 70       | 130       | 2.78  | 20       | S    |  |  |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

C ...

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

| Sample ID 1311B14-005C | MSD SampT  | ype: MS  | SD        | Tes         | tCode: El | PA Method | 8310: PAHs  |       |          |      |  |
|------------------------|------------|----------|-----------|-------------|-----------|-----------|-------------|-------|----------|------|--|
| Client ID: MW-4        | Batch      | n ID: 10 | 572       | F           | RunNo: 1  | 5191      |             |       |          |      |  |
| Prep Date: 11/27/2013  | Analysis E | Date: 12 | 2/3/2013  | S           | SeqNo: 4  | 38532     | Units: µg/L |       |          |      |  |
| Analyte                | Result     | PQL      | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD  | RPDLimit | Quai |  |
| Acenaphthene           | 35         | 5.0      | 80.00     | 0           | 43.3      | 70        | 130         | 2.81  | 20       | S    |  |
| Fluorene               | 3.4        | 0.80     | 8.020     | 0           | 42.0      | 70        | 130         | 0.592 | 20       | S    |  |
| Phenanthrene           | 2.1        | 0.60     | 4.020     | 0           | 51.5      | 70        | 130         | 5.18  | 20       | s    |  |
| Anthracene             | 2.1        | 0.60     | 4.020     | 0           | 52.7      | 70        | 130         | 0.473 | 20       | S    |  |
| Fluoranthene           | 5.3        | 0.30     | 8.020     | 0           | 66.5      | 70        | 130         | 7.75  | 20       | S    |  |
| Pyrene                 | 4.2        | 0.30     | 8.020     | 0           | 52.6      | 70        | 130         | 0.708 | 20       | S    |  |
| Benz(a)anthracene      | 0.43       | 0.070    | 0.8020    | 0           | 53.6      | 70        | 130         | 0     | 20       | S    |  |
| Chrysene               | 2.2        | 0.20     | 4.020     | 0.1100      | 50.7      | 70        | 130         | 0.466 | 20       | S    |  |
| Benzo(b)fluoranthene   | 0.60       | 0.10     | 1.002     | 0           | 59.9      | 70        | 130         | 1.65  | 20       | S    |  |
| Benzo(k)fluoranthene   | 0.33       | 0.070    | 0.5000    | 0           | 66.0      | 70        | 130         | 0     | 20       | S    |  |
| Benzo(a)pyrene         | 0.26       | 0.070    | 0.5020    | 0           | 51.8      | 70        | 130         | 0     | 20       | S    |  |
| Dibenz(a,h)anthracene  | 0.57       | 0.12     | 1.002     | 0           | 56.9      | 70        | 130         | 0     | 20       | S    |  |
| Benzo(g,h,i)perylene   | 0.51       | 0.12     | 1.000     | 0           | 51.0      | 70        | 130         | 0     | 20       | S    |  |
| Indeno(1,2,3-cd)pyrene | 1.3        | 0.25     | 2.004     | 0           | 65.9      | 70        | 130         | 0     | 20       | S    |  |
| Surr: Benzo(e)pyrene   | 12         |          | 20.00     |             | 58.2      | 24.5      | 139         | 0     |          |      |  |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID mb-1

SampType: mblk

TestCode: SM2320B: Alkalinity

Client ID:

Batch ID: R15156

PQL

20

RunNo: 15156

HighLimit

Prep Date:

Analyte

Analysis Date: 11/27/2013

Result

SeqNo: 436999

Units: mg/L CaCO3

**RPDLimit** 

Qual

Total Alkalinity (as CaCO3)

ND

SampType: Ics

SPK value SPK Ref Val

TestCode: SM2320B: Alkalinity

%REC LowLimit

Sample ID Ics-1 Client ID: LCSW

Batch ID: R15156

RunNo: 15156

SeqNo: 437000

Units: mg/L CaCO3

Prep Date: Analyte

Analysis Date: 11/27/2013 PQL

SPK value SPK Ref Val

%REC LowLimit

HighLimit

**RPDLimit** 

Total Alkalinity (as CaCO3)

80.00

100

0

SPK value SPK Ref Val %REC LowLimit

90

%RPD

%RPD

%RPD

Qual

Result 80

20

TestCode: SM2320B: Alkalinity

Sample ID mb-2

PBW

SampType: mblk

Batch ID: R15156

RunNo: 15156

110

Prep Date:

Client ID:

Analysis Date: 11/27/2013

SeqNo: 437020

Units: mg/L CaCO3

HighLimit

**RPDLimit** Qual

Analyte otal Alkalinity (as CaCO3)

Prep Date:

Result PQL ND 20

SampType: Ics

TestCode: SM2320B: Alkalinity

ample ID Ics-2 lient ID: LCSW

Batch ID: R15156

RunNo: 15156

SeqNo: 437021

Units: mg/L CaCO3

Qual

Page 70 of 71

Analyte

Result

80

Analysis Date: 11/27/2013

SPK value SPK Ref Val

0

%REC 99.6

LowLimit

%RPD

**RPDLimit** 

Total Alkalinity (as CaCO3)

80.00

HighLimit

110

#### Qualifiers:

Ο

- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit RPD outside accepted recovery limits R
- Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

- Analyte detected in the associated Method Blank Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL
- В
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

WO#: 1311B14

16-Dec-13

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Water Quality Moni

Sample ID MB-10567

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: Prep Date:

PBW

11/27/2013

Batch ID: 10567 Analysis Date: 11/29/2013

PQL

RunNo: 15143

SeqNo: 436797

Units: mg/L

HighLimit

%RPD

**RPDLimit** 

Qual

Analyte Total Dissolved Solids

ND

SampType: LCS

Result

Sample ID LCS-10567

Batch ID: 10567

TestCode: SM2540C MOD: Total Dissolved Solids

RunNo: 15143

Units: mg/L

Analyte

Client ID:

Prep Date: 11/27/2013

LCSW

Analysis Date: 11/29/2013

SeqNo: 436798

HighLimit

%RPD

Qual

20.0

1000

101

1010

PQL

SPK value

0

SPK value SPK Ref Val %REC LowLimit

**RPDLimit** 

Total Dissolved Solids

Result

SPK Ref Val

%REC

120

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

- Е Value above quantitation range
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit О
- RPD outside accepted recovery limits R
- Analyte detected in the associated Method Blank Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

Qualifiers:

В

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

## Sample Log-In Check List

| Client Name:        | AMEC  | Work Order Number                       | er: 1311B14  |  | RcptNo: 1  |                           |
|---------------------|---|---|--|--|--|---------------------------|
| Received by/d       | ate: MG   | 11/24/13                                |  |  |  |                           |
| Logged By:          | Anne Thorne   | 11/26/2013 9:15:00                      | AM   | an Ilm   | -  |                           |
| Completed By        | : Anne Thorne   | 11/26/2013                              |  | Anne Arm   | _  |                           |
| Reviewed By:        | IO 11   | 126/13                                  |  |  |  |                           |
| Chain of Cu         | · · · · · · · · · · · · · · · · · · ·                       | , |  |  |  |                           |
| 1. Custody s        | eals intact on sample bottl                                 | es?                                     | Yes  | No 🗆   | Not Present  |                           |
| 2. Is Chain o       | f Custody complete?   |   | Yes 🗹  | No 🗆   | Not Present  |                           |
| 3. How was t        | the sample delivered?                                       |   | <u>FedEx</u>   |  |  |                           |
| Log In              |   |   |  |  |  |                           |
| 4. Was an a         | ttempt made to cool the sa                                  | amples?                                 | Yes 🗹  | No 🗌   | na 🗆   |                           |
| 5. Were all s       | samples received at a temp                                  | perature of >0° C to 6.0°C              | Yes 🗸  | No 🗆   | NA 🗌   |                           |
| 6. Sample(s         | ) in proper container(s)?                                   |   | Yes 🗸  | No 🗆   |  |                           |
| 7. Sufficient       | sample volume for indicate                                  | ed test(s)?                             | Yes 🗌  | No 🗹   |  |                           |
| 8. Are samp         | les (except VOA and ONG                                     | ) properly preserved?                   | Yes 🗌  | No 🔽   |  |                           |
| 9. Was pres         | ervative added to bottles?                                  |   | Yes 🗹  | No 🗆   | NA 🗆   |                           |
| 10, VOA vials       | have zero headspace?  |   | Yes 🗹  | No 🗌   | HNO3<br>No VOA Vials   |                           |
|                     | sample containers receive                                   | ed broken?                              | Yes 🔽  | No 🗆 [   | H of property  |                           |
|                     |   |   |  |  | # of preserved<br>bottles checked<br>for pH: 2 4   |                           |
|                     | erwork match bottle labels<br>prepancies on chain of cus    |   | Yes 🗹  | No 🗔   | tor prin   | 2 unless noted)           |
| 13. Are matri       | ces correctly identified on (                               | Chain of Custody?                       | Yes 🗹  | No 🗆   | Adjusted?  | enbelgu                   |
| 14. Is it clear     | what analyses were reque                                    | sted?                                   | Yes 🗸  | No 🗌   |  |                           |
|                     | nolding times able to be me<br>ify customer for authorizati |   | Yes 🗸  | No 🗌   | Checked by:  |                           |
|                     |   |   |  |  |  |                           |
|                     | ndling (if applicable                                       |   | Yes 🗹  | No 🗆   | NA 🗆   |                           |
|                     | nt notified of all discrepanci                              |   |  |  | NA LJ  |                           |
|                     | son Notified: DAVID JA                                      |   | PORT OF THE PROPERTY OF THE PAR | 11/26/2013   |  |                           |
| 1                   | Whom:   | Via:                                    | email [V]  | Phone 🗌 Fax  | ☐ In Person  |                           |
|                     | garding: SEE BEL  | OW                                      |  | THE RESERVE OF THE PARTY OF THE | AND ARROWS ARROW BELLEVIA AND A SPECIAL PROPERTY AND THE PARTY AND ARROWS AND |                           |
|                     | ent Instructions:   |   |  |  |  | 1111                      |
|                     | al remarks: added   | ARRIVED BROKEN, NOT EN                  | ,  |  | acceptably   | off ) A-11/26/11<br>C1245 |
| 18. <u>Cooler I</u> |   | YARE DITORER, NOT EL                    | OCCIT VOLUME   | . OKTODION 2   | LEGILLO IGE I II LOI I O   |                           |
| Coole<br>4          |   | ion Seal Intact Seal No<br>Yes          | Seal Date  | Signed By  |  |                           |
|                     |   | <del></del>                             |  |  |  |                           |

| C           | hain-    | of-Cu       | stody Record                | Turn-Around             | Time:         |                                       | HALL ENVIRONMENTAL |  |              |                    |                    |               |                      |                            |             |             |                |               |            |                      |
|-------------|----------|-------------|-----------------------------|-------------------------|---------------|---------------------------------------|--------------------|--|--------------|--------------------|--------------------|---------------|----------------------|----------------------------|-------------|-------------|----------------|---------------|------------|----------------------|
| Client:     | AMEC     | En          | recomment &                 | Standard                | □ Rush        |                                       |                    |  | _            |                    | NA                 |               |                      |                            |             |             |                |               |            |                      |
| T Mailing   | n fras   | tructo      | Tefferson State             | Project Name            | Dock Geo      | thermal                               |                    |  |              | ٧                  | vww.h              | allenv        | /ironr               | nent                       | al.cc       | m           |                |               |            |                      |
| · C         | Addiess  | 85/9        | Tefferson StNE              | Project #:              | luality Mo    | nitoring                              |                    |  |              |                    | is NE              |               | •                    |                            |             |             |                |               |            |                      |
| _AI         | 3Q/1     | VM          | 87113                       |                         | 7-00102       | -                                     |                    | Tel. 505-345-3975 Fax 505-345-4107  Analysis Request |              |                    |                    |               | ŕ                    |                            |             |             |                |               |            |                      |
| Phone:      | #: (505  | 821         | 1801                        |                         | -             |                                       |                    | (a)  |              | -                  |                    | _             | -                    | Req                        | uest        |             |                |               |            |                      |
|             |          | lavid,      | jankey Damec, coin          | Project Mana            | iger:         |                                       | (2)                | only   | ese          |                    |                    | MZ/II         | ( <sup>†</sup> 03    | ွှ                         |             |             | 3              |               | 13         | $\mathcal{H}$        |
|             | Package: |             |                             | David                   | Janney        | · · · · · · · · · · · · · · · · · · · | s (8021)           | (Gas only)   | (Gas/Diesel) | 1                  | -                  | - 1           | X                    | S                          |             |             | <b>e</b> 2     |               | 1          |                      |
| X Stan      |          |             | ☐ Level 4 (Full Validation) |                         | - 1           |                                       | B's                | H  | (Ga          |                    |                    | F             | 5                    | 82 [                       |             |             |                | ✓             | 127        |                      |
| □ NEL       |          | □ Othe      | r                           | On Ice:                 | Fric Koe      | ng<br>□No:                            | TMB                | TPH  | 8015B        | 8.1                | 4. E               | [             |                      | / 80                       |             | 7           | 3.3            | 285           |            | 13 <u>5</u>          |
| EDD.        | (Type)   | EX          |                             | Sample Tem              |               | 3.8                                   | Ж<br>Т             | 닖  | 80           | d 41               | d 50               | tals          | (S)                  | des                        |             | Š           | 2 3            | A             | N          | 18                   |
| Date        | Time     | Matrix      | Sample Request ID           | Container<br>Type and # | Preservative  | wierdingskrieen                       | BTEX + MTBE        | BTEX + MTBE  | TPH Method   | TPH (Method 418.1) | EDB (Method 504.1) | RCRA 8 Metals | Anions (FICI)NO, NO. | 8081 Pesticides / 8082 PCB | 8260B (VOA) | 8270 (Semi- |                | U (60108/1020 | Rodina 224 | Air Bubbles (Y or N) |
| hostra      | 11:45    | Water       | MW-I                        | 13                      | HC1, HMO3     | -01                                   |                    |  |              | ×                  | >                  |               | ×                    |                            | ス           |             | 8              | N             | N          |                      |
| 25/13       |          |             | MW-Z                        | 1/2                     |               | -02                                   |                    |  |              | 1                  |                    | <             | X                    |                            | ×           | X           | ×              | ×             | X          |                      |
| 1 1         | 9/20     |             | MW-ZB                       |                         |               | -03                                   |                    |  |              | Z                  | >                  | /             | ×                    | ,                          | X           | X           | $\overline{A}$ | X             | M          |                      |
| 124/13      | 17.50    | ,           | MW-3                        |                         |               | -704                                  |                    |  | 1            | X                  | ×                  | 5             | ×                    |                            | X           | X           | A              | 又!            | XI.        |                      |
| 24/12       | 14:35    |             | MW-4                        | Ax 8314827              | 70            | -05                                   |                    |  |              | X                  | \ \ \ \            | 5             | ×                    |                            | X           | X           | X              | X             | X          | X                    |
| 124/12      |          |             | MW-5                        | 100 33.4 82.            |               | -crlo                                 |                    |  | _            | X                  | ×                  | :             | X                    |                            | ×           | ×           | ×              | باير          | X          | য়া                  |
| 1/23/13     |          | V           | MW-6                        | V                       | V             | -07                                   |                    |  | - 1          | X                  | ×                  |               | X                    |                            | , , ,       | ×           | <u> </u>       | ×             | X          | X                    |
| 4.2         |          |             | Tropkack                    |                         |               | -008                                  |                    |  |              |                    | <b>*</b>           |               | 7                    |                            | ×           | <b>)</b>    |                |               |            |                      |
|             |          |             | A 1/26/10                   |                         |               |                                       |                    |  | 1            |                    |                    |               |                      |                            |             |             |                | T             | _          |                      |
|             |          |             | M THE                       |                         |               |                                       |                    |  |              | 1                  |                    |               |                      |                            |             |             |                |               | $\top$     | $\dashv \dashv$      |
|             |          |             |                             |                         |               |                                       |                    |  |              |                    |                    | †             |                      |                            |             |             |                | $\top$        | $\dashv$   | 77                   |
|             |          |             |                             |                         |               |                                       |                    | Ţ  | $\dashv$     | $\top$             |                    |               |                      |                            |             |             | $\dashv$       | $\dashv$      | $\exists$  | 1                    |
| Date: 25/13 | Time:    | Relinquishe | D. Joenig                   | Received by:            | ul Car        | Date Time 11/2(0/13 ()9/5             | Rem                | iarlis<br>É é  | Zi           | Hu                 | cher<br>W5         | 7 5           | -9.                  | Fu                         | 1           | 1C          | T,             | K             | A)         | 4                    |
| Date:       | Time:    | Relinquishe | ed by:                      | Received by:            | $\mathcal{I}$ | Date / Time                           | A                  | you<br>(pon  | 4.<br>1. Re  | LM<br>Cerf         | W5<br>+ 14         | 40<br>T20     | 8 De<br>261          | Hle<br>13                  | 'S L        | Uls         | e k            | nd            | en         |                      |



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

OrderNo.: 1312659

January 22, 2014

David Janney Cyrq Energy Inc PO Box 86 Animas, NM 88020

TEL: (505) 796-7276

**FAX** 

RE: Lightning Dock CYRQ ENERGY

Dear David Janney:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/16/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/22/2014

CLIENT: Cyrq Energy Inc Client Sample ID: MW-1B

Project: Lightning Dock CYRQ ENERGY Collection Date: 12/11/2013 10:45:00 AM Lab ID: 1312659-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                          | Result | RL (     | Qual | Units | DF | Date Analyzed        | Batch          |
|-----------------------------------|--------|----------|------|-------|----|----------------------|----------------|
| EPA METHOD 8011/504.1: EDB        |        |          |      |       |    | Analy                | st: <b>LRW</b> |
| 1,2-Dibromoethane                 | ND     | 0.010    |      | μg/L  | 1  | 12/16/2013 9:45:56 P | M 10822        |
| EPA METHOD 8082: PCB'S            |        |          |      |       |    | Analys               | st: SCC        |
| Aroclor 1016                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 4:15:08 A | M 10796        |
| Aroclor 1221                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 4:15:08 A |                |
| Aroclor 1232                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 4:15:08 A |                |
| Aroclor 1242                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 4:15:08 A |                |
| Aroclor 1248                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 4:15:08 A |                |
| Aroclor 1254                      | ND     | 1.0      |      | μg/L  | 1  | 12/18/2013 4:15:08 A |                |
| Aroclor 1260                      | ND     | 1.0      |      | µg/L  | 1  | 12/18/2013 4:15:08 A |                |
| Surr: Decachlorobiphenyl          | 78.8   | 17-123   |      | %REC  | 1  | 12/18/2013 4:15:08 A |                |
| Surr: Tetrachloro-m-xylene        | 55.2   | 22.6-113 |      | %REC  | 1  | 12/18/2013 4:15:08 A |                |
| EPA METHOD 8310: PAHS             |        |          |      |       |    |                      | st: SCC        |
| Naphthalene                       | ND     | 2.0      |      | μg/L  | 1  | 12/17/2013 10:00:05  |                |
| 1-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/17/2013 10:00:05  |                |
| 2-Methylnaphthalene               | ND     | 2.0      |      | μg/L  | 1  | 12/17/2013 10:00:05  |                |
| Acenaphthylene                    | ND     | 2.5      |      | μg/L  | 1  | 12/17/2013 10:00:05  |                |
| Acenaphthene                      | ND     | 5.0      |      | μg/L  | 1  | 12/17/2013 10:00:05  |                |
| Fluorene                          | ND     | 0.80     |      | μg/L  | 1  | 12/17/2013 10:00:05  |                |
| Phenanthrene                      | ND     | 0.60     |      | μg/L  | 1  | 12/17/2013 10:00:05  |                |
| Anthracene                        | ND     | 0.60     |      | μg/L  | 1  | 12/17/2013 10:00:05  |                |
| Fluoranthene                      | ND     | 0.30     |      | μg/L  | 1  | 12/17/2013 10:00:05  |                |
| Pyrene                            | ND     | 0.30     |      | μg/L  | 1  | 12/17/2013 10:00:05  |                |
| Benz(a)anthracene                 | ND     | 0.070    |      | μg/L  | 1  | 12/17/2013 10:00:05  |                |
| Chrysene                          | ND     | 0.20     |      | µg/L  | 1  | 12/17/2013 10:00:05  | PM 10797       |
| Benzo(b)fluoranthene              | ND     | 0.10     |      | μg/L  | 1  | 12/17/2013 10:00:05  | PM 10797       |
| Benzo(k)fluoranthene              | ND     | 0.070    |      | μg/L  | 1  | 12/17/2013 10:00:05  | PM 10797       |
| Benzo(a)pyrene                    | ND     | 0.070    |      | μg/L  | 1  | 12/17/2013 10:00:05  | PM 10797       |
| Dibenz(a,h)anthracene             | NĐ     | 0.12     |      | μg/L  | 1  | 12/17/2013 10:00:05  | PM 10797       |
| Benzo(g,h,i)perylene              | ND     | 0.12     |      | μg/L  | 1  | 12/17/2013 10:00:05  | PM 10797       |
| Indeno(1,2,3-cd)pyrene            | ND     | 0.25     |      | μg/L  | 1  | 12/17/2013 10:00:05  | PM 10797       |
| Surr: Benzo(e)pyrene              | 46.0   | 24.5-139 |      | %REC  | 1  | 12/17/2013 10:00:05  | PM 10797       |
| EPA METHOD 300.0: ANIONS          |        |          |      |       |    | Analy                | st: <b>JRR</b> |
| Fluoride                          | 9.3    | 2.0      | *    | mg/L  | 20 | 12/16/2013 9:57:25 P |                |
| Chloride                          | 120    | 10       |      | mg/L  | 20 | 12/16/2013 9:57:25 P |                |
| Phosphorus, Orthophosphate (As P) | ND     | 0.50     | Н    | mg/L  | 1  | 12/16/2013 9:45:00 P |                |
| Sulfate                           | 540    | 10       | *    | mg/L  | 20 | 12/16/2013 9:57:25 P |                |
| Nitrate+Nitrite as N              | 15     | 1.0      | *    | mg/L  | 5  | 12/17/2013 4:47:07 A |                |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Not Detected at the Reporting Limit
  Page 1 of 28
  Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: MW-1B

Project: Lightning Dock CYRQ ENERGY Collection Date: 12/11/2013 10:45:00 AM

Lab ID: 1312659-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Ç    | Qual Units | DF | Date Analyzed         | Batch   |
|--------------------------------|--------|---------|------------|----|-----------------------|---------|
| EPA METHOD 200.7: DISSOLVED ME | TALS   |         |            |    | Analyst               | : JLF   |
| Aluminum                       | 25     | 1.0     | * mg/L     | 50 | 12/23/2013 5:48:42 PM | R15707  |
| Barium                         | 0.14   | 0.0020  | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Boron                          | 0.45   | 0.040   | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Cadmium                        | ND     | 0.0020  | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Calcium                        | 53     | 1.0     | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Chromium                       | ND     | 0.0060  | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Cobalt                         | ND     | 0.0060  | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Copper                         | ND     | 0.0060  | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Iron                           | 8.5    | 1.0     | * mg/L     | 50 | 12/23/2013 5:48:42 PM | R15707  |
| Magnesium                      | 4.6    | 1.0     | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Manganese                      | 0.27   | 0.0020  | * mg/L     | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Molybdenum                     | 0.029  | 0.0080  | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Nickel                         | ND     | 0.010   | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Potassium                      | 21     | 1.0     | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Silver                         | ND     | 0.0050  | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| Sodium                         | 320    | 5.0     | mg/L       | 5  | 12/19/2013 5:38:52 PM | R15612  |
| Zinc                           | 0.015  | 0.010   | mg/L       | 1  | 12/19/2013 5:37:06 PM | R15612  |
| EPA 200.8: DISSOLVED METALS    |        |         |            |    | Analyst               | : DBD   |
| Arsenic                        | 0.011  | 0.0010  | * mg/L     | 1  | 1/6/2014 5:07:15 PM   | R15909  |
| Lead                           | 0.0044 | 0.0010  | mg/L       | 1  | 1/6/2014 5:07:15 PM   | R15909  |
| Uranium                        | 0.0037 | 0.0010  | mg/L       | 1  | 1/7/2014 6:04:39 PM   | R15934  |
| EPA METHOD 245.1: MERCURY      |        |         |            |    | Analyst               | t: IDC  |
| Mercury                        | 0.0016 | 0.00020 | mg/L       | 1  | 1/3/2014 3:50:20 PM   | 11064   |
| EPA METHOD 8270C: SEMIVOLATILE | ES     |         |            |    | Analys                | t: DAM  |
| Acenaphthene                   | ND     | 10      | μg/L       | 1  | 12/18/2013 9:34:48 AM | 1 10800 |
| Acenaphthylene                 | ND     | 10      | µg/L       | 1  | 12/18/2013 9:34:48 AM | 1 10800 |
| Aniline                        | ND     | 10      | µg/L       | 1  | 12/18/2013 9:34:48 AM | 1 10800 |
| Anthracene                     | ND     | 10      | μg/L       | 1  | 12/18/2013 9:34:48 AM | 1 10800 |
| Azobenzene                     | ND     | 10      | µg/L       | 1  | 12/18/2013 9:34:48 AM | 1 10800 |
| Benz(a)anthracene              | ND     | 10      | µg/L       | 1  | 12/18/2013 9:34:48 AM | 1 10800 |
| Benzo(a)pyrene                 | ND     | 10      | μg/L       | 1  | 12/18/2013 9:34:48 AM | 10800   |
| Benzo(b)fluoranthene           | ND     | 10      | μg/L       | 1  | 12/18/2013 9:34:48 AM | 1 10800 |
| Benzo(g,h,i)perylene           | ND     | 10      | μg/L       | 1  | 12/18/2013 9:34:48 AM | 10800   |
| Benzo(k)fluoranthene           | ND     | 10      | μg/L       | 1  | 12/18/2013 9:34:48 AM | 10800   |
| Benzoic acid                   | ND     | 40      | μg/L       | 1  | 12/18/2013 9:34:48 AM | 1 10800 |
| Benzyl alcohol                 | ND     | 10      | μg/L       | 1  | 12/18/2013 9:34:48 AM | 10800   |
| Bis(2-chloroethoxy)methane     | ND     | 10      | μg/L       | 1  | 12/18/2013 9:34:48 AM | 1 10800 |
| Bis(2-chloroethyl)ether        | ND     | 10      | μg/L       | 1  | 12/18/2013 9:34:48 AM | 1 10800 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 2 of 28
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc

Client Sample ID: MW-1B

Project:Lightning Dock CYRQ ENERGYCollection Date: 12/11/2013 10:45:00 AMLab ID:1312659-001Matrix: AQUEOUSReceived Date: 12/16/2013 9:05:00 AM

| Analyses                        | Result | RL Qua | l Units | DF | Date Analyzed         | Batch |
|---------------------------------|--------|--------|---------|----|-----------------------|-------|
| EPA METHOD 8270C: SEMIVOLATILES |        |        |         |    | Analyst:              | DAM   |
| Bis(2-chloroisopropyl)ether     | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Bis(2-ethylhexyl)phthalate      | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 4-Bromophenyl phenyl ether      | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Butyl benzyl phthalate          | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Carbazole                       | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 4-Chloro-3-methylphenol         | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 4-Chloroaniline                 | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 2-Chloronaphthalene             | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 2-Chlorophenol                  | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 4-Chlorophenyl phenyl ether     | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Chrysene                        | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Di-n-butyl phthalate            | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Di-n-octyl phthalate            | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Dibenz(a,h)anthracene           | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Dibenzofuran                    | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 1,2-Dichlorobenzene             | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 1,3-Dichlorobenzene             | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 1,4-Dichlorobenzene             | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 3,3'-Dichlorobenzidine          | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Diethyl phthalate               | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Dimethyl phthalate              | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 2,4-Dichlorophenol              | ND     | 20     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 2,4-Dimethylphenol              | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 4,6-Dinitro-2-methylphenol      | ND     | 20     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 2,4-Dinitrophenol               | ND     | 20     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 2,4-Dinitrotoluene              | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 2,6-Dinitrotoluene              | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Fluoranthene                    | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Fluorene                        | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Hexachlorobenzene               | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Hexachlorobutadiene             | ND     | 10     | µg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Hexachlorocyclopentadiene       | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Hexachloroethane                | ND     | 10     | µg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Indeno(1,2,3-cd)pyrene          | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| Isophorone                      | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 1-Methylnaphthalene             | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 2-Methylnaphthalene             | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 2-Methylphenol                  | ND     | 10     | µg/l_   | 1  | 12/18/2013 9:34:48 AM | 10800 |
| 3+4-Methylphenol                | ND     | 10     | μg/L    | 1  | 12/18/2013 9:34:48 AM | 10800 |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - NO Not Detected at the Reporting Limit Page 3 of 28 P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### Lab Order 1312659

Hall Environmental Analysis Laboratory, Inc. Date Reported: 1/22/2014

CLIENT: Cyrq Energy Inc Client Sample ID: MW-1B

Project: Lightning Dock CYRQ ENERGY Collection Date: 12/11/2013 10:45:00 AM Lab ID: 1312659-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qu     | al Units | DF | Date Analyzed         | Batch         |
|--------------------------------|--------|-----------|----------|----|-----------------------|---------------|
| EPA METHOD 8270C: SEMIVOLATII  | LES    |           |          |    | Analys                | t: DAM        |
| N-Nitrosodi-n-propylamine      | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AM | 1 10800       |
| N-Nitrosodimethylamine         | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| N-Nitrosodiphenylamine         | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| Naphthalene                    | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| 2-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| 3-Nitroaniline                 | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| 4-Nitroaniline                 | ND     | 10        | µg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| Nitrobenzene                   | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| 2-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| 4-Nitrophenol                  | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| Pentachlorophenol              | ND     | 20        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| Phenanthrene                   | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| Phenol                         | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| Pyrene                         | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AN | 1 10800       |
| Pyridine                       | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AM | 1 10800       |
| 1,2,4-Trichlorobenzene         | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AM | 1 10800       |
| 2,4,5-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AM | 1 10800       |
| 2,4,6-Trichlorophenol          | ND     | 10        | μg/L     | 1  | 12/18/2013 9:34:48 AM | 1 10800       |
| Surr: 2-Fluorophenol           | 47.0   | 22.7-98   | %REC     | 1  | 12/18/2013 9:34:48 AM | 1 10800       |
| Surr: Phenol-d5                | 35.9   | 23.4-74.9 | %REC     | 1  | 12/18/2013 9:34:48 AM | 1 10800       |
| Surr: 2,4,6-Tribromophenol     | 74.6   | 23.3-111  | %REC     | 1  | 12/18/2013 9:34:48 AM | 10800         |
| Surr: Nitrobenzene-d5          | 69.6   | 36.8-111  | %REC     | 1  | 12/18/2013 9:34:48 AM | 1 10800       |
| Surr: 2-Fluorobiphenyl         | 70.7   | 38.3-110  | %REC     | 1  | 12/18/2013 9:34:48 AM | 1 10800       |
| Surr: 4-Terphenyl-d14          | 73.1   | 52.1-116  | %REC     | 1  | 12/18/2013 9:34:48 AM | 10800         |
| EPA METHOD 8260B: VOLATILES    |        |           |          |    | Analys                | t: <b>JMP</b> |
| Benzene                        | ND     | 2.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| Toluene                        | ND     | 2.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| Ethylbenzene                   | ND     | 2.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| Methyl tert-butyl ether (MTBE) | ND     | 2.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| 1,2,4-Trimethylbenzene         | ND     | 2.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| 1,3,5-Trimethylbenzene         | ND     | 2.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| 1,2-Dichloroethane (EDC)       | ND     | 2.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| 1,2-Dibromoethane (EDB)        | ND     | 2.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| Naphthalene                    | ND     | 4.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| 1-Methylnaphthalene            | ND     | 8.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| 2-Methylnaphthalene            | ND     | 8.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| Acetone                        | ND     | 20        | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| Bromobenzene                   | ND     | 2.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |
| Bromodichloromethane           | ND     | 2.0       | μg/L     | 2  | 12/17/2013 12:59:26 A | M R15529      |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- Ο RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit Not Detected at the Reporting Limit Page 4 of 28 Sample pH greater than 2 for VOA and TOC only.
- Ρ
- Reporting Detection Limit

#### Lab Order 1312659

Date Reported: 1/22/2014

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrq Energy Inc Client Sample ID: MW-1B

Project:Lightning Dock CYRQ ENERGYCollection Date: 12/11/2013 10:45:00 AMLab ID:1312659-001Matrix: AQUEOUSReceived Date: 12/16/2013 9:05:00 AM

| Analyses                    | Result | RL Qu | al Units | DF | Date Analyzed       | Batch           |
|-----------------------------|--------|-------|----------|----|---------------------|-----------------|
| EPA METHOD 8260B: VOLATILES |        |       |          |    | Anal                | yst: <b>JMP</b> |
| Bromoform                   | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| Bromomethane                | ND     | 6.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| 2-Butanone                  | ND     | 20    | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| Carbon disulfide            | ND     | 20    | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| Carbon Tetrachloride        | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| Chlorobenzene               | , ND   | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| Chloroethane                | ND     | 4.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| Chloroform                  | 33     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| Chloromethane               | ND     | 6.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| 2-Chlorotoluene             | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| 4-Chlorotoluene             | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| cis-1,2-DCE                 | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| cis-1,3-Dichloropropene     | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| 1,2-Dibromo-3-chloropropane | ND     | 4.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| Dibromochloromethane        | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| Dibromomethane              | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| 1,2-Dichlorobenzene         | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | AM R15529       |
| 1,3-Dichlorobenzene         | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 1,4-Dichlorobenzene         | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 3 AM R15529     |
| Dichlorodifluoromethane     | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 1,1-Dichloroethane          | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 1,1-Dichloroethene          | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 1,2-Dichloropropane         | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 1,3-Dichloropropane         | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 2,2-Dichloropropane         | ND     | 4.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 1,1-Dichloropropene         | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:20 | 6 AM R15529     |
| Hexachlorobutadiene         | ND     | 2.0   | µg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 2-Hexanone                  | ND     | 20    | µg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| Isopropylbenzene            | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 4-Isopropyltoluene          | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 4-Methyl-2-pentanone        | ND     | 20    | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| Methylene Chloride          | ND     | 6.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| n-Butylbenzene              | ND     | 6.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| n-Propylbenzene             | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| sec-Butylbenzene            | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| Styrene                     | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| tert-Butylbenzene           | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 1,1,1,2-Tetrachloroethane   | ND     | 2.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |
| 1,1,2,2-Tetrachloroethane   | ND     | 4.0   | μg/L     | 2  | 12/17/2013 12:59:26 | 6 AM R15529     |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSD limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 5 of 28

- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/22/2014

CLIENT: Cyrq Energy Inc Client Sample ID: MW-1B

Project: Lightning Dock CYRQ ENERGY Collection Date: 12/11/2013 10:45:00 AM

Lab ID: 1312659-001 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL (   | Qual | Units      | DF | Date Analyzed        | Batch          |
|--------------------------------|--------|--------|------|------------|----|----------------------|----------------|
| EPA METHOD 8260B: VOLATILES    |        |        |      |            |    | Analy                | st: JMP        |
| Tetrachloroethene (PCE)        | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| trans-1,2-DCE                  | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| trans-1,3-Dichloropropene      | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| 1,2,3-Trichlorobenzene         | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| 1,2,4-Trichlorobenzene         | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| 1,1,1-Trichloroethane          | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| 1,1,2-Trichloroethane          | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| Trichloroethene (TCE)          | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| Trichlorofluoromethane         | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| 1,2,3-Trichloropropane         | ND     | 4.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| Vinyl chloride                 | ND     | 2.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| Xylenes, Total                 | ND     | 3.0    |      | μg/L       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| Surr: 1,2-Dichloroethane-d4    | 86.9   | 70-130 |      | %REC       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| Surr: 4-Bromofluorobenzene     | 91.5   | 70-130 |      | %REC       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| Surr: Dibromofluoromethane     | 93.1   | 70-130 |      | %REC       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| Surr: Toluene-d8               | 92.6   | 70-130 |      | %REC       | 2  | 12/17/2013 12:59:26  | AM R15529      |
| EPA METHOD 418.1: TPH          |        |        |      |            |    | Analy                | st: BCN        |
| Petroleum Hydrocarbons, TR     | 1.3    | 1.0    |      | mg/L       | 1  | 12/17/2013           | 10820          |
| TOTAL PHENOLICS BY SW-846 9067 |        |        |      |            |    | Analy                | st: SCC        |
| Phenolics, Total Recoverable   | ND     | 2.5    |      | μg/L       | 1  | 12/19/2013           | 10891          |
| SM4500-H+B: PH                 |        |        |      |            |    | Analy                | st: SRM        |
| pH                             | 7.66   | 1.68   | Н    | pH units   | 1  | 12/16/2013 5:58:17 F | PM R15528      |
| SM2320B: ALKALINITY            |        |        |      |            |    | Analy                | st: SRM        |
| Bicarbonate (As CaCO3)         | 86     | 20     |      | mg/L CaCO3 | 1  | 12/16/2013 5:58:17 F | PM R15528      |
| Carbonate (As CaCO3)           | ND     | 2.0    |      | mg/L CaCO3 | 1  | 12/16/2013 5:58:17 F | PM R15528      |
| Total Alkalinity (as CaCO3)    | 86     | 20     |      | mg/L CaCO3 | 1  | 12/16/2013 5:58:17 F | PM R15528      |
| SM2540C MOD: TOTAL DISSOLVED S | OLIDS  |        |      |            |    | Analy                | /st: <b>KS</b> |
| Total Dissolved Solids         | 1520   | 200    | *    | mg/L       | 1  | 12/19/2013 11:19:00  | AM 10843       |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 6 of 28
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131218049

Address:

4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109

**Project Name:** 

1312659

Attn:

ANDY FREEMAN

### **Analytical Results Report**

Sample Number

131218049-001

Sampling Date

12/11/2013

Client Sample ID

1312659-001K / MW-1B

Sampling Time

10:45 AM

Date/Time Received 12/17/2013 12:36 PM

Matrix Comments Water

Metals samples received unfiltered and preserved with HNO3.

| Parameter          | Result | Units | PQL   | Analysis Date | Analyst | Method    | Qualifier |
|--------------------|--------|-------|-------|---------------|---------|-----------|-----------|
| Dissolved Lithium  | 0.533  | mg/L  | 0.001 | 1/21/2014     | ETL     | EPA 200.8 |           |
| Dissolved Rubidium | 0.189  | mg/L  | 0.001 | 1/21/2014     | ETL     | EPA 200.8 |           |
| Dissolved Tungsten | 0.0386 | mg/L  | 0.01  | 1/21/2014     | ETL     | EPA 200.8 |           |

Sample Number

131218049-002

Water

Sampling Date 12/11/2013

Date/Time Received 12/17/2013 12:36 PM

Client Sample ID

1312659-001L / MW-1B

Sampling Time 10:45 AM

Matrix Comments

> Parameter Result Units PQL **Analysis Date** Analyst Method Qualifier Cyanide 12/18/2013 CRW EPA 335.4 ND mg/L 0.01

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095

Tuesday, January 21, 2014 Page 1 of 2

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Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131218049

Address:

4901 HAWKINS NE SUITE D

Project Name:

1312659

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

### **Analytical Results Report**

Sample Number

131218049-003

Sampling Date

12/11/2013

Date/Time Received 12/17/2013 12:36 PM

Client Sample ID

1312659-001M / MW-1B

Sampling Time 10:45 AM

Matrix

Water

Comments

| Parameter | Result | Units | PQL | Analysis Date | Analyst | Method   | Qualifier |
|-----------|--------|-------|-----|---------------|---------|----------|-----------|
| Total P   | 3.25   | mg/L  | 0.1 | 1/7/2014      | CRW     | SM4500PF |           |

Authorized Signature

John Coddington, Lab Manager

MCL

EPA's Maximum Contaminant Level

ND

Not Detected

PQL

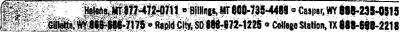
Practical Quantitation Limit

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Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095

Tuesday, January 21, 2014 Page 2 of 2





#### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Hall Environmental

Not Indicated

Report Date: 12/23/13

Project:

Collection Date: 12/11/13 10:45

Lab ID:

C13120620-001

DateReceived: 12/18/13

Client Sample ID: 1312659-0010 MW-1B

Matrix: Aqueous

| Analyses                | Result Units | Qualifiers | RL | MCL/<br>QCL | Method   | Analysis Date / By   |  |
|-------------------------|--------------|------------|----|-------------|----------|----------------------|--|
| RADIONUCLIDES - TOTAL   |              |            |    |             |          |                      |  |
| Radon 222               | 676 pCi/L    |            |    |             | D5072-92 | 12/18/13 18:01 / dpb |  |
| Radon 222 precision (±) | 122 pCi/L    |            |    |             | D5072-92 | 12/18/13 18:01 / dpb |  |
| Radon 222 MDC           | 195 pCi/L    |            |    |             | D5072-92 | 12/18/13 18:01 / dpb |  |



Helens, MT 877-472-0711 · Billings, MT 800-735-4488 · Casper, WY 868-235-0515 Gillette, WY 886-686-7175 • Repld City, SD 888-672-1225 • College Station, IX 868-698-2218

### **QA/QC Summary Report**

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 12/23/13

Work Order: C13120620

| Analyte     |                            | Count        | Result       | Units           | RL   | %REC | Low Limit                               | High Limit  | RPD     | RPDLimit | Qual      |
|-------------|----------------------------|--------------|--------------|-----------------|------|------|---|-------------|---------|----------|-----------|
| Method:     | D5072-92                   |              |              |                 |      |      | *************************************** |             |         | Batch:   | R181914   |
| Sample ID:  | C13120621-001ADUF          | 3 Sa         | mple Duplica | te              |      |      | Run: PACK                               | ARD 3100TR  | 131218A | 12/18    | /13 18:01 |
| Radon 222   |                            |              | 1.6          | pCi/L           |      |      |   |             | 210     | 20       | UR        |
| Radon 222   | precision (±)              |              | 75.1         | pCi/L           |      |      |   |             |         |          |           |
| Radon 222 I | MDC                        |              | 130          | pCi/L           |      |      |   |             |         |          |           |
| - The Samp  | le and the Duplicate are b | ooth below t | he MDC. The  | RPD is acceptat | ole. |      |   |             |         |          |           |
| Sample ID:  | MB-R181914                 | 3 Me         | thod Blank   |                 |      |      | Run: PACK                               | ARD 3100TR_ | 131218A | 12/18    | /13 18:01 |
| Radon 222   |                            |              | 7            | pCi/L           |      |      |   |             |         |          | U         |
| Radon 222   | precision (±)              |              | 30           | pCi/L           |      |      |   |             |         |          |           |
| Radon 222   | MDC                        |              | 50           | pCi/L           |      |      |   |             |         |          |           |
| Sample ID:  | LCS-R181914                | La           | boratory Con | trol Sample     |      |      | Run: PACK                               | ARD 3100TR  | 131218A | 12/18    | /13 18:01 |
| Radon 222   |                            |              | 552          | pCi/L           |      | 96   | 80                                      | 120         |         |          |           |



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

#### **ANALYTICAL RESULTS**

Project:

1312659

30109787 Pace Project No.:

Sample: 1312659-001 MW-1B

Lab ID: 30109787001 Site ID:

Collected: 12/11/13 10:45 Received: 12/17/13 11:00 Matrix: Water

Sample Type:

PWS: Parameters Method Act ± Unc (MDC) Units Analyzed CAS No. Qual EPA 903.1 2.00 ± 0.722 (0.566) 12/27/13 12:46 13982-63-3 Radium-226 pCi/L EPA 904.0 0.711 ± 0.402 (0.727) pCi/L 12/31/13 09:22 15262-20-1 Radium-228



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#### **QUALITY CONTROL DATA**

Project:

1312659

Pace Project No.: 30109787

QC Batch:

RADC/18095

Analysis Method:

EPA 903.1

QC Batch Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples:

METHOD BLANK: 671140

Matrix: Water

Associated Lab Samples:

30109787001

30109787001

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-226

-0.291 ± 0.271 (0.728)

pCi/L

12/27/13 11:20

#### REPORT OF LABORATORY ANALYSIS

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#### **QUALITY CONTROL DATA**

Project:

1312659

Pace Project No.: 30109787

20400707

QC Batch:

RADC/18094

Analysis Method:

EPA 904.0

QC Batch Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples:

METHOD BLANK: 671139

Matrix: Water

Associated Lab Samples:

30109787001

30109787001

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-228

 $0.177 \pm 0.225$  (0.479)

pCi/L

12/31/13 09:21

**REPORT OF LABORATORY ANALYSIS** 

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### all Environmental Analysis Laboratory, Inc.

WO#:

1312659 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID MB   | Samp       | Туре: МЕ | BLK       | Tes         | tCode: El    | PA Method | 200.7: Dissol | ved Metal | s        |      |
|----------------|------------|----------|-----------|-------------|--------------|-----------|---------------|-----------|----------|------|
| Client ID: PBW | Bato       | h ID: R1 | 5612      | F           | RunNo: 15612 |           |               |           |          |      |
| Prep Date:     | Analysis I | Date: 12 | 2/19/2013 | S           | SeqNo: 4     | 49740     | Units: mg/L   |           |          |      |
| Analyte        | Result     | PQL      | SPK value | SPK Ref Val | %REC         | LowLimit  | HighLimit     | %RPD      | RPDLimit | Qual |
| Barium         | ND         | 0.0020   |           |             |              |           |               |           |          |      |
| Boron          | ND         | 0.040    |           |             |              |           |               |           |          |      |
| Cadmium        | ND         | 0.0020   |           |             |              |           |               |           |          |      |
| Calcium        | ND         | 1.0      |           |             |              |           |               |           |          |      |
| Chromium       | ND         | 0.0060   |           |             |              |           |               |           |          |      |
| Cobalt         | ND         | 0.0060   |           |             |              |           |               |           |          |      |
| Copper         | ND         | 0.0060   |           |             |              |           |               |           |          |      |
| Magnesium      | ND         | 1.0      |           |             |              |           |               |           |          |      |
| Manganese      | ND         | 0.0020   |           |             |              |           |               |           |          |      |
| Molybdenum     | ND         | 0.0080   |           |             |              |           |               |           |          |      |
| Nickel         | ND         | 0.010    |           |             |              |           |               |           |          |      |
| Potassium      | ND         | 1.0      |           |             |              |           |               |           |          |      |
| Silver         | ND         | 0.0050   |           |             |              |           |               |           |          |      |
| Sodium         | ND         | 1.0      |           |             |              |           |               |           |          |      |
| Zinc           | ND         | 0.010    |           |             |              |           |               |           |          |      |

| ample ID L  | cs   | Samp     | Type: <b>LC</b> | S         | Test        | Code: El | PA Method | 200.7: Dissol | ved Meta | is       |      |
|-------------|------|----------|-----------------|-----------|-------------|----------|-----------|---------------|----------|----------|------|
| Jient ID: L | .csw | Bato     | h ID: R1        | 5612      | R           | tunNo: 1 | 5612      |               |          |          |      |
| Prep Date:  |      | Analysis | Date: 12        | 2/19/2013 | S           | SeqNo: 4 | 49741     | Units: mg/L   |          |          |      |
| Analyte     |      | Result   | PQL             | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit     | %RPD     | RPDLimit | Qual |
| Barium      |      | 0.49     | 0.0020          | 0.5000    | 0           | 98.4     | 85        | 115           |          |          |      |
| Boron       |      | 0.52     | 0.040           | 0.5000    | 0           | 104      | 85        | 115           |          |          |      |
| Cadmium     |      | 0.51     | 0.0020          | 0.5000    | 0           | 101      | 85        | 115           |          |          |      |
| Calcium     |      | 49       | 1.0             | 50.00     | 0           | 97.2     | 85        | 115           |          |          |      |
| Chromium    |      | 0.52     | 0.0060          | 0.5000    | 0           | 104      | 85        | 115           |          |          |      |
| Cobalt      |      | 0.49     | 0.0060          | 0.5000    | 0           | 98.4     | 85        | 115           |          |          |      |
| Copper      |      | 0.48     | 0.0060          | 0.5000    | 0           | 96.7     | 85        | 115           |          |          |      |
| Magnesium   |      | 49       | 1.0             | 50.00     | 0           | 98.0     | 85        | 115           |          |          |      |
| Manganese   |      | 0.50     | 0.0020          | 0.5000    | 0           | 100      | 85        | 115           |          |          |      |
| Molybdenum  |      | 0.51     | 0.0080          | 0.5000    | 0           | 102      | 85        | 115           |          |          |      |
| Nickel      |      | 0.51     | 0.010           | 0.5000    | 0           | 102      | 85        | 115           |          |          |      |
| Potassium   |      | 48       | 1.0             | 50.00     | 0           | 95.1     | 85        | 115           |          |          |      |
| Silver      |      | 0.10     | 0.0050          | 0.1000    | 0           | 103      | 85        | 115           |          |          |      |
| Sodium      |      | 48       | 1.0             | 50.00     | 0           | 95.2     | 85        | 115           |          |          |      |
| Zinc        |      | 0.50     | 0.010           | 0.5000    | 0           | 99.2     | 85        | 115           |          |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

Analyte detected in the associated Method Blank

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRO ENERGY

| Sample ID MB                  | SampTy               | pe: MBI         | LK               | Tes          | tCode: EF                    | PA Method     | 200.7: Dissol | ved Meta         | s             |      |  |
|-------------------------------|----------------------|-----------------|------------------|--------------|------------------------------|---------------|---------------|------------------|---------------|------|--|
| Client ID: PBW                | Batch                | ID: <b>R15</b>  | 707              | RunNo: 15707 |                              |               |               |                  |               |      |  |
| Prep Date:                    | Analysis Da          | ate: 12/        | 23/2013          | S            | SeqNo: 453037                |               |               | Units: mg/L      |               |      |  |
| Analyte                       | Result               | PQL             | SPK value        | SPK Ref Val  | %REC                         | LowLimit      | HighLimit     | %RPD             | RPDLimit      | Qual |  |
| Aluminum                      | ND                   | 0.020           |                  |              |                              |               |               |                  |               |      |  |
| lron                          | ND                   | 0.020           |                  |              |                              |               |               |                  |               |      |  |
|                               |                      |                 |                  |              |                              |               |               |                  |               |      |  |
| Sample ID LCS                 | SampTy               | pe: LCS         | 5                | Tes          | tCode: <b>E</b> F            | PA Method     | 200.7: Dissol | ved Meta         | s             |      |  |
| Sample ID LCS Client ID: LCSW |                      | /pe: <b>LCS</b> |                  |              | tCode: <b>EF</b><br>RunNo: 1 |               | 200.7: Dissol | ved Meta         | s             |      |  |
| ,                             |                      | ID: <b>R15</b>  | 5707             | F            |                              | 5707          | 200.7: Dissol | ved Meta         | s             |      |  |
| Client ID: LCSW               | Batch                | ID: <b>R15</b>  | 5707<br>/23/2013 | F            | RunNo: 1                     | 5707          |               | ved Meta<br>%RPD | s<br>RPDLimit | Qual |  |
| Client ID: LCSW Prep Date:    | Batch<br>Analysis Da | ID: <b>R15</b>  | 5707<br>/23/2013 | F            | RunNo: 1:                    | 5707<br>53038 | Units: mg/L   |                  |               | Qual |  |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit Ο
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

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### 'all Environmental Analysis Laboratory, Inc.

WO#: 1312659

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22-Jan-14

| Client: | Cyrq Energy | Inc |
|---------|-------------|-----|
| ~       |             |     |

| Project:   |      | Lightning Dock CYRQ ENERGY |  |    |
|------------|------|----------------------------|--|----|
| Sample ID  | LCS  | SampType: LCS              | TestCode: EPA 200.8: Dissolved Metals                    |    |
| Client ID: | LCSW | Batch ID: R15909           | RunNo: 15909   |    |
| Prep Date: |      | Analysis Date: 1/6/2014    | SeqNo: 458860 Units: mg/L                                |    |
| Analyte    |      | Result PQL SPK value       | e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual | ıl |
| Arsenic    |      | 0.026 0.0010 0.02500       |  |    |
| Lead       |      | 0.027 0.0010 0.02500       | 0 106 85 115   |    |
| Sample ID  | LCS  | SampType: LCS              | TestCode: EPA 200.8: Dissolved Metals                    |    |
| Client ID: | LCSW | Batch ID: R15909           | RunNo: 15909   |    |
| Prep Date: |      | Analysis Date: 1/6/2014    | SeqNo: 458861 Units: mg/L                                |    |
| Analyte    |      | Result PQL SPK value       | SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual   | ıl |
| Arsenic    |      | 0.025 0.0010 0.0250        |  |    |
| Lead       |      | 0.026 0.0010 0.0250        | 0 105 85 115   |    |
| Sample ID  | МВ   | SampType: MBLK             | TestCode: EPA 200.8: Dissolved Metals                    |    |
| Client ID: | PBW  | Batch ID: R15909           | RunNo: 1 <b>5909</b>                                     |    |
| Prep Date: |      | Analysis Date: 1/6/2014    | SeqNo: 458863 Units: mg/L                                |    |
| Analyte    |      |                            | e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual | ıł |
| enic       |      | ND 0.0010                  |  |    |
| ıd         |      | ND 0.0010                  |  |    |
| Sample ID  | MB   | SampType: MBLK             | TestCode: EPA 200.8: Dissolved Metals                    |    |
| Client ID: | PBW  | Batch ID: R15909           | RunNo: 15909   |    |
| Prep Date: |      | Analysis Date: 1/6/2014    | SeqNo: <b>458864</b> Units: <b>mg/L</b>                  |    |
| Analyte    |      |                            | e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qua  | al |
| Arsenic    |      | ND 0.0010                  |  |    |
| Lead       |      | ND 0.0010                  |  |    |
| Sample ID  | LCS  | SampType: LCS              | TestCode: EPA 200.8: Dissolved Metals                    |    |
| Client ID: | LCSW | Batch ID: R15934           | RunNo: 15934   |    |
| Prep Date: |      | Analysis Date: 1/7/2014    | SeqNo: <b>459484</b> Units: <b>mg/L</b>                  |    |
| Analyte    |      | Result PQL SPK valu        | e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qua  | al |
| Uranium    |      | 0.028 0.0010 0.0250        | 0 111 85 115   |    |
| Sample ID  | LCS  | SampType: <b>LCS</b>       | TestCode: EPA 200.8: Dissolved Metals                    |    |
| Client ID: | LCSW | Batch ID: R15934           | RunNo: 15934   |    |
| Prep Date: |      | Analysis Date: 1/7/2014    | SeqNo: 459485 Units: mg/L                                |    |
| Analyte    |      | Result PQL SPK valu        | e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qua  | al |
| Uranium    |      | 0.027 0.0010 0.0250        | 0 0 109 85 115   |    |

- Value exceeds Maximum Contaminant Level.
  - Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit O
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit RL

### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Client ID:

PBW

Batch ID: R15934

**PQL** 

RunNo: 15934

Prep Date:

Analysis Date: 1/7/2014

Result

Result

SeqNo: 459486

Units: mg/L HighLimit

%RPD

**RPDLimit** 

Qual

Analyte Uranium

Client ID:

Prep Date:

ND 0.0010

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Batch ID: R15934 Analysis Date: 1/7/2014 RunNo: 15934

SPK value SPK Ref Val %REC

SPK value SPK Ref Val %REC LowLimit

SeqNo: 459487

LowLimit

Units: mg/L HighLimit

%RPD

**RPDLimit** 

Qual

Analyte Uranium

PQL

ND 0.0010

Qualifiers:

Value exceeds Maximum Contaminant Level.

Spike Recovery outside accepted recovery limits

Value above quantitation range E

Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

RPD outside accepted recovery limits

В Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit

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### 'all Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-11064

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID:

PBW

Batch ID: 11064

RunNo: 15897

Units: mg/L

Prep Date: 1/3/2014 Analysis Date: 1/3/2014 Result **PQL** 

Result

SeqNo: 458393

HighLimit

**RPDLimit** 

Qual

Analyte Mercury

ND 0.00020

Sample ID LCS-11064

SampType: LCS

SPK value SPK Ref Val %REC LowLimit

0

TestCode: EPA Method 245.1: Mercury

Client ID: Prep Date: 1/3/2014

LCSW

Batch ID: 11064

RunNo: 15897

Analysis Date: 1/3/2014

SeqNo: 458394

Units: mg/L HighLimit

%RPD

%RPD

**RPDLimit** Qual

Analyte

SPK value SPK Ref Val

97.9

LowLimit

120

Mercury

0.0049 0.00020 0.005000

PQL

%REC

80

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

Analyte detected below quantitation limits

RSD is greater than RSDlimit 0

RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

RLReporting Detection Limit Page 11 of 28

### Hall Environmental Analysis Laboratory, Inc.

WO#: **1312659** 

22-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

| Sample ID MB                     | SampType: <b>MBLK</b> |         |           | Tes         | tCode: E | PA Method | 3           |      |          |      |
|----------------------------------|-----------------------|---------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: PBW                   | Batch 1D: R15551      |         |           | F           | RunNo: 1 | 5551      |             |      |          |      |
| Prep Date:                       | Analysis Da           | ate: 12 | 2/16/2013 | \$          | SeqNo: 4 | 47258     | Units: mg/L |      |          |      |
| Analyte                          | Result                | PQL     | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | ND                    | 0.10    |           |             |          |           |             |      |          |      |
| Chloride                         | ND                    | 0.50    |           |             |          |           |             |      |          |      |
| Phosphorus, Orthophosphate (As P | ND                    | 0.50    |           |             |          |           |             |      |          |      |
| Sulfate                          | ND                    | 0.50    |           |             |          |           |             |      |          |      |
| Nitrate+Nitrite as N             | ND                    | 0.20    |           |             |          |           |             |      |          |      |

| Sample ID LCS                        | SampT  | ype: LC       | S         | Tes         | tCode: El            | PA Method | 300.0: Anions | •           |          |      |
|--------------------------------------|--------|---------------|-----------|-------------|----------------------|-----------|---------------|-------------|----------|------|
| Client ID: LCSW                      | Batch  | ID: <b>R1</b> | 5551      | F           | RunNo: 15551         |           |               |             |          |      |
| Prep Date: Analysis Date: 12/16/2013 |        |               |           |             | SeqNo: <b>447259</b> |           |               | Units: mg/L |          |      |
| Analyte                              | Result | PQL           | SPK value | SPK Ref Val | %REC                 | LowLimit  | HighLimit     | %RPD        | RPDLimit | Qual |
| Fluoride                             | 0.49   | 0.10          | 0.5000    | 0           | 98.7                 | 90        | 110           |             |          |      |
| Chloride                             | 4.7    | 0.50          | 5.000     | 0           | 93.2                 | 90        | 110           |             |          |      |
| Phosphorus, Orthophosphate (As P     | 4.7    | 0.50          | 5.000     | 0           | 94.4                 | 90        | 110           |             |          |      |
| Sulfate                              | 9.5    | 0.50          | 10.00     | 0           | 95.4                 | 90        | 110           |             |          |      |
| Nitrate+Nitrite as N                 | 3.4    | 0.20          | 3.500     | 0           | 97.2                 | 90        | 110           |             |          |      |

| Sample ID A4                     | SampT      | ype: CC       | :V_4      | Tes         | tCode: El    |          |             |      |          |      |
|----------------------------------|------------|---------------|-----------|-------------|--------------|----------|-------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5551      | F           | RunNo: 15551 |          |             |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/16/2013 | 9           | SeqNo: 4     | 47268    | Units: mg/L |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC         | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Fluoride                         | 0.97       | 0.10          | 1.000     | 0           | 97.2         | 90       | 110         |      |          |      |
| Chloride                         | 4.6        | 0.50          | 5.000     | 0           | 92.6         | 90       | 110         |      |          |      |
| Phosphorus, Orthophosphate (As P | 4.7        | 0.50          | 5.000     | 0           | 93.4         | 90       | 110         |      |          |      |
| Sulfate                          | 12         | 0.50          | 12.50     | 0           | 93.9         | 90       | 110         |      |          |      |
| Nitrate+Nitrite as N             | 4.8        | 0.20          | 5.000     | 0           | 95.8         | 90       | 110         |      |          |      |

| Sample ID A5                     | SampT      | ype: CC       | CV_5      | Tes         | tCode: <b>El</b> | PA Method | 300.0: Anion | S    |          |      |
|----------------------------------|------------|---------------|-----------|-------------|------------------|-----------|--------------|------|----------|------|
| Client ID: BatchQC               | Batch      | 1D: <b>R1</b> | 5551      | F           | RunNo: 1         | 5551      |              |      |          |      |
| Prep Date:                       | Analysis D | ate: 12       | 2/16/2013 | S           | SeqNo: 4         | 47280     | Units: mg/L  |      |          |      |
| Analyte                          | Result     | PQL           | SPK value | SPK Ref Val | %REC             | LowLimit  | HighLimit    | %RPD | RPDLimit | Qual |
| Fluoride                         | 1.6        | 0.10          | 1.600     | 0           | 97.6             | 90        | 110          |      |          |      |
| Chloride                         | 7.7        | 0.50          | 8.000     | 0           | 96.8             | 90        | 110          |      |          |      |
| Phosphorus, Orthophosphate (As P | 7.8        | 0.50          | 8.000     | 0           | 97.2             | 90        | 110          |      |          |      |
| Sulfate                          | 20         | 0:50          | 20.00     | 0           | 98.5             | 90        | 110          |      |          |      |
| Nitrate+Nitrite as N             | 8.0        | 0.20          | 8.000     | 0           | 101              | 90        | 110          |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## **Tall Environmental Analysis Laboratory, Inc.**

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Lightning Dock CVPO ENERGY

| Project: Lightning  | g Dock CY  | IQ EN   | EKGY   |   |  |  |  |      |          |      |
|---|--|---|--|---|--|--|--|------|----------|------|
| Sample ID A6  | SampT  | ype: CC   | V_6  | Test  | Code: EF   | PA Method  | 300.0: Anion   | 5    |          |      |
| Client ID: BatchQC  | Batch  | ID: <b>R1</b>   | 5551   | R   | unNo: 1  | 5551   |  |      |          |      |
| Prep Date:  | Analysis D   | ate: 12   | 2/16/2013  | S   | eqNo: 44   | 47292  | Units: mg/L  |      |          |      |
| Analyte   | Result   | PQL   | SPK value  | SPK Ref Vai   | %REC   | LowLimit   | HighLimit  | %RPD | RPDLimit | Qual |
| luoride   | 2.4  | 0.10  | 2.400  | 0   | 98.4   | 90   | 110  |      |          |      |
| Chloride  | 12   | 0.50  | 12.00  | 0   | 101  | 90   | 110  |      |          |      |
| Phosphorus, Orthophosphate (As P  | 12   | 0.50  | 12.00  | 0   | 100  | 90   | 110  |      |          |      |
| Sulfate   | 31   | 0.50  | 30.00  | 0   | 102  | 90   | 110  |      |          |      |
| Nitrate+Nitrite as N  | 13   | 0.20  | 12.00  | 0   | 105  | 90   | 110  |      |          |      |
| Sample ID A4  | SampT  | ype: CC   | V_4  | Test  | Code: El   | PA Method  | 300.0; Anion   | S    |          |      |
| Client ID: BatchQC  | Batch  | ID: <b>R1</b>   | 5551   | R   | lunNo: 1   | 5551   |  |      |          |      |
| Prep Date:  | Analysis D   | ate: 12   | 2/17/2013  | S   | eqNo: 4  | 47304  | Units: mg/L  |      |          |      |
| Analyte   | Result   | PQL   | SPK value  | SPK Ref Val   | %REC   | LowLimit   | HighLimit  | %RPD | RPDLimit | Qual |
| Fluoride  | 0.94   | 0.10  | 1.000  | 0   | 93.6   | 90   | 110  |      |          |      |
| Chloride  | 4.6  | 0.50  | 5.000  | 0   | 92.5   | 90   | 110  |      |          |      |
| Phosphorus, Orthophosphate (As P  | 4.7  | 0.50  | 5.000  | 0   | 93.2   | 90   | 110  |      |          |      |
| Sulfate   | 12   | 0.50  | 12.50  | 0   | 94.1   | 90   | 110  |      |          |      |
| Nitrate+Nitrite as N  | 4.8  | 0.20  | 5.000  | 0   | 95.4   | 90   | 110  |      |          |      |
| ample ID A5   | SampT  | ype: CC   | CV_5   | Tes   | Code: E  | PA Method  | 300.0: Anion   | S    |          |      |
| Client ID: BatchQC  | Batch  | ID: <b>R1</b>   | 5551   | F   | RunNo: 1   | 5551   |  |      |          |      |
| Prep Date:  | Analysis D   | ate: 12   | 2/17/2013  | S   | SeqNo: 4   | 47316  | Units: mg/L  |      |          |      |
| Analyte   | Result   | PQL   |  | SPK Ref Val   | %REC   | LowLimit   | HighLimit  | %RPD | RPDLimit | Qual |
| Fluoride  | 1.6  | 0.10  | 1.600  | 0   | 96.9   | 90   | 110  |      |          |      |
| Chloride  | 7.7  | 0.50  | 8.000  | 0   | 96.8   | 90   | 110  |      |          |      |
| Phosphorus, Orthophosphate (As P  | 7.8  |   | 2 2 2 2  |   |  |  |  |      |          |      |
| ,   |  | 0.50  | 8.000  | 0   | 97.3   | 90   | 110  |      |          |      |
| Sulfate   | 20   | 0.50  | 20.00  | 0   | 98.1   | 90   | 110  |      |          |      |
| Sulfate   |  |   |  |   |  |  |  |      |          |      |
| Sulfate   | 20<br>8.0  | 0.50  | 20.00<br>8.000   | 0   | 98.1<br>100  | 90<br>90   | 110  | s    |          |      |
| Sulfate<br>Nitrate+Nitrite as N   | 20<br>8.0<br>SampT   | 0.50<br>0.20  | 20.00<br>8.000   | 0<br>0<br>Tes   | 98.1<br>100  | 90<br>90<br><b>PA Method</b>   | 110<br>110   | s    |          |      |
| Sulfate Nitrate+Nitrite as N Sample ID A4   | 20<br>8.0<br>SampT   | 0.50<br>0.20<br>Type: <b>CC</b>   | 20.00<br>8.000<br>CV_4<br>5551   | 0<br>0<br>Tes   | 98.1<br>100<br>tCode: <b>E</b>   | 90<br>90<br>PA Method<br>5551  | 110<br>110   |      |          |      |
| Sulfate Nitrate+Nitrite as N  Sample ID A4  Client ID: BatchQC  | 20<br>8.0<br>SampT<br>Batch  | 0.50<br>0.20<br>Type: <b>CC</b>   | 20.00<br>8.000<br><b>CV_4</b><br><b>5551</b><br><b>2/17/2013</b><br>SPK value          | 0<br>0<br>Tes<br>F<br>S<br>SPK Ref Val                | 98.1<br>100<br>tCode: <b>E</b><br>RunNo: 1<br>SeqNo: 4   | 90<br>90<br>PA Method<br>5551  | 110<br>110<br>300.0: Anion<br>Units: mg/L<br>HighLimit               |      | RPDLimit | Qual |
| Sulfate Nitrate+Nitrite as N  Sample ID A4 Client ID: BatchQC Prep Date: Analyte                      | 20<br>8.0<br>SampT<br>Batch<br>Analysis D                          | 0.50<br>0.20<br>Type: CC<br>n ID: R1  | 20.00<br>8.000<br><b>EV_4</b><br><b>5551</b><br><b>2/17/2013</b><br>SPK value<br>1.000 | 0<br>0<br>Tes<br>F<br>SPK Ref Val                     | 98.1<br>100<br>tCode: <b>E</b><br>RunNo: <b>1</b><br>SeqNo: <b>4</b><br>%REC<br>95.2                 | 90<br>90<br>PA Method<br>5551<br>47327<br>LowLimit<br>90             | 110<br>110<br>300.0: Anion<br>Units: mg/L<br>HighLimit<br>110        |      | RPDLimit | Qual |
| Sulfate Nitrate+Nitrite as N  Sample ID A4 Client ID: BatchQC Prep Date:                              | 20<br>8.0<br>SampT<br>Batch<br>Analysis D<br>Result                | 0.50<br>0.20<br>Type: <b>CC</b><br>n ID: <b>R1</b><br>Pate: <b>1</b> 2          | 20.00<br>8.000<br><b>CV_4</b><br><b>5551</b><br><b>2/17/2013</b><br>SPK value          | 0<br>0<br>Tes<br>F<br>S<br>SPK Ref Val                | 98.1<br>100<br>tCode: <b>E</b><br>RunNo: 1<br>SeqNo: 4   | 90<br>90<br>PA Method<br>5551<br>47327<br>LowLimit                   | 110<br>110<br>300.0: Anion<br>Units: mg/L<br>HighLimit               |      | RPDLimit | Qual |
| Sulfate Nitrate+Nitrite as N  Sample ID A4 Client ID: BatchQC Prep Date: Analyte Fluoride             | 20<br>8.0<br>SampT<br>Batch<br>Analysis D<br>Result<br>0.95        | 0.50<br>0.20<br>Type: CC<br>a ID: R1<br>Date: 1:<br>PQL<br>0.10<br>0.50<br>0.50 | 20.00<br>8.000<br>2V_4<br>5551<br>2/17/2013<br>SPK value<br>1.000<br>5.000<br>5.000    | 0<br>0<br>Tes<br>F<br>S<br>SPK Ref Val<br>0<br>0<br>0 | 98.1<br>100<br>tCode: <b>E</b><br>RunNo: <b>1</b><br>SeqNo: <b>4</b><br>%REC<br>95.2<br>92.9<br>93.2 | 90<br>90<br>PA Method<br>5551<br>47327<br>LowLimit<br>90<br>90<br>90 | 110<br>110<br>300.0: Anion<br>Units: mg/L<br>HighLimit<br>110<br>110 |      | RPDLimit | Qual |
| Sulfate Nitrate+Nitrite as N  Sample ID A4  Client ID: BatchQC  Prep Date:  Analyte Fluoride Chloride | 20<br>8.0<br>SampT<br>Batch<br>Analysis D<br>Result<br>0.95<br>4.6 | 0.50<br>0.20<br>Type: CC<br>on ID: R1<br>Date: 1:<br>PQL<br>0.10<br>0.50        | 20.00<br>8.000<br>CV_4<br>5551<br>2/17/2013<br>SPK value<br>1.000<br>5.000             | 0<br>0<br>Tes<br>F<br>S<br>SPK Ref Val<br>0<br>0      | 98.1<br>100<br>tCode: <b>E</b><br>RunNo: <b>1</b><br>SeqNo: <b>4</b><br>%REC<br>95.2<br>92.9         | 90<br>90<br>PA Method<br>5551<br>47327<br>LowLimit<br>90<br>90       | 110<br>110<br>300.0: Anion<br>Units: mg/L<br>HighLimit<br>110<br>110 |      | RPDLimit | Qual |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrq Energy Inc

Lightning Dock CYRQ ENERGY Project:

Sample ID MB-10820 SampType: MBLK TestCode: EPA Method 418.1: TPH Batch ID: 10820 RunNo: 15560 Client ID: PBW SeqNo: 447701 Prep Date: 12/16/2013 Analysis Date: 12/17/2013 Units: mg/L Result SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Analyte

ND 1.0 Petroleum Hydrocarbons, TR

SampType: LCS TestCode: EPA Method 418.1: TPH Sample ID LCS-10820 RunNo: 15560 Client ID: LCSW Batch ID: 10820 Analysis Date: 12/17/2013 SeqNo: 447702 Units: mg/L Prep Date: 12/16/2013 Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Analyte 1.0 5.000 99.8 80 120 5.0 Petroleum Hydrocarbons, TR

SampType: LCSD TestCode: EPA Method 418.1: TPH Sample ID LCSD-10820 Client ID: LCSS02 Batch ID: 10820 RunNo: 15560 Prep Date: 12/16/2013 Analysis Date: 12/17/2013 SeqNo: 447704 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Analyte 5.000 0 94.8 80 120 5.14 20 4.7 1.0 Petroleum Hydrocarbons, TR

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit О
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2 for VOA and TOC only. Ρ
- Reporting Detection Limit

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### Vall Environmental Analysis Laboratory, Inc.

WO#:

1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-10822

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

Client ID:

PBW

12/16/2013

Batch ID: 10822

**PQL** 

RunNo: 15527

Result

Units: µg/L

Prep Date: Analyte

Analysis Date: 12/16/2013

SeqNo: 447079

HighLimit

%RPD **RPDLimit** 

Qual

1,2-Dibromoethane

ND 0.010

Sample ID LCS-10822

Sample ID LCSD-10822

Client ID: LCSS02

LCSW

SampType: LCS

TestCode: EPA Method 8011/504.1: EDB

Batch ID: 10822

RunNo: 15527

Prep Date: 12/16/2013

Analysis Date: 12/16/2013

SeqNo: 447080

Units: µg/L

Analyte

Client ID:

Result PQL

SPK value SPK Ref Val %REC

0

0

SPK value SPK Ref Val %REC LowLimit

LowLimit

HighLimit 130 **RPDLimit** Qual

1,2-Dibromoethane

0.11 0.010

SampType: LCSD

Batch ID: 10822

0.1000

113

70

TestCode: EPA Method 8011/504.1: EDB

RunNo: 15527

HighLimit

Prep Date: 12/16/2013

Analyte

Result

0.11

Analysis Date: 12/16/2013

SeqNo: 447081

Units: µg/L

%RPD

%RPD

**RPDLimit** 

Qual

1,2-Dibromoethane

SPK value SPK Ref Val %REC LowLimit **PQL** 0.010 0.1000

108

70

130

4.52

20

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

Analyte detected below quantitation limits J

RSD is greater than RSDlimit 0

RPD outside accepted recovery limits R Spike Recovery outside accepted recovery limits

Analyte detected in the associated Method Blank В

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

Reporting Detection Limit RL

Η

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1312659** 

22-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

| Sample ID MB-10796         | SampT      | ype: ME       | BLK       | Tes         | tCode: El | PA Method | 8082: PCB's |      |          |      |
|----------------------------|------------|---------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: PBW             | Batch      | ID: <b>10</b> | 796       | F           | RunNo: 1  | 5544      |             |      |          |      |
| Prep Date: 12/16/2013      | Analysis D | ate: 12       | 2/17/2013 | \$          | SeqNo: 4  | 47133     | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | ND         | 1.0           |           |             |           |           |             |      |          |      |
| Aroclor 1221               | ND         | 1.0           |           |             |           |           |             |      |          |      |
| Aroclor 1232               | ND         | 1.0           |           |             |           |           |             |      |          |      |
| Aroclor 1242               | ND         | 1.0           |           |             |           |           |             |      |          |      |
| Aroclor 1248               | ND         | 1.0           |           |             |           |           |             |      |          |      |
| Aroclor 1254               | ND         | 1.0           |           |             |           |           |             |      |          |      |
| Aroclor 1260               | ND         | 1.0           |           |             |           |           |             |      |          |      |
| Surr: Decachlorobiphenyl   | 1.8        |               | 2.500     |             | 73.2      | 17        | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 1.8        |               | 2.500     |             | 74.0      | 22.6      | 113         |      |          |      |

| Sample ID LCS-10796        | SampT      | ype: <b>LC</b>    | S         | Tes         | tCode: El | PA Method | 8082: PCB's |      |          |      |
|----------------------------|------------|-------------------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: LCSW            | Batcl      | h ID: <b>10</b> ' | 796       | F           | RunNo: 1  | 5544      |             |      |          |      |
| Prep Date: 12/16/2013      | Analysis D | Date: 12          | 2/17/2013 | S           | SeqNo: 4  | 47135     | Units: µg/L |      |          |      |
| Analyte                    | Result     | PQL               | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Aroclor 1016               | 3.2        | 1.0               | 5.000     | 0           | 63.8      | 18.6      | 134         |      |          |      |
| Aroclor 1260               | 3.8        | 1.0               | 5.000     | 0           | 75.7      | 35.7      | 137         |      |          |      |
| Surr: Decachlorobiphenyl   | 1.7        |                   | 2.500     |             | 68.8      | 17        | 123         |      |          |      |
| Surr: Tetrachloro-m-xylene | 1.6        |                   | 2.500     |             | 64.4      | 22.6      | 113         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID 5mL rb               | SampT      | уре: МЕ       | BLK       | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|--------------------------------|------------|---------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: PBW                 | Batch      | ID: <b>R1</b> | 5529      | F           | RunNo: 1  | 5529      |             |        |          |      |
| Prep Date:                     | Analysis D | ate: 12       | 2/16/2013 | s           | SeqNo: 4  | 46644     | Units: µg/L |        |          |      |
| Analyte                        | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene                        | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Toluene                        | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Ethylbenzene                   | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Methyl tert-butyl ether (MTBE) | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2,4-Trimethylbenzene         | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,3,5-Trimethylbenzene         | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2-Dichloroethane (EDC)       | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2-Dibromoethane (EDB)        | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Naphthalene                    | ND         | 2.0           |           |             |           |           |             |        |          |      |
| 1-Methylnaphthalene            | ND         | 4.0           |           |             |           |           |             |        |          |      |
| 2-Methylnaphthalene            | ND         | 4.0           |           |             |           |           |             |        |          |      |
| Acetone                        | ND         | 10            |           |             |           |           |             |        |          |      |
| Bromobenzene                   | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Bromodichloromethane           | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Bromoform                      | ND         | 1.0           |           |             |           |           |             |        |          |      |
| nmomethane                     | ND         | 3.0           |           |             |           |           |             |        |          |      |
| utanone                        | ND         | 10            |           |             |           |           |             |        |          |      |
| arbon disulfide                | ND         | 10            |           |             |           |           |             |        |          |      |
| Carbon Tetrachloride           | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Chlorobenzene                  | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Chloroethane                   | ND         | 2.0           |           |             |           |           |             |        |          |      |
| Chloroform                     | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Chloromethane                  | ND         | 3.0           |           |             |           |           |             |        |          |      |
| 2-Chlorotoluene                | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 4-Chlorotoluene                | ND         | 1.0           |           |             |           |           |             |        |          |      |
| cis-1,2-DCE                    | ND         | 1.0           |           |             |           |           |             |        |          |      |
| cis-1,3-Dichloropropene        | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2-Dibromo-3-chloropropane    | ND         | 2.0           |           |             |           |           |             |        |          |      |
| Dibromochloromethane           | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Dibromomethane                 | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2-Dichlorobenzene            | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,3-Dichlorobenzene            | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,4-Dichlorobenzene            | ND         | 1.0           |           |             |           |           |             |        |          |      |
| Dichlorodifluoromethane        | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethane             | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,1-Dichloroethene             | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,2-Dichloropropane            | ND         | 1.0           |           |             |           |           |             |        |          |      |
| 1,3-Dichloropropane            | ND         | 1.0           |           |             |           |           |             |        |          |      |
|                                | ND         | 2.0           |           |             |           |           |             |        |          |      |
| 2,2-Dichloropropane            | ND         | 2.0           |           |             |           |           |             |        |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1312659** 

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID 5mL rb            | SampT      | ype: <b>ME</b> | BLK       | Test        | Code: El | PA Method | 8260B: VOL. | ATILES |          |      |
|-----------------------------|------------|----------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID: PBW              | Batch      | 1D: <b>R1</b>  | 5529      | R           | lunNo: 1 | 5529      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 12        | 2/16/2013 | S           | eqNo: 4  | 46644     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,1-Dichloropropene         | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Hexachlorobutadiene         | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 2-Hexanone                  | ND         | 10             |           |             |          |           |             |        |          |      |
| Isopropylbenzene            | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 4-Isopropyltoluene          | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 4-Methyl-2-pentanone        | ND         | 10             |           |             |          |           |             |        |          |      |
| Methylene Chloride          | ND         | 3.0            |           |             |          |           |             |        |          |      |
| n-Butylbenzene              | ND         | 3.0            |           |             |          |           |             |        |          |      |
| n-Propylbenzene             | ND         | 1.0            |           |             |          |           |             |        |          |      |
| sec-Butylbenzene            | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Styrene                     | ND         | 1.0            |           |             |          |           |             |        |          |      |
| tert-Butylbenzene           | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,1,2-Tetrachloroethane   | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,2,2-Tetrachloroethane   | ND         | 2.0            |           |             |          |           |             |        |          |      |
| Tetrachloroethene (PCE)     | ND         | 1.0            |           |             |          |           |             |        |          |      |
| trans-1,2-DCE               | ND         | 1.0            |           |             |          |           |             |        |          |      |
| trans-1,3-Dichloropropene   | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,2,3-Trichlorobenzene      | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,2,4-Trichlorobenzene      | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,1-Trichloroethane       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,1,2-Trichloroethane       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Trichloroethene (TCE)       | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Trichlorofluoromethane      | ND         | 1.0            |           |             |          |           |             |        |          |      |
| 1,2,3-Trichloropropane      | ND         | 2.0            |           |             |          |           |             |        |          |      |
| Vinyl chloride              | ND         | 1.0            |           |             |          |           |             |        |          |      |
| Xylenes, Total              | ND         | 1.5            |           |             |          |           |             |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.0        |                | 10.00     |             | 90.4     | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 9.6        |                | 10.00     |             | 96.4     | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 9.4        |                | 10.00     |             | 93.8     | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 9.7        |                | 10.00     |             | 96.9     | 70        | 130         |        |          |      |

| Sample ID     | 100ng lcs200ng a | ca SampT   | ype: LC        | s         | Tes         | Code: El | PA Method | 8260B: VOL  | ATILES |          |      |
|---------------|------------------|------------|----------------|-----------|-------------|----------|-----------|-------------|--------|----------|------|
| Client ID:    | LCSW             | Batch      | 1D: <b>R</b> 1 | 5529      | R           | lunNo: 1 | 5529      |             |        |          |      |
| Prep Date:    |                  | Analysis D | )ate: 12       | 2/16/2013 | S           | SeqNo: 4 | 46646     | Units: µg/L |        |          |      |
| Analyte       |                  | Result     | PQL            | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| Benzene       |                  | 20         | 1.0            | 20.00     | 0           | 100      | 70        | 130         |        |          |      |
| Toluene       |                  | 20         | 1.0            | 20.00     | 0           | 102      | 82.2      | 124         |        |          |      |
| Chlorobenzene | e                | 20         | 1.0            | 20.00     | 0           | 99.9     | 70        | 130         |        |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

b Analyte detected in the associated Method Blank

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### all Environmental Analysis Laboratory, Inc.

WO#:

1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID 100ng ics200ng    | aca SampT  | ype: LC       | s         | Tes         | tCode: El | PA Method | 8260B: VOL  | ATILES |          |      |
|-----------------------------|------------|---------------|-----------|-------------|-----------|-----------|-------------|--------|----------|------|
| Client ID: LCSW             | Batch      | ID: <b>R1</b> | 5529      | F           | RunNo: 1  | 5529      |             |        |          |      |
| Prep Date:                  | Analysis D | ate: 12       | 2/16/2013 | S           | SeqNo: 4  | 46646     | Units: µg/L |        |          |      |
| Analyte                     | Result     | PQL           | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD   | RPDLimit | Qual |
| 1,1-Dichloroethene          | 21         | 1.0           | 20.00     | 0           | 107       | 83.5      | 155         |        |          |      |
| Trichloroethene (TCE)       | 19         | 1.0           | 20.00     | 0           | 95.6      | 70        | 130         |        |          |      |
| Surr: 1,2-Dichloroethane-d4 | 9.0        |               | 10.00     |             | 90.3      | 70        | 130         |        |          |      |
| Surr: 4-Bromofluorobenzene  | 9.7        |               | 10.00     |             | 97.4      | 70        | 130         |        |          |      |
| Surr: Dibromofluoromethane  | 9.0        |               | 10.00     |             | 90.3      | 70        | 130         |        |          |      |
| Surr: Toluene-d8            | 9.4        |               | 10.00     |             | 94.1      | 70        | 130         |        |          |      |

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Page 19 of 28

### Hall Environmental Analysis Laboratory, Inc.

WO#: **1312659** 

22-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

| Sample ID mb-10800          | SampTy      | ype: <b>MBLK</b> | Test        | lCode: EPA          | Method   | 8270C: Semiv | olatiles |          |      |
|-----------------------------|-------------|------------------|-------------|---------------------|----------|--------------|----------|----------|------|
| Client ID: PBW              | Batch       | ID: 10800        | R           | RunNo: <b>155</b> 3 | 30       |              |          |          |      |
| Prep Date: 12/16/2013       | Analysis Da | ate: 12/16/2013  | S           | SeqNo: <b>4468</b>  | 354      | Units: µg/L  |          |          |      |
| Analyte                     | Result      | PQL SPK value    | SPK Ref Val | %REC L              | .owLimit | HighLimit    | %RPD     | RPDLimit | Qual |
| Acenaphthene                | ND          | 10               |             |                     |          |              |          |          |      |
| Acenaphthylene              | ND          | 10               |             |                     |          |              |          |          |      |
| Aniline                     | ND          | 10               |             |                     |          |              |          |          |      |
| Anthracene                  | ND          | 10               |             |                     |          |              |          |          |      |
| Azobenzene                  | ND          | 10               |             |                     |          |              |          |          |      |
| Benz(a)anthracene           | ND          | 10               |             |                     |          |              |          |          |      |
| Benzo(a)pyrene              | ND          | 10               |             |                     |          |              |          |          |      |
| Benzo(b)fluoranthene        | ND          | 10               |             |                     |          |              |          |          |      |
| Benzo(g,h,i)perylene        | ND          | 10               |             |                     |          |              |          |          |      |
| Benzo(k)fluoranthene        | ND          | 10               |             |                     |          |              |          |          |      |
| Benzoic acid                | ND          | 40               |             |                     |          |              |          |          |      |
| Benzyl alcohol              | ND          | 10               |             |                     |          |              |          |          |      |
| Bis(2-chloroethoxy)methane  | ND          | 10               |             |                     |          |              |          |          |      |
| Bis(2-chloroethyl)ether     | ND          | 10               |             |                     |          |              |          |          |      |
| Bis(2-chloroisopropyl)ether | ND          | 10               |             |                     |          |              |          |          |      |
| Bis(2-ethylhexyl)phthalate  | ND          | 10               |             |                     |          |              |          |          |      |
| 4-Bromophenyl phenyl ether  | ND          | 10               |             |                     |          |              |          |          |      |
| Butyl benzyl phthalate      | ND          | 10               |             |                     |          |              |          |          |      |
| Carbazole                   | ND          | 10               |             |                     |          |              |          |          |      |
| 4-Chloro-3-methylphenol     | ND          | 10               |             |                     |          |              |          |          |      |
| 4-Chloroaniline             | ND          | 10               |             |                     |          |              |          |          |      |
| 2-Chloronaphthalene         | ND          | 10               |             |                     |          |              |          |          |      |
| 2-Chlorophenol              | ND          | 10               |             |                     |          |              |          |          |      |
| 4-Chlorophenyl phenyl ether | ND          | 10               |             |                     |          |              |          |          |      |
| Chrysene                    | ND          | 10               |             |                     |          |              |          |          |      |
| Di-n-butyl phthalate        | ND          | 10               |             |                     |          |              |          |          |      |
| Di-n-octyl phthalate        | ND          | 10               |             |                     |          |              |          |          |      |
| Dibenz(a,h)anthracene       | ND          | 10               |             |                     |          |              |          |          |      |
| Dibenzofuran                | ND          | 10               |             |                     |          |              |          |          |      |
| 1,2-Dichlorobenzene         | ND          | 10               |             |                     |          |              |          |          |      |
| 1,3-Dichlorobenzene         | ND          | 10               |             |                     |          |              |          |          |      |
| 1,4-Dichlorobenzene         | ND          | 10               |             |                     |          |              |          |          |      |
| 3,3'-Dichlorobenzidine      | ND          | 10               |             |                     |          |              |          |          |      |
| Diethyl phthalate           | ND          | 10               |             |                     |          |              |          |          |      |
| Dimethyl phthalate          | ND          | 10               |             |                     |          |              |          |          |      |
| 2,4-Dichlorophenoi          | ND          | 20               |             |                     |          |              |          |          |      |
| 2,4-Dimethylphenol          | ND          | 10               |             |                     |          |              |          |          |      |
| 4,6-Dinitro-2-methylphenol  | ND          | 20               |             |                     |          |              |          |          |      |
| 2,4-Dinitrophenol           | ND          | 20               |             |                     |          |              |          |          |      |
|                             |             |                  |             |                     |          |              |          |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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### all Environmental Analysis Laboratory, Inc.

WO#:

1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID mb-10800         | SampT       | ype: ME | BLK       | Tes         | tCode: El | A Method | 8270C: Semi  | olatiles |          |      |
|----------------------------|-------------|---------|-----------|-------------|-----------|----------|--------------|----------|----------|------|
| Client ID: PBW             | Batch       | ID: 10  | 800       | F           | RunNo: 1  | 5530     |              |          |          |      |
| Prep Date: 12/16/2013      | Analysis Da | ate: 12 | 2/16/2013 | S           | SeqNo: 4  | 46854    | Units: µg/L  |          |          |      |
| Analyte                    | Result      | PQL     | SPK value | SPK Ref Val | %REC      | LowLimit | HighLimit    | %RPD     | RPDLimit | Qual |
| 2,4-Dinitrotoluene         | ND          | 10      |           |             |           |          |              |          |          |      |
| 2,6-Dinitrotoluene         | ND          | 10      |           |             |           |          |              |          |          |      |
| Fluoranthene               | ND          | 10      |           |             |           |          |              |          |          |      |
| Fluorene                   | ND          | 10      |           |             |           |          |              |          |          |      |
| Hexachlorobenzene          | ND          | 10      |           |             |           |          |              |          |          |      |
| Hexachlorobutadiene        | ND          | 10      |           |             |           |          |              |          |          |      |
| Hexachlorocyclopentadiene  | ND          | 10      |           |             |           |          |              |          |          |      |
| Hexachloroethane           | ND          | 10      |           |             |           |          |              |          |          |      |
| Indeno(1,2,3-cd)pyrene     | ND          | 10      |           |             |           |          |              |          |          |      |
| Isophorone                 | ND          | 10      |           |             |           |          |              |          |          |      |
| 1-Methylnaphthalene        | ND          | 10      |           |             |           |          |              |          |          |      |
| 2-Methylnaphthalene        | ND          | 10      |           |             |           |          |              |          |          |      |
| 2-Methylphenol             | ND          | 10      |           |             |           |          |              |          |          |      |
| 3+4-Methylphenol           | ND          | 10      |           |             |           |          |              |          |          |      |
| N-Nitrosodi-n-propylamine  | ND          | 10      |           |             |           |          |              |          |          |      |
| N1-Nitrosodimethylamine    | ND          | 10      |           |             |           |          |              |          |          |      |
| titrosodiphenylamine       | ND          | 10      |           |             |           |          |              |          |          |      |
| _phthalene                 | ND          | 10      |           |             |           |          |              |          |          |      |
| 2-Nitroaniline             | ND          | 10      |           |             |           |          |              |          |          |      |
| 3-Nitroaniline             | ND          | 10      |           |             |           |          |              |          |          |      |
| 4-Nitroaniline             | ND          | 10      |           |             |           |          |              |          |          |      |
| Nitrobenzene               | ND          | 10      |           |             |           |          |              |          |          |      |
| 2-Nitrophenol              | ND          | 10      |           |             |           |          |              |          |          |      |
| 4-Nitrophenol              | ND          | 10      |           |             |           |          |              |          |          |      |
| Pentachlorophenol          | ND          | 20      |           |             |           |          |              |          |          |      |
| Phenanthrene               | ND          | 10      |           |             |           |          |              |          |          |      |
| Phenol                     | ND          | 10      |           |             |           |          |              |          |          |      |
| Pyrene                     | ND          | 10      |           |             |           |          |              |          |          |      |
| Pyridine                   | ND          | 10      |           |             |           |          |              |          |          |      |
| 1,2,4-Trichlorobenzene     | ND          | 10      |           |             |           |          |              |          |          |      |
| 2,4,5-Trichlorophenol      | ND          | 10      |           |             |           |          |              |          |          |      |
| 2,4,6-Trichlorophenol      | ND          | 10      |           |             |           |          |              |          |          |      |
| Surr: 2-Fluorophenol       | 90          |         | 200.0     |             | 45.2      | 22.7     | 98           |          |          |      |
| Surr: Phenol-d5            | 79          |         | 200.0     |             | 39.3      | 23.4     | 74.9         |          |          |      |
| Surr: 2,4,6-Tribromophenol | 130         |         | 200.0     |             | 63.8      | 23.3     | 111          |          |          |      |
| Surr: Nitrobenzene-d5      | 64          |         | 100.0     |             | 64.0      | 36.8     | 111          |          |          |      |
| Surr: 2-Fluorobiphenyl     | 68          |         | 100.0     |             | 68.2      | 38.3     | 110          |          |          |      |
| Surr: 4-Terphenyl-d14      | 75          |         | 100.0     |             | 74.7      | 52.1     | 1 <b>1</b> 6 |          |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID Ics-10800        | SampType: LCS TestCode: EPA Method 8270C: Semivolatiles |         |           |             |          |          |             |      |          |      |
|----------------------------|---|---------|-----------|-------------|----------|----------|-------------|------|----------|------|
| Client ID: LCSW            | Batch   | 1D: 108 | B00       | F           | RunNo: 1 | 5530     |             |      |          |      |
| Prep Date: 12/16/2013      | Analysis D  | ate: 12 | 2/16/2013 | S           | SeqNo: 4 | 46855    | Units: µg/L |      |          |      |
| Analyte                    | Result  | PQL     | SPK value | SPK Ref Val | %REC     | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Acenaphthene               | 89  | 10      | 100.0     | 0           | 89.4     | 48       | 101         |      |          |      |
| 4-Chloro-3-methylphenol    | 190   | 10      | 200.0     | 0           | 94.8     | 47.9     | 109         |      |          |      |
| 2-Chlorophenol             | 180   | 10      | 200.0     | 0           | 92.5     | 40       | 105         |      |          |      |
| 1,4-Dichlorobenzene        | 96  | 10      | 100.0     | 0           | 96.4     | 40.8     | 94.3        |      |          | S    |
| 2,4-Dinitrotoluene         | 87  | 10      | 100.0     | 0           | 86.8     | 28.3     | 131         |      |          |      |
| N-Nitrosodi-n-propylamine  | 100   | 10      | 100.0     | 0           | 101      | 46.2     | 119         |      |          |      |
| 4-Nitrophenol              | 88  | 10      | 200.0     | 0           | 43.8     | 10.5     | 67.9        |      |          |      |
| Pentachlorophenol          | 130   | 20      | 200.0     | 0           | 65.2     | 22.4     | 81.1        |      |          |      |
| Phenol                     | 110   | 10      | 200.0     | 0           | 54.2     | 21.4     | 72.9        |      |          |      |
| Pyrene                     | 83  | 10      | 100.0     | 0           | 83.0     | 46.9     | 109         |      |          |      |
| 1,2,4-Trichlorobenzene     | 93  | 10      | 100.0     | 0           | 93.3     | 43.1     | 98.4        |      |          |      |
| Surr: 2-Fluorophenol       | 120   |         | 200.0     |             | 59.7     | 22.7     | 98          |      |          |      |
| Surr: Phenol-d5            | 110   |         | 200.0     |             | 53.4     | 23.4     | 74.9        |      |          |      |
| Surr: 2,4,6-Tribromophenol | 180   |         | 200.0     |             | 91.9     | 23.3     | 111         |      |          |      |
| Surr: Nitrobenzene-d5      | 81  |         | 100.0     |             | 81.5     | 36.8     | 111         |      |          |      |
| Surr: 2-Fluorobiphenyl     | 85  |         | 100.0     |             | 84.8     | 38.3     | 110         |      |          |      |
| Surr: 4-Terphenyl-d14      | 88  |         | 100.0     |             | 87.8     | 52.1     | 116         |      |          |      |

| Sample ID Icsd-10800       | SampT      | ype: LC         | SD        | Tes         | tCode: El | PA Method | 8270C: Semi | olatiles/ |          |      |
|----------------------------|------------|-----------------|-----------|-------------|-----------|-----------|-------------|-----------|----------|------|
| Client ID: LCSS02          | Batch      | ID: <b>10</b> 8 | 300       | F           | RunNo: 1  | 5530      |             |           |          |      |
| Prep Date: 12/16/2013      | Analysis D | ate: 12         | 2/16/2013 | S           | SeqNo: 4  | 46856     | Units: µg/L |           |          |      |
| Analyte                    | Result     | PQL             | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD      | RPDLimit | Qual |
| Acenaphthene               | 90         | 10              | 100.0     | 0           | 89.9      | 48        | 101         | 0.558     | 25       |      |
| 4-Chloro-3-methylphenol    | 180        | 10              | 200.0     | 0           | 92.1      | 47.9      | 109         | 2.84      | 32.7     |      |
| 2-Chlorophenol             | 170        | 10              | 200.0     | 0           | 83.9      | 40        | 105         | 9.78      | 20       |      |
| 1,4-Dichlorobenzene        | 83         | 10              | 100.0     | 0           | 82.6      | 40.8      | 94.3        | 15.4      | 20       |      |
| 2,4-Dinitrotoluene         | 81         | 10              | 100.0     | 0           | 80.8      | 28.3      | 131         | 7.11      | 29.9     |      |
| N-Nitrosodi-n-propylamine  | 90         | 10              | 100.0     | 0           | 90.4      | 46.2      | 119         | 10.9      | 23.1     |      |
| 4-Nitrophenol              | 78         | 10              | 200.0     | 0           | 39.0      | 10.5      | 67.9        | 11.6      | 40.5     |      |
| Pentachlorophenol          | 110        | 20              | 200.0     | 0           | 54.5      | 22.4      | 81.1        | 17.8      | 37.3     |      |
| Phenol                     | 92         | 10              | 200.0     | 0           | 46.2      | 21.4      | 72.9        | 15.9      | 20       |      |
| Pyrene                     | 83         | 10              | 100.0     | 0           | 83.1      | 46.9      | 109         | 0.193     | 26.5     |      |
| 1,2,4-Trichlorobenzene     | 84         | 10              | 100.0     | 0           | 83.8      | 43.1      | 98.4        | 10.7      | 27.2     |      |
| Surr: 2-Fluorophenol       | 110        |                 | 200.0     |             | 55.0      | 22.7      | 98          | 0         | 0        |      |
| Surr: Phenol-d5            | 93         |                 | 200.0     |             | 46.5      | 23.4      | 74.9        | 0         | 0        |      |
| Surr: 2,4,6-Tribromophenol | 160        |                 | 200.0     |             | 79.0      | 23.3      | 111         | 0         | 0        |      |
| Surr: Nitrobenzene-d5      | 81         |                 | 100.0     |             | 80.8      | 36.8      | 111         | 0         | 0        |      |
| Surr: 2-Fluorobiphenyl     | 83         |                 | 100.0     |             | 82.9      | 38.3      | 110         | 0         | 0        |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# all Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Analyte

Lightning Dock CYRQ ENERGY

Sample ID Icsd-10800

SampType: LCSD

TestCode: EPA Method 8270C: Semivolatiles

Client ID: LCSS02

Batch ID: 10800

RunNo: 15530

Prep Date: 12/16/2013

Analysis Date: 12/16/2013

SeqNo: 446856

Units: µg/L

Result

PQL SPK value SPK Ref Val %REC

HighLimit

**RPDLimit** 

Qual

Surr: 4-Terphenyl-d14

83

100.0

82.9

52.1

LowLimit

116

%RPD

Qualifiers:

Value exceeds Maximum Contaminant Level.

Value above quantitation range

Analyte detected below quantitation limits Ţ

RSD is greater than RSDlimit

RPD outside accepted recovery limits R

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Holding times for preparation or analysis exceeded Η

ND Not Detected at the Reporting Limit

Sample pH greater than 2 for VOA and TOC only.

RLReporting Detection Limit Page 23 of 28

# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

| Sample ID MB-10797     | SampT      | ype: ME  | BLK       | Tes         | tCode: E | PA Method | 8310: PAHs  |      |          |      |
|------------------------|------------|----------|-----------|-------------|----------|-----------|-------------|------|----------|------|
| Client ID: PBW         | Batch      | 1D: 10   | 797       | F           | RunNo: 1 | 5541      |             |      |          |      |
| Prep Date: 12/16/2013  | Analysis D | )ate: 12 | 2/17/2013 | 5           | SeqNo: 4 | 47054     | Units: µg/L |      |          |      |
| Analyte                | Result     | PQL      | SPK value | SPK Ref Val | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene            | ND         | 2.0      |           |             |          |           |             |      |          |      |
| 1-Methylnaphthalene    | ND         | 2.0      |           |             |          |           |             |      |          |      |
| 2-Methyinaphthalene    | ND         | 2.0      |           |             |          |           |             |      |          |      |
| Acenaphthylene         | ND         | 2.5      |           |             |          |           |             |      |          |      |
| Acenaphthene           | ND         | 5.0      |           |             |          |           |             |      |          |      |
| Fluorene               | ND         | 0.80     |           |             |          |           |             |      |          |      |
| Phenanthrene           | ND         | 0.60     |           |             |          |           |             |      |          |      |
| Anthracene             | ND         | 0.60     |           |             |          |           |             |      |          |      |
| Fluoranthene           | ND         | 0.30     |           |             |          |           |             |      |          |      |
| Pyrene                 | ND         | 0.30     |           |             |          |           |             |      |          |      |
| Benz(a)anthracene      | ND         | 0.070    |           |             |          |           |             |      |          |      |
| Chrysene               | ND         | 0.20     |           |             |          |           |             |      |          |      |
| Benzo(b)fluoranthene   | ND         | 0.10     |           |             |          |           |             |      |          |      |
| Benzo(k)fluoranthene   | ND         | 0.070    |           |             |          |           |             |      |          |      |
| Benzo(a)pyrene         | ND         | 0.070    |           |             |          |           |             |      |          |      |
| Dibenz(a,h)anthracene  | ND         | 0.12     |           |             |          |           |             |      |          |      |
| Benzo(g,h,i)perylene   | ND         | 0.12     |           |             |          |           |             |      |          |      |
| Indeno(1,2,3-cd)pyrene | ND         | 0.25     |           |             |          |           |             |      |          |      |
| Surr: Benzo(e)pyrene   | 21         |          | 20.00     |             | 104      | 24.5      | 139         |      |          |      |

| Sample ID LCS-10797   | SampT      | ype: LC  | s         | Test        | tCode: EF | PA Method | 8310: PAHs  |      |          |      |
|-----------------------|------------|----------|-----------|-------------|-----------|-----------|-------------|------|----------|------|
| Client ID: LCSW       | Batch      | n ID: 10 | 797       | R           | RunNo: 1  | 5541      |             |      |          |      |
| Prep Date: 12/16/2013 | Analysis D | )ate: 12 | 2/17/2013 | S           | SeqNo: 4  | 47058     | Units: µg/L |      |          |      |
| Analyte               | Result     | PQL      | SPK value | SPK Ref Val | %REC      | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Naphthalene           | 41         | 2.0      | 80.00     | 0           | 51.6      | 43.8      | 96.9        |      |          |      |
| 1-Methylnaphthalene   | 36         | 2.0      | 80.20     | 0           | 44.8      | 41.3      | 87.3        |      |          |      |
| 2-Methylnaphthalene   | 34         | 2.0      | 80.00     | 0           | 42.0      | 36.6      | 89.6        |      |          |      |
| Acenaphthylene        | 46         | 2.5      | 80.20     | 0           | 57.7      | 43.6      | 103         |      |          |      |
| Acenaphthene          | 37         | 5.0      | 80.00     | 0           | 46.1      | 42.4      | 87.6        |      |          |      |
| Fluorene              | 3.9        | 0.80     | 8.020     | 0           | 48.1      | 40.5      | 93.6        |      |          |      |
| Phenanthrene          | 2.2        | 0.60     | 4.020     | 0           | 53.7      | 43.9      | 111         |      |          |      |
| Anthracene            | 2.2        | 0.60     | 4.020     | 0           | 56.0      | 44.3      | 103         |      |          |      |
| Fluoranthene          | 4.6        | 0.30     | 8.020     | 0           | 57.5      | 43.5      | 109         |      |          |      |
| Pyrene                | 4.8        | 0.30     | 8.020     | 0           | 59.7      | 32.6      | 103         |      |          |      |
| Benz(a)anthracene     | 0.46       | 0.070    | 0.8020    | 0           | 57.4      | 43        | 114         |      |          |      |
| Chrysene              | 2.2        | 0.20     | 4.020     | 0           | 54.0      | 40.2      | 100         |      |          |      |
| Benzo(b)fluoranthene  | 0.57       | 0.10     | 1.002     | 0           | 56.9      | 44.4      | 118         |      |          |      |
| Benzo(k)fluoranthene  | 0.29       | 0.070    | 0.5000    | 0           | 58.0      | 41.5      | 120         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# fall Environmental Analysis Laboratory, Inc.

WO#: 1312659 22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

| Sample ID LCS-10797    | Samp            | Type: LC | s         | Tes           | tCode: E | PA Method |             |      |          |      |
|------------------------|-----------------|----------|-----------|---------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSW        | Batch ID: 10797 |          |           |               | RunNo: 1 | 5541      |             |      |          |      |
| Prep Date: 12/16/2013  | Analysis [      | Date: 12 | 2/17/2013 | SeqNo: 447058 |          |           | Units: µg/L |      |          |      |
| Analyte                | Result          | PQL      | SPK value | SPK Ref Val   | %REC     | LowLimit  | HighLimit   | %RPD | RPDLimit | Qual |
| Benzo(a)pyrene         | 0.28            | 0.070    | 0.5020    | 0             | 55.8     | 34.5      | 118         |      |          |      |
| Dibenz(a,h)anthracene  | 0.59            | 0.12     | 1.002     | 0             | 58.9     | 38.3      | 107         |      |          |      |
| Benzo(g,h,i)perylene   | 0.55            | 0.12     | 1.000     | 0             | 55.0     | 38.4      | 110         |      |          |      |
| Indeno(1,2,3-cd)pyrene | 1.3             | 0.25     | 2.004     | 0             | 64.4     | 42.4      | 113         |      |          |      |
| Surr: Benzo(e)pyrene   | 15              |          | 20.00     |               | 74.8     | 24.5      | 139         |      |          |      |

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID MB-10891

SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

Client ID:

Analyte

PBW

Batch ID: 10891 Analysis Date: 12/19/2013

**PQL** 

RunNo: 15597 SeqNo: 449210

Units: µg/L

HighLimit

%RPD **RPDLimit** 

Qual

Analyte Phenolics, Total Recoverable

Sample ID LCS-10891

Prep Date: 12/19/2013

Client ID: LCSW

Prep Date: 12/19/2013

Result ND

SampType: LCS

Batch ID: 10891

Analysis Date: 12/19/2013

SPK value SPK Ref Val %REC LowLimit

TestCode: Total Phenolics by SW-846 9067

%REC

RunNo: 15597

SeqNo: 449211

Units: µg/L HighLimit

%RPD

Qual

PQL

SPK value SPK Ref Val

**RPDLimit** 

Phenolics, Total Recoverable

135

103 21 2.5 20.00 73.7

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range E
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits Spike Recovery outside accepted recovery limits
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only. P
- Reporting Detection Limit

Analyte detected in the associated Method Blank В

Page 26 of 28

### 'all Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client:

Cyrq Energy Inc

Project:

Lightning Dock CYRQ ENERGY

Sample ID mb-1

SampType: MBLK

TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R15528

RunNo: 15528

Prep Date:

Analysis Date: 12/16/2013

SeqNo: 446604

Units: mg/L CaCO3

Analyte

PQL

20

%RPD

HighLimit

**RPDLimit** 

Qual

Total Alkalinity (as CaCO3)

Sample ID Ics-1

SampType: LCS

Result

80

Result

ND

TestCode: SM2320B: Alkalinity

Client ID: LCSW

Batch ID: R15528

RunNo: 15528

Prep Date:

Analysis Date: 12/16/2013

SeqNo: 446605

Units: mg/L CaCO3

Analyte

PQL 20

SPK value SPK Ref Val %REC

0

SPK value SPK Ref Val %REC LowLimit

HighLimit LowLimit 90

%RPD

**RPDLimit** 

Qual

Total Alkalinity (as CaCO3)

Sample ID mb-2

SampType: MBLK

Analysis Date: 12/16/2013

TestCode: SM2320B: Alkalinity

99.4

Client ID: Prep Date:

PBW

Batch ID: R15528

RunNo: 15528 SeqNo: 446624

Units: mg/L CaCO3

110

Analyte

Result PQL ND 20 SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD **RPDLimit** 

Qual

Total Alkalinity (as CaCO3)

SampType: LCS

TestCode: SM2320B: Alkalinity

ample ID Ics-2 lient ID: LCSW

Batch ID: R15528

**PQL** 

20

RunNo: 15528

Prep Date:

Analysis Date: 12/16/2013

80.00

SeqNo: 446625 %REC

Units: mg/L CaCO3

Analyte

Result

Qual

80.00

SPK value SPK Ref Val

101

90

%RPD **RPDLimit** 

Total Alkalinity (as CaCO3)

81

0

110

HighLimit

#### Qualifiers:

J

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Analyte detected below quantitation limits
- O RSD is greater than RSDlimit RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit
- Page 27 of 28

#### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Cyrq Energy Inc Client:

Project: Lightning Dock CYRQ ENERGY

Sample ID MB-10843 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Batch ID: 10843 Client ID: PBW RunNo: 15605

Prep Date: 12/17/2013 Analysis Date: 12/19/2013 SeqNo: 449401 Units: mg/L

Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Qual

Total Dissolved Solids ND 20.0

Sample ID LCS-10843 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Batch ID: 10843 RunNo: 15605 Client ID: LCSW

Units: mg/L Prep Date: 12/17/2013 Analysis Date: 12/19/2013 SeqNo: 449402

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

1050 1000 20.0 105 80 120 Total Dissolved Solids

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

# Sample Log-In Check List

| Client Name:                   | AMEC                                   |                     | Work On                     | der Numbe  | er: <b>1312</b> 6          | 559  |            |                | RcptNo:   | 1                   |
|--------------------------------|--|---------------------|-----------------------------|--|----------------------------|--|------------|----------------|---|---------------------|
| Received by/da                 | ate: K5                                | 12/                 | 14/1-                       | 3  |                            |  | 4          |                |   |                     |
| Logged By:                     | Anne Thorne                            | e                   | 12/16/2013                  | 9:05:00 A  | ΑM                         |  | ane,       | Sham           |   |                     |
| Completed By:                  | Anne Thorns                            | ₽                   | 12/16/2013                  | 3  |                            |  | ame        | Am             | _   |                     |
| Reviewed By:                   |  | Ar 12/              | 16113                       |  |                            |  |            |                |   |                     |
| Chain of Cu                    | stody                                  | , ,, ,              |                             |  |                            |  |            |                |   |                     |
| 1. Custody se                  | eals intact on san                     | nple bottles?       |                             |  | Yes                        |  | No         |                | Not Present 🗹   |                     |
| 2. Is Chain of                 | Custody comple                         | ete?                |                             |  | Yes                        | ✓  | No         |                | Not Present   |                     |
| 3. How was th                  | ne sample delive                       | red?                |                             |  | Clier                      | <u>it</u>                                    |            |                |   |                     |
| Log In                         |  |                     |                             |  |                            |  |            |                |   |                     |
| 4. Was an at                   | tempt made to co                       | ool the samples?    |                             |  | Yes                        | <b>✓</b>                                     | No         |                | NA $\square$  |                     |
| 5. Were all sa                 | amples received                        | at a temperature    | of >0°C to                  | 6.0°C  | Yes                        | <b>V</b>                                     | No         |                | na 🗆  |                     |
| 6. Sample(s)                   | in proper contain                      | ner(s)?             |                             |  | Yes                        | V  | No         |                |   | •                   |
| 7. Sufficient s                | sample volume fo                       | or indicated test(s | i)?                         |  | Yes                        | <b>✓</b>                                     | No         |                |   |                     |
| 8, Are sample                  | es (except VOA a                       | and ONG) proper     | ly preserved                | d?   | Yes                        | ✓  | No         |                |   |                     |
| 9. Was prese                   | rvative added to                       | bottles?            |                             |  | Yes                        |  | No         | ✓              | NA 🗆  |                     |
| 10.VOA vials                   | have zero heads                        | pace?               |                             |  | Yes                        | <b>✓</b>                                     | No         |                | No VOA Vials  |                     |
| 11, Were any                   | sample containe                        | ers received broke  | en?                         |  | Yes                        |  | No         | ✓              | # of preserved  |                     |
| 12 Daga nana                   | annod match bot                        | tia labala?         |                             |  | Yes                        |  | No         |                | bottles checked<br>for pH:  | 2,                  |
|                                | erwork match bot<br>repancies on cha   |                     |                             |  | 168                        | <u>.                                    </u> | 140        |                | l · <del>/~.)</del>   | or 32 unless noted) |
| 13. Are matrio                 | es correctly ident                     | tified on Chain of  | Custody?                    |  | Yes                        | <b>y</b>                                     | No         |                | Adjusted?   |                     |
| 14. Is it clear v              | vhat analyses we                       | ere requested?      |                             |  | Yes                        |  | No         |                |   | A 12/16/17          |
|                                | olding times able<br>fy customer for a |                     |                             |  | Yes                        | <b>V</b>                                     | No         |                | Checked by:   | 17 12/10/           |
| Special Han                    | idling (if app                         | licablo)            |                             |  |                            |  |            |                |   |                     |
|                                |  | screpancies with    | this order?                 |  | Yes                        | П  | No         | П              | NA <b>✓</b>   |                     |
|                                |  | screpancies with    | ins order?                  |  |                            |  | 140        | <u> </u>       | IVA 🖭   |                     |
|                                | on Notified:                           |                     |                             | Date   | 2.75 m h ( 1 m h ) 2 m h   | _9   | Disease C  |                | [] to Domes   |                     |
| 1                              | Vhom:<br>arding:                       |                     |                             | Via:   | eM                         | an [_  | Phone _    | Fax            | in Person   |                     |
|                                | nt Instructions:                       |                     | No experience of the second | Live State of State Stat | 100,000 v /5 (100,000,000) | CALIFE SALE                                  |            | white the same |   |                     |
| 17. Additional                 |  |                     |                             | and the second second  | Main 18/19/19/19/19        |  |            |                | Paulanaman Professional Visit Santa |                     |
|                                |  |                     |                             |  |                            |  |            |                |   |                     |
| 18. <u>Cooler In</u><br>Cooler |  | Condition   S       | eal Intact                  | Seal No  | Seal D                     | ate 3  | Signed I   | B√.            | ì   |                     |
| 1                              | 2.9                                    |                     | t Present                   | -cai No  | - Coal D                   | <b>4,0</b> 000                               | , cigned i | ~ <b>y</b> **  |   |                     |
|                                |  |                     |                             |  |                            |  |            |                |   |                     |

|                  | hain             | -of-Cu        | stody Record                            | Turn-Around             | Time:                 |                                   | HALL ENVIRONMENTA                                    |                |                  |                    | AL   |               |   |                        |             |  |           |        |      |                      |
|------------------|------------------|---------------|---|-------------------------|-----------------------|-----------------------------------|--|----------------|------------------|--------------------|--|---------------|---|------------------------|-------------|--|-----------|--------|------|----------------------|
| Client:          | AM               | EC            | E + I, Inc.                             | □ Standard              | □ Rush                |                                   |  | 200            |                  |                    | NA!  |               |   |                        |             |  |           |        |      | 7                    |
|                  | +11              |               |   | Project Name            | E (Light              | Thing DOCK)                       | 1  |                |                  |                    | vww.h  |               |   |                        |             |  |           |        |      |                      |
| Mailing          | Address          | : 000         | 10 Tall-N.A                             | 1 CYR                   | ER EN                 | 150 10                            |  | 400            | 11 ∐∢            |                    | s NE   |               |   |                        |             |  | 109       |        |      |                      |
|                  |                  | <b>3</b> %. " | 19 JEFFERSON                            | Project #:              | -Q C/                 | OCRO T                            |  |                |                  |                    |  |               |   |                        |             |  |           |        |      |                      |
| DI               | 11               | randr         | 15 POLE, NM 87113<br>821-1801           | 1/2 5                   | 517-00                | ר אזר                             | Tel. 505-345-3975 Fax 505-345-4107  Analysis Request |                |                  |                    |  |               |   |                        |             |  |           |        |      |                      |
| Phone:           | F: C             | 25 -          | · Janney @ AMECICO                      | Project Mana            |                       | 101                               |  | <u>y</u>       | 6                |                    |  |               |   |                        |             |  | ,         |        |      |                      |
| email o          |                  | David         | . I anner (C. HALECIO                   | Project Mana            | igei.                 |                                   | 21)  | E O            | MR               |                    |  |               | SO  | 3's                    |             | +                                      | 5         |        |      |                      |
| Stan             | Package:<br>dard |               | ☐ Level 4 (Full Validation)             | DIAVE                   | D Ja                  | nney                              | TMB's (8021)   | TPH (Gas only) | DRO / MRO        |                    | SIMS   |               | PO <sub>4</sub>   | PCB                    |             |  | 7         |        |      |                      |
| Accred           | tation           |               |   | Sampler:                | _                     |                                   | MB A   | 표              | 0                | =                  | <del>(</del> ) 8                             |               | 02  | 3082                   |             |  | 8         | 2      |      | 9                    |
| □ NEL            | AP               | ☐ Othe        | r                                       | On ice:                 | √2√Yes                | □ No Sustanting                   | 1 +  | +              | 8                | 18.                | 9 8  |               | 3,0   | 3 / S                  |             | (A)                                    | 7         | 10     |      | o                    |
|                  | (Type)           |               |   | Sample Tem              | perature: 🍃           | ).9                               | MTBE   | MTBE           | 9                | bd 4               | B 0  | stak          | Ž   | ide                    | æ           | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | 工         | 1/9//  |      | اح                   |
| Date             | Time             | Matrix        | Sample Request ID                       | Container<br>Type and # | Preservative<br>Type  | HEAL: No.                         | BTEX + MT  | BTEX + MT      | TPH 8015B (GRO / | TPH (Method 418.1) | EDB (Method 504.1) PAH's (8310 or 8270 SIMS) | RCRA 8 Metals | Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> ) | 8081 Pesticides / 8082 | 8260B (VOA) | 8270 (Semi-VOA)                        | Seet      | E      |      | Air Bubbles (Y or N) |
| 2-11-13          | 10:45            | Aoueus        | MW-1B                                   |                         |                       | -00                               |  |                |                  |                    |  |               |   |                        |             |  | X         | X      |      |                      |
|                  |                  | 1             |   |                         |                       |                                   |  |                |                  |                    |  |               |   |                        |             |  |           |        |      |                      |
|                  |                  |               |   |                         |                       |                                   |  |                |                  |                    |  | 1             | <u> </u>  |                        |             |  | $\neg$    |        | _    | $\top$               |
|                  |                  |               |   |                         |                       |                                   | +  |                |                  | -                  |  | +             | +   |                        |             |  | $\dashv$  | -      | _    | +                    |
|                  |                  |               |   |                         |                       |                                   | -  | $\vdash$       | +                | -                  |  | +             | -   |                        |             | -                                      | $\dashv$  | -      | -    | ++                   |
|                  |                  |               |   |                         |                       |                                   | -  |                | -                | -                  | $\dashv$                                     | +-            | -   |                        |             |  | $\dashv$  | +      |      | +                    |
|                  |                  |               |   |                         |                       |                                   | 1  |                | $\rightarrow$    |                    |  | -             |   |                        |             |  |           |        | _    | +                    |
|                  |                  |               |   |                         |                       |                                   |  |                |                  |                    |  | <u> </u>      | ļ   |                        |             |  | _         |        |      | $\perp$              |
|                  |                  |               |   |                         |                       |                                   |  |                |                  |                    |  |               |   |                        |             |  |           |        |      |                      |
|                  |                  |               |   |                         |                       |                                   |  |                |                  |                    |  |               |   |                        |             |  |           |        |      |                      |
|                  |                  |               |   |                         |                       |                                   |  |                |                  |                    |  |               |   |                        |             |  |           |        |      |                      |
|                  |                  |               |   |                         |                       |                                   |  |                |                  |                    |  |               |   |                        |             |  |           |        |      |                      |
|                  |                  |               | 17772011114 4 4444 44 477               |                         |                       |                                   |  |                |                  |                    |  |               |   |                        |             |  |           |        |      | $\Box$               |
| Date:            | Time:            | Relinquietre  |   | Received by:            |                       | Date Time                         | 1  | narks          |                  | At                 | rAc#   | ED.           | Li  | ` <b>S</b> T           | Fo          | »[                                     | 1         | ish    | itni | ,<br>ns              |
| Date:<br>2 -16-B | Time:<br>0905    | Relinquishe   | Tell Catter                             | Received by             | NSt                   | Date Time                         | 5 p  | Dog            | ck<br>V          | G<br>M             | 20T/   | ier.          | mc<br>Rô  | 1 l                    | P1          | 01                                     | ec<br>13  | T.     |      |                      |
| If               | necessary,       | samples subn  | nitted to Hall Environmental may be sub | contracted to other a   | ccredited laboratorie | es. This serves as notice of this | s passil   | bility. A      | Any sut          | o-contra           | acted dat                                    | a will b      | e clear   | ly nota                | ted on      | the ar                                 | nalytica' | report |      |                      |



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

January 08, 2014

David Janney AMEC 8519 Jefferson Street, NE Albuquerque, NM 87113 TEL: (505) 796-7276

**FAX** 

RE: Lightning Dock Geothermal Groundwater Quality Mon

OrderNo.: 1312725

Dear David Janney:

Hall Environmental Analysis Laboratory received 7 sample(s) on 12/16/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

andel

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1312725

Date Reported: 1/8/2014

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-1

Lightning Dock Geothermal Groundwater Project:

Collection Date: 12/10/2013 4:30:00 PM

1312725-001 Lab ID:

Matrix: AQUEOUS

Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed      | Batch           |
|--------------------------------|--------|-------|----------|----|--------------------|-----------------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Anal               | yst: <b>LRW</b> |
| 1,2-Dibromoethane              | ND     | 0.010 | μg/L     | 1  | 12/18/2013 5:23:43 | PM 10868        |
| TOTAL PHENOLICS BY SW-846 9067 |        |       |          |    | Anal               | yst: SCC        |
| Phenolics, Total Recoverable   | ND     | 2.5   | µg/L     | 1  | 12/19/2013         | 10893           |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

- Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Lab Order 1312725

Date Reported: 1/8/2014

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-2

Project:Lightning Dock Geothermal GroundwaterCollection Date: 12/10/2013 11:00:00 AMLab ID:1312725-002Matrix: AQUEOUSReceived Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed      | Batch           |
|--------------------------------|--------|-------|----------|----|--------------------|-----------------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Anal               | yst: <b>LRW</b> |
| 1,2-Dibromoethane              | ND     | 0.010 | μg/L     | 1  | 12/18/2013 5:37:27 | PM 10868        |
| TOTAL PHENOLICS BY SW-846 9067 |        |       |          |    | Anal               | yst: SCC        |
| Phenolics, Total Recoverable   | ND     | 2.5   | μg/L     | 1  | 12/19/2013         | 10893           |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

#### Lab Order 1312725

Date Reported: 1/8/2014

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-2B

Lightning Dock Geothermal Groundwater Project:

Collection Date: 12/10/2013 11:30:00 AM

Lab ID: 1312725-003 Matrix: AQUEOUS

Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed      | Batch            |
|--------------------------------|--------|-------|----------|----|--------------------|------------------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Ana                | lyst: <b>LRW</b> |
| 1,2-Dibromoethane              | ND     | 0.010 | μg/L     | 1  | 12/18/2013 5:51:14 | PM 10868         |
| TOTAL PHENOLICS BY SW-846 9067 |        |       |          |    | Ana                | lyst: SCC        |
| Phenolics, Total Recoverable   | ND     | 2.5   | μg/L     | 1  | 12/19/2013         | 10893            |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

  - Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

Lab Order 1312725

Date Reported: 1/8/2014

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** Client Sample ID: MW-3

Project: Lightning Dock Geothermal Groundwater Collection Date: 12/10/2013 10:30:00 PM Lab ID: 1312725-004 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed      | Batch           |
|--------------------------------|--------|-------|----------|----|--------------------|-----------------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Anal               | yst: <b>LRW</b> |
| 1,2-Dibromoethane              | ND     | 0.010 | μg/L     | 1  | 12/18/2013 6:05:07 | PM 10868        |
| TOTAL PHENOLICS BY SW-846 9067 |        |       |          |    | Anal               | yst: SCC        |
| Phenolics, Total Recoverable   | 10     | 2.5   | μg/L     | 1  | 12/19/2013         | 10893           |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits J
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Lab Order 1312725

Date Reported: 1/8/2014

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT: AMEC** 

Client Sample ID: MW-4

Lightning Dock Geothermal Groundwater Project:

Collection Date: 12/9/2013 6:00:00 PM

Lab ID:

1312725-005

Matrix: AQUEOUS

Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed      | Batch    |
|--------------------------------|--------|-------|----------|----|--------------------|----------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Anal               | yst: LRW |
| 1,2-Dibromoethane              | ND     | 0.010 | μg/l₋    | 1  | 12/18/2013 6:18:58 | PM 10868 |
| TOTAL PHENOLICS BY SW-846 9067 |        |       |          |    | Anal               | yst: SCC |
| Phenolics, Total Recoverable   | ND     | 2.5   | µg/L     | 1  | 12/19/2013         | 10893    |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit

- Not Detected at the Reporting Limit Page 5 of 9 Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit

Lab Order 1312725

Date Reported: 1/8/2014

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMEC Client Sample ID: MW-5

Project: Lightning Dock Geothermal Groundwater Collection Date: 12/9/2013 12:00:00 PM

Lab ID: 1312725-006 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed      | Batch           |
|--------------------------------|--------|-------|----------|----|--------------------|-----------------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Anal               | yst: <b>LRW</b> |
| 1,2-Dibromoethane              | ND     | 0.010 | μg/L     | 1  | 12/18/2013 6:32:39 | PM 10868        |
| TOTAL PHENOLICS BY SW-846 9067 |        |       |          |    | Anal               | yst: SCC        |
| Phenolics, Total Recoverable   | ND     | 2.5   | μg/L     | 1  | 12/19/2013         | 10893           |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 6 of 9
  - P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Lab Order 1312725

Date Reported: 1/8/2014

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: MW-6 **CLIENT: AMEC** 

Lightning Dock Geothermal Groundwater Collection Date: 12/9/2013 3:00:00 PM Project: Lab ID: 1312725-007 Matrix: AQUEOUS Received Date: 12/16/2013 9:05:00 AM

| Analyses                       | Result | RL Qu | al Units | DF | Date Analyzed      | Batch    |
|--------------------------------|--------|-------|----------|----|--------------------|----------|
| EPA METHOD 8011/504.1: EDB     |        |       |          |    | Anal               | yst: LRW |
| 1,2-Dibromoethane              | ND     | 0.010 | μg/L     | 1  | 12/18/2013 6:46:28 | PM 10868 |
| TOTAL PHENOLICS BY SW-846 9067 |        |       |          |    | Anal               | yst: SCC |
| Phenolics, Total Recoverable   | ND     | 2.5   | μg/L     | 1  | 12/19/2013         | 10893    |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- Ο RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Sample pH greater than 2 for VOA and TOC only. P
- RL Reporting Detection Limit

# Anatek Labs, Inc.

1282 Alturas Drive · Moscow, ID 83843 · (208) 883-2839 · Fax (208) 882-9246 · email moscow@anateklabs.com 504 E Sprague Ste. D · Spokane WA 99202 · (509) 838-3999 · Fax (509) 838-4433 · email spokane@anatekiabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

131220064

Address:

4901 HAWKINS NE SUITE D

**Project Name:** 

1312725

**Analyst** 

ETL

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

#### **Analytical Results Report**

Sample Number

131220064-001

Sampling Date

12/10/2013

Date/Time Received 12/20/2013 2:09 PM

Client Sample ID Matrix

1312725-001C / MW-1

Sampling Time

4:30 PM

Units

Comments

Parameter

Result ND mg/L

Result

ND

Result

**Analysis Date** 12/23/2013

**Analysis Date** 

Analysis Date

Method

Method

Method

Qualifier EPA 335.4

Sample Number Client Sample ID

Cyanide

131220064-002

Sampling Date Sampling Time

0.01 12/10/2013 11:00 AM

PQL

Date/Time Received 12/20/2013 2:09 PM

Parameter

1312725-002C / MW-2 Water

Water

Comments

Units **PQL** mg/L 0.01

12/23/2013 ETL EPA 335.4

Analyst

Analyst

Qualifier

Qualifier

Qualifier

Sample Number Client Sample ID

Cyanide

131220064-003 1312725-003C / MW-2B Sampling Date 12/10/2013 11:30 AM Sampling Time

Matrix

Water

Comments

ND mg/L Sampling Date

12/10/2013

PQL

0.01

12/23/2013 ETL EPA 335.4

Date/Time Received 12/20/2013 2:09 PM

Sample Number Client Sample ID

**Parameter** 

Cyanide

1312725-004C / MW-3

131220064-004

Sampling Time 10:30 PM

Units

Date/Time Received 12/20/2013 2:09 PM

Matrix Comments Water

Analyst Method Result Units PQL **Analysis Date** EPA 335.4 ND 0.01 12/23/2013 ETL mg/L

Sample Number Client Sample ID 131220064-005 1312725-005C / MW-4 Sampling Date 12/9/2013 6:00 PM Sampling Time

12/20/2013 2:09 PM Date/Time Received

Matrix

Parameter

Cyanide

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 12/23/2013    | ETL     | EPA 335.4 |           |

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Page 1 of 2 Friday, December 27, 2013

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

131220064

Address:

4901 HAWKINS NE SUITE D

Project Name:

1312725

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

#### **Analytical Results Report**

Sample Number

131220064-006

Sampling Date

12/9/2013

Date/Time Received 12/20/2013 2:09 PM

Client Sample ID Matrix

1312725-006C / MW-5

Sampling Time

12:00 PM

Comments

Water

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 12/23/2013    | ETL     | EPA 335.4 |           |
|           |        |       |      |               |         |           |           |

Sample Number

131220064-007

**Sampling Date** 12/9/2013

Client Sample ID

1312725-007C / MW-6

Sampling Time 3:00 PM Date/Time Received 12/20/2013 2:09 PM

Matrix

Water

Comments

| Parameter | Result | Units | PQL  | Analysis Date | Analyst | Method    | Qualifier |
|-----------|--------|-------|------|---------------|---------|-----------|-----------|
| Cyanide   | ND     | mg/L  | 0.01 | 12/23/2013    | ETL     | EPA 335.4 |           |

**Authorized Signature** 

John Coddington, Lab Manager

MCL

EPA's Maximum Contaminant Level

ND

Not Detected

PQL

Practical Quantitation Limit

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Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Friday, December 27, 2013

Page 2 of 2



#### ANALYTICAL RESULTS

Project:

1312725

Pace Project No.:

30110107

Sample: 1312725-001 MW-1 PWS: Parameters Radium-226

Parameters

Lab ID: 30110107001 Site ID:

Sample Type:

Act ± Unc (MDC)

Units

Collected: 12/10/13 16:30 Received: 12/20/13 10:30 Matrix: Water

Analyzed

CAS No.

Qual

Qual

Method EPA 903.1 EPA 904.0

0.285 ± 0.350 (0.571) 0.888 ± 0.456 (0.799) pCi/L pCi/L 01/06/14 13:54 13982-63-3 01/07/14 14:05 15262-20-1

Sample: 1312725-002 MW-2 PWS:

Radium-228

Lab ID: 30110107002 Site ID:

Collected: 12/10/13 11:00 Received: 12/20/13 10:30 Matrix: Water

Units

Sample Type:

Method **Parameters** EPA 903.1 Radium-226 Radium-228 EPA 904.0

Act ± Unc (MDC) 0.266 ± 0.377 (0.638) 0.0585 ± 0.308 (0.702)

pCi/L pCi/L

Analyzed CAS No. 01/06/14 14:09 13982-63-3 01/07/14 15:50 15262-20-1

Sample: 1312725-003 MW-2B PWS:

Lab ID: 30110107003 Site ID:

Collected: 12/10/13 11:30 Received: 12/20/13 10:30 Matrix: Water Sample Type:

Act ± Unc (MDC)

Units Analyzed

CAS No. Qual

Radium-226

Radium-228

Method EPA 903.1 EPA 904.0

0.183 ± 0.312 (0.550) 0.468 ± 0.385 (0.767) pCI/L pCi/L

01/06/14 13:54 13982-63-3 01/07/14 15:02 15262-20-1

Sample: 1312725-004 MW-3 Lab ID: 30110107004 Site ID:

Sample Type:

Collected: 12/10/13 10:30 Received: 12/20/13 10:30

PWS:

Method Parameters EPA 903.1 Radium-226 EPA 904.0 Radium-228

Act ± Unc (MDC) 0.102 ± 0.375 (0.720)  $0.156 \pm 0.270 \quad (0.590)$ 

Units pCi/L

pCi/L

Analyzed

CAS No. Qual 01/06/14 14:24 13982-63-3

Sample: 1312725-005 MW-4

Lab ID: 30110107005

Collected: 12/09/13 18:00 Received: 12/20/13 10:30

Act ± Unc (MDC)

01/07/14 15:02 15262-20-1

PWS:

Site ID:

Method

Sample Type:

1.32 ± 0.615 (0.664)

Matrix: Water

CAS No. Qual

Radium-226 Radium-228

Parameters

Parameters

Lab ID: 30110107006

 $0.542 \pm 0.396 \quad (0.772)$ 

pCi/L pCi/L

Units

Units

01/06/14 14:09 13982-63-3 01/07/14 15:02 15262-20-1

Analyzed

Sample: 1312725-006 MW-5 PWS:

Site ID:

Sample Type:

Act ± Unc (MDC)

Collected: 12/09/13 12:00 Received: 12/20/13 10:30

Analyzed

Matrix: Water

CAS No.

Qual

Radium-226

Radium-228

Method EPA 903.1 EPA 904.0

EPA 903.1

EPA 904.0

0.305 ± 0.401 (0.667)  $0.333 \pm 0.452 \quad (0.966)$  pCi/L pCi/L 01/06/14 13:54 13982-63-3 01/07/14 17:06 15262-20-1

REPORT OF LABORATORY ANALYSIS





#### **ANALYTICAL RESULTS**

Project:

1312725

Pace Project No.: 30110107

Sample: 1312725-007 MW-6

Parameters

Lab ID: 30110107007

Collected: 12/09/13 15:00 Received: 12/20/13 10:30 Matrix: Water

PWS:

Site ID: Method Sample Type:

Act ± Unc (MDC)

Analyzed CAS No. Qual

Radium-226 Radium-228 EPA 903.1 EPA 904.0 0.140 ± 0.305 (0.562) 2.53 ± 0.949 (1.39)

pCi/L pCi/L

Units

01/06/14 14:09 13982-63-3 01/07/14 15:50 15262-20-1

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

#### **QUALITY CONTROL DATA**

Project:

1312725

Pace Project No.: 30110107

QC Batch:

RADC/18162

Analysis Method:

EPA 903.1

QC Batch Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples:

30110107001, 30110107002, 30110107003, 30110107004, 30110107005, 30110107006, 30110107007

METHOD BLANK: 673486

Matrix: Water

Associated Lab Samples:

30110107001, 30110107002, 30110107003, 30110107004, 30110107005, 30110107006, 30110107007

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

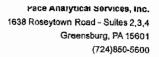
Radium-226

 $-0.195 \pm 0.271 \quad (0.686)$ 

pCi/L

01/06/14 13:51

#### REPORT OF LABORATORY ANALYSIS





#### **QUALITY CONTROL DATA**

Project:

1312725

Pace Project No.:

30110107

QC Batch:

RADC/18180

Analysis Method:

EPA 904.0

QC Batch Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples:

30110107001, 30110107002, 30110107003, 30110107004, 30110107005, 30110107006, 30110107007

METHOD BLANK: 674062 Associated Lab Samples:

Parameter

Matrix: Water

30110107001, 30110107002, 30110107003, 30110107004, 30110107005, 30110107006, 30110107007

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Radium-228

-0.113 ± 0.319 (0.769)

pCi/L

01/07/14 12:48

#### all Environmental Analysis Laboratory, Inc.

WO#: 1312725 08-Jan-14

Client:

**AMEC** 

Project:

Lightning Dock Geothermal Groundwater Qualit

Sample ID MB-10868

SampType: MBLK

TestCode: EPA Method 8011/504.1; EDB

Client ID: PBW

Batch ID: 10868

RunNo: 15596

Prep Date: 12/18/2013

Sample ID LCS-10868

Prep Date: 12/18/2013

LCSW

Analysis Date: 12/18/2013

SegNo: 449514

Units: µg/L

Qual

Analyte

Result **PQL** 

SPK value SPK Ref Val %REC LowLimit

HighLimit %RPD **RPDLimit** 

1,2-Dibromoethane

ND 0.010

SampType: LCS Batch ID: 10868

Analysis Date: 12/18/2013

PQL

TestCode: EPA Method 8011/504.1: EDB

RunNo: 15596

SegNo: 449515

Units: µg/L

%RPD

Qual

0.10

0.1000

SPK value SPK Ref Val

102

**RPDLimit** 

Analyte 1,2-Dibromoethane

Client ID:

0.010

0

%REC LowLimit

70

HighLimit

130

#### Qualifiers:

R

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range
- J Analyte detected below quantitation limits

RPD outside accepted recovery limits

- RSD is greater than RSDlimit 0
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- Not Detected at the Reporting Limit ND
- Sample pH greater than 2 for VOA and TOC only.
- Reporting Detection Limit RL

Page 8 of 9

### Hall Environmental Analysis Laboratory, Inc.

WO#: 1312725

08-Jan-14

**AMEC** Client:

Lightning Dock Geothermal Groundwater Qualit Project:

SampType: MBLK Sample ID MB-10893 TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 10893 RunNo: 15599

Prep Date: 12/19/2013 Analysis Date: 12/19/2013 SeqNo: 449235 Units: µg/L

%REC LowLimit Analyte Result **PQL** SPK value SPK Ref Val HighLimit %RPD **RPDLimit** Qual

Phenolics, Total Recoverable ND 2.5

Sample ID LCS-10893 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Batch ID: 10893 Client ID: LCSW RunNo: 15599

Prep Date: 12/19/2013 Analysis Date: 12/19/2013 SeqNo: 449236 Units: µg/L

Result **PQL** SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte LowLimit Qual

Phenolics, Total Recoverable 23 2.5 20.00 0 116 73.7 135

SampType: LCSD Sample ID LCSD-10893 TestCode: Total Phenolics by SW-846 9067

LCSS02 Client ID: Batch ID: 10893 RunNo: 15599

Analysis Date: 12/19/2013 Prep Date: 12/19/2013 SeqNo: 449248 Units: µg/L

Result **PQL** SPK value SPK Ref Val %REC %RPD LowLimit HighLimit **RPDLimit** Analyte Qual

Phenolics, Total Recoverable 22 2.5 20.00 110 73.7 135 5.63 21.4

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- Ο RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- - P Sample pH greater than 2 for VOA and TOC only.

Not Detected at the Reporting Limit

Page 9 of 9

Reporting Detection Limit



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

# Sample Log-In Check List

Work Order Number: 1312725 Client Name: AMEC RoptNo: 1 12/16/15 Received by/date: aone Sham 12/16/2013 9:05:00 AM Logged By: Anne Thorne Completed By: Anne Thorne 12/17/2013 Reviewed By: Chain of Custody No 🗌 Not Present 🗹 1. Custody seals intact on sample bottles? Yes 🗸 No  $\square$ Not Present 2. Is Chain of Custody complete? 3. How was the sample delivered? Client Log In No 🗌 NA 🗌 Yes 🗹 4. Was an attempt made to cool the samples? NA 🗌 5. Were all samples received at a temperature of >0° C to 6.0°C Yes 🗸 No  $\square$ No 🗌 6. Sample(s) in proper container(s)? No 🗌 Yes 🗸 7. Sufficient sample volume for indicated test(s)? No 🗌 8. Are samples (except VOA and ONG) properly preserved? No 🗹 NA 🗌 Yes . 9. Was preservative added to bottles? Yes 🔽 No 🗌 No VOA Vials 10. VOA vials have zero headspace? Yes No 🗹 11. Were any sample containers received broken? # of preserved bottles checked Yes 🗹 No 🔲 for pH: 12. Does paperwork match bottle labels? niess noted) (Note discrepancies on chain of custody) No 🗆 13. Are matrices correctly identified on Chain of Custody? No 🗌 14. Is it clear what analyses were requested? Yes 🗸 No 🗌 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes No 🗌 NA 🗸 16. Was client notified of all discrepancies with this order? Person Notified: Date By Whom: eMail Phone Fax In Person Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No. Temp C. Condition Seal Intact Seal No. Seal Date 2.9 Good Not Present

| C                 | hain-   | of-Cu      | stody Record                      | Turn-Around              | Time:                |              | HALL ENVIRONMENTAL ANALYSIS LABORATORY |          |            |                | ļ                  |                     |               |   |                              |             |                 |          |         |                        |                      |
|-------------------|---|------------|-----------------------------------|--------------------------|----------------------|--------------|--|----------|------------|----------------|--------------------|---------------------|---------------|---|------------------------------|-------------|-----------------|----------|---------|------------------------|----------------------|
|                   | AMI   |            |                                   | Standard<br>Project Name |                      |              | ————<br>Haa uu a                       |          | 2023       |                | 1A                 |                     | Y:            | SIS   | S L                          | AE          | 30              |          |         |                        |                      |
| Mailing           | Address   | 451        | 9 Jofferson St                    | 6 muneli                 | Jes Doe              | ality M      | oh.                                    |          | 490        | 01 Ha          | wkins              |                     |               |   |                              |             |                 | 109      |         |                        |                      |
| A                 | BQ,   | NU         | 9 Jefferson St<br>8743<br>21-1801 | Project #:               | -517-0               | 0102.0       | <u></u>                                |          | Te         | I. 50          | 5-345-             | 3975                | ١             | Fax   | 505-                         | 345-        | 4107            | 7        |         |                        |                      |
| Phone             | #: Sb   | 5 8        | 21-1801                           | 1                        |                      |              |  |          |            |                | L,                 | , 4                 | Anal          | ysis  | Req                          | _           |                 |          |         | ÷                      |                      |
| email o           | Package:  | david      | □ Level 4 (Full Validation)       | Project Mana             | ager: David          | d Jan        | ney                                    | s (8021) | (Gas only) | DRO / MRO)     |                    | SIMS)               |               | ,PO4,SO4)   | PCB's                        |             | AZIMITS         | 00<br>Mr |         |                        |                      |
| Accredi           | tation  | □ Othe     | er                                | 1 17/19/1                | V Yes                |              | (a. 1877)                              | + TMB    | + TPH      | -              | 418.1)             | ~                   | S             | O <sub>3</sub> ,NO <sub>2</sub>   | s / 8082                     |             | (AC             | 122      | م       |                        | or N)                |
|                   | (Type)  |            | T                                 | Sample Tem               | perature: 💃          | 2.9          |  | MTBE     | MTBE       | 3(G            | pod 4              | 000                 | etals         | N,  | cide                         | Æ           | <u> </u>        | 20       | 20      | اب                     | اح (ح                |
| Date              | Time  | Matrix     | Sample Request ID                 | Container<br>Type and #  | Preservative<br>Type | HEAL<br>(3/2 | . No.<br>72-∕3                         | BTEX + M | BTEX + M   | TPH 8015B (GRO | TPH (Method 418.1) | PAH's (8310 or 8270 | RCRA 8 Metals | Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> ) | 8081 Pesticides / 8082 PCB's | 8260B (VOA) | 8270 (Semi-VOA) | 7        | Lyan    | Pheho                  | Air Bubbles (Y or N) |
| zlioles           | 16:30   | veter      | MW-1                              | 5 100 High -col          |                      |              |  |          |            |                | )                  | 2                   |               |   |                              |             |                 | X        | X       | 8                      |                      |
| 1                 | 11:00   |            | MW-2                              | 5                        | 1                    |              | -002                                   |          |            |                | Ş.                 |                     |               |   |                              |             |                 | R        | S       | 2                      |                      |
|                   | u:30  |            | MW-ZB                             | 9                        |                      |              | -w3                                    |          |            |                | >                  | ₹                   |               |   |                              |             |                 | X        | 8       | X                      |                      |
| W.                | 22130   |            | MW-3                              | 5                        |                      |              | -204                                   |          |            |                | >                  | 2                   |               |   |                              |             |                 | X        | X       | X                      |                      |
| - X 1/4           | 18100   |            | MW-4                              | 3                        |                      |              | -45                                    |          |            |                | X                  |                     |               |   |                              |             |                 | X        | R       | 8                      |                      |
|                   | 12:00   | I          | MW-5                              | 5                        |                      |              | -006                                   |          |            |                | >                  |                     |               |   |                              |             |                 | X        | と       | X                      |                      |
| 12/9/12           | 12 300  | 5          | MW-6                              | 5                        | V                    |              | -007                                   |          |            |                |                    | -                   |               |   |                              |             |                 | X        | X       | $\stackrel{\times}{-}$ |                      |
|                   |   |            |                                   |                          |                      |              |  |          |            |                |                    |                     |               |   |                              |             |                 |          |         |                        |                      |
| Date:             | Time:   | Relinquish | ed by:<br>D. Horing               | Received by:             |                      | Date         | Time                                   | Ren      | narks      | رة:<br>دو      | In .               | 101 L               | · ci          | KO  | /A /                         | 12/16       | 113             |          |         |                        |                      |
| Date:<br>12/16/13 | Time: Relinquished by: Received by: State Time 12/16/13 0905  If necessary, samples submitted to Hall Emvironmental may be subcontracted to other accredited laboratories. This serves as notice of the |            |                                   |                          |                      |              | <u>'</u>                               |          |            |                |                    |                     |               | ,   |                              |             |                 | natytics | a) repo | nt.                    |                      |

# amec<sup>9</sup>

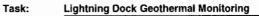
|                      |                                |                   |                            |   | ,               | Job No.:    | 11-           | 517-00102     |            | Page                  | 1 of                  |
|----------------------|--------------------------------|-------------------|----------------------------|---|-----------------|-------------|---------------|---------------|------------|-----------------------|-----------------------|
| Well No.             |                                | Purge E           | quipment                   | Anal  | ytical Equipm   | ent         | Sample        | r's Initials  | Time       |                       | Date                  |
|                      | W-1A                           |                   | ennett Pump                | pH meter (te                                    | emperature):    |             | EDK           |               |            | 11:45                 | 11/25/2013            |
|                      |                                |                   | ennett Pump                | X YSI   | 556             |             |               |               |            |                       |                       |
| Casing Diamet        | ter (in.)                      | Perista           | tíc Pump                   | Orio  | n               |             |               | Me            | eter Calil | bration               |                       |
| ·                    |                                | Dedica            | ted Pump                   | Oth   | er:             |             | Time:         |               |            |                       |                       |
| 1                    | .913                           | 2" Grur           | ndfos                      | Serial No.:                                     |                 |             |               |               |            |                       |                       |
|                      |                                | Waterra           | a Pump                     |   |                 |             | рН <u>4</u>   | =             | at _       |                       | °C                    |
| Total Well Dep       | th (ft.)                       | Geotec            | h Pump                     | Conductivity                                    | Meter:          |             | Lot #         |               | Exp.       |                       |                       |
|                      |                                | X Other:          | Bailer                     | X YSI   | 556             |             |               |               |            |                       |                       |
| 8                    | 5.00                           |                   |                            | Orio  | n               |             | pH7           | =             | at _       |                       | °C                    |
|                      |                                |                   |                            | Oth   | er:             |             | Lot #         |               | Exp        |                       |                       |
| Static Water Lo      | evel (ft.)                     | Serial Number     | : _                        | Serial No.:                                     |                 |             |               |               |            |                       |                       |
|                      |                                | Sample            | Equipment                  |   |                 |             | pH <u>10</u>  | =_            | at _       |                       | °C                    |
| 67.80                | 6 BTOC                         | 1.40" B           | ennett Pump                | Dissolved C                                     | xygen Meter:    |             | Lot #         |               | Exp.       |                       |                       |
|                      |                                | 1.80" B           | ennett Pump                | _X_YSI  | 556             |             | ł             |               |            |                       |                       |
| Water Thickne        | ess (ft.)                      | Perista           | ltic Pump                  | Oth   | er              |             | Conductance   | e Standard: 1 | 413 umh    | os/cm Oth             | er:                   |
|                      |                                | Dedica            | ted Pump                   | Serial No.                                      |                 |             |               |               |            |                       |                       |
| ~                    | 18.6                           | 2" Grur           | ndfos                      |   |                 |             | Calibrated to |               | um         | hos/cm at             | °C                    |
|                      |                                | Waterr            | a Pump                     | ORP Meter:                                      |                 |             |               |               |            |                       |                       |
| Casing Volum         | e (gal.)                       | Geotec            | h Pump                     | X YSI   | 556             |             | Lot #         |               | Exp.       |                       |                       |
|                      |                                | X Other:          | Bailer                     | Oth   | er              |             | Dissolved O   | , •           |            |                       |                       |
| _                    | - 2.8                          |                   |                            | Serial No.                                      |                 |             |               | Calibrated t  | 0          | mg/                   | at°(                  |
|                      |                                |                   |                            |   |                 |             |               |               |            |                       |                       |
| Stick-up             | Screen Int.                    | Serial Number     | :                          | Water Leve                                      | el Meter:       |             | Redox:        |               |            |                       |                       |
|                      | 60-85                          | Filtration        | Equipment:                 | Ked   | k               |             |               | Calibrated    | to         | mV                    | at°(                  |
| (ft.)                | (ft.) (ft.) 0.45 Micron Filter |                   |                            | X Oth   | er: Geotech     |             | Lot #         |               | Exp.       |                       |                       |
| Purge Containerized: |                                |                   |                            | Serial No.                                      |                 |             |               |               |            |                       | T                     |
| X_ Yes               | No                             | Brand: Geotec     |                            |   |                 |             | Sample Dep    | th (feet)     |            |                       | Time:                 |
|                      |                                | Casing Volume n   | nultipliers: 1"=(.04)      | 2"=(.16) 3"=(.37                                | 7) 4"=(.65)     |             | <u>L</u>      |               | Т          |                       | ļ                     |
| Time                 | Volume<br>Removed<br>(gallons) | Temp<br>(°C)      | Conductivity<br>(umhos/cm) | Dissolved 0 <sub>2</sub><br>(mg/l)<br>(+/- 10%) | pH<br>(+/- 0.1) | ORP<br>(mV) | (NTU          | ) water       | Level      | Pump<br>Rate<br>(gpm) | Visual<br>Description |
|                      |                                | (+/- 3%)          | (+/- 3%)                   |   |                 | (+/- 10     | ) (+/- 10     | /6)           |            | (ml/m)                |                       |
|                      | 9                              | 55.2              | 2119                       | 5.7   | 8.69            | -47.6       | NA NA         | N             | A          | NA                    | Cloudy,               |
|                      |                                | 21.15             |                            |   |                 |             |               |               |            |                       | gray, brown           |
|                      |                                |                   |                            |   |                 |             |               |               |            |                       |                       |
|                      |                                |                   |                            |   |                 |             |               |               | -          |                       |                       |
|                      |                                |                   |                            |   |                 |             |               |               |            |                       |                       |
|                      |                                |                   |                            |   |                 | <u> </u>    |               |               |            |                       | 1                     |
|                      |                                |                   |                            |   |                 |             |               |               |            |                       |                       |
|                      |                                |                   |                            |   |                 |             |               |               |            |                       |                       |
|                      |                                |                   |                            |   |                 |             |               |               |            |                       |                       |
|                      |                                |                   |                            |   |                 |             |               |               |            |                       |                       |
|                      |                                |                   |                            |   |                 |             |               |               |            |                       |                       |
| Analyses requ        | lested                         | Full Su           | lite                       | Partial Suite                                   | e (explain)     | PID/FID R   | eadings       |               | Initial i  | l<br>Readings:        | Sample Readir         |
|                      | als - U-Rb-S (field filt       |                   |                            |   |                 | NA          | HNu           |               | TOC:       |                       | TOC: NA               |
| °, 8260              | ,                              |                   | -                          |   |                 | NA          | OVA           |               | BZ: N      | Α                     | BZ: NA                |
| ,                    |                                |                   |                            |   |                 | NA          | Microtip      |               | Bkgd:      |                       | Bkgd: NA              |
| Additional Co        | mments:                        |                   |                            |   |                 |             | - Serial      | No.:          | . 3-       |                       |                       |
|                      | 6 gallons removed t            | oy driller durina | development.               |   |                 | Condition   |               | New           |            |                       |                       |
| PPE Level: B         |                                | ,                 | ,                          |   |                 | Signature   |               |               |            |                       |                       |

Page 1 of

Task:



|                      |                     |  |                         |                          |                | Job No.:       |               | 11-517             | -00102   |         | Page            | e 1 of          |
|----------------------|---------------------|--|-------------------------|--------------------------|----------------|----------------|---------------|--------------------|--|---------|-----------------|-----------------|
| Well No.             |                     | Purge  | Equipment               | Ana                      | lytical Equipm | nent           | 1             | Sampler's li       | nitials  | Time    |                 | Date            |
| N                    | /W-1A               | 1.40" E  | Bennett Pump            | pH meter (to             | emperature):   |                |               | EDK                |  |         | 16:30           | 12/10/2013      |
|                      |                     | 1.80" E  | Bennett Pump            | X YSI                    | 556            |                |               |                    |  |         |                 |                 |
| Casing Diame         | eter (in.)          | Perista  | altic Pump              | Orio                     | on             |                |               |                    | Me   | ter Cal | ibration        |                 |
|                      |                     | Dedica   | ated Pump               | Oth                      | er:            |                | Time          | :                  |  |         |                 |                 |
| 1.913                | 3                   | 2" Grui  | ndfos                   | Serial No.:              |                |                |               |                    |  |         |                 |                 |
|                      |                     | Waterr   | ra Pump                 |                          |                |                | рн_           | 4                  | =4   | .00     | at <u>15</u>    | <u>5</u> °C     |
| Total Well De        | pth (ft.)           | Geoted   | ch Pump                 | Conductivity             | y Meter:       |                | Lot#          |                    |  | Exp.    |                 | ļ               |
|                      |                     | X Other:   | Bailer                  | X YSI                    | 556            |                |               |                    |  |         |                 | 1               |
| {                    | 85.00               |  |                         | Orio                     |                |                | pH_           | 7                  | =7.0   | 5       | at15            | i°C             |
|                      |                     |  |                         | Oth                      | ier:           |                | Lot#          |                    |  | Exp     |                 |                 |
| Static Water L       | Level (ft.)         | Serial Number                                    | r:                      | Serial No.:              |                |                |               |                    |  |         |                 |                 |
|                      | ;=:: • •            |  | Equipment               | 7                        |                |                | рн_           | 10                 | =10.   | .12     | at1             | ı5°C            |
|                      | 67.55               |  | Bennett Pump            | Dissolved C              | Oxygen Meter:  |                | Lot #         |                    |  | Exp.    |                 |                 |
|                      |                     |  | Bennett Pump            | X YSI                    |                |                |               |                    |  |         |                 |                 |
| Water Thickn         | ess (ft.)           | _  | altic Pump              | Oth                      |                |                | Conc          | ductance Sta       | andard: 14                                       | 13 uml  | nos/cm Ot       | her:            |
|                      | ,                   |  | ated Pump               | Serial No.               | -              |                |               |                    |  |         |                 |                 |
| ~                    | 18.90               | 2" Grui  | •                       |                          |                |                | Calib         | rated to           | 1413   |         | umhos/cr        | m at15          |
|                      |                     |  | ra Pump                 | ORP Meter:               | •              |                |               | _                  |  |         | <del></del>     |                 |
| Casing Volum         | ne (gal.)           | <del>                                     </del> | ch Pump                 | X YSI                    | 556            |                | Lot#          | :                  |  | Exp.    |                 |                 |
|                      | 1,3,                | X Other:   | -                       | Oth                      |                |                | Disso         | olved Oxyge        | n:   | •       |                 |                 |
|                      | 2.82                |  |                         | Serial No.               |                |                |               |                    |  | .67     | mg/l a          | at15°C          |
|                      |                     | 1  |                         |                          |                |                |               |                    |  |         | -               |                 |
| Stick-up             | Screen Int.         | Serial Number                                    | r:                      | Water Leve               | el Meter:      |                | Redo          | ox:                |  |         |                 |                 |
| 1.45                 | 60-85               |  | n Equipment:            | Ked                      |                |                | l             |                    | ed to  | 229_    | mV a            | at15°C          |
| (ft.) (ft.)          |                     |  |                         | X Oth                    |                |                | Lot #         |                    |  | Exp.    |                 |                 |
| Purge Containerized: |                     |  |                         | Serial No.               |                |                |               |                    |  | •       |                 |                 |
|                      | No                  | Brand: Geoted                                    | ch                      |                          |                |                | Sam           | ple Depth (fe      | eet)   |         |                 | Time:           |
| -                    |                     |  | nultipliers: 1"=(.04)   | 2"=(.16) 3"=(.3          | 7) 4"=(.65)    |                | 1             |                    |  |         |                 | ı İ             |
|                      | Volume              |  | 2                       | Dissolved 0 <sub>2</sub> |                |                |               |                    |  |         | Pump            | 1               |
| Time                 | Removed             | Temp<br>(°C)                                     | Conductivity (umhos/cm) | (mg/l)                   | pH             | ORP<br>(mV)    |               | Turbidity<br>(NTU) | Waterl   |         | Rate<br>(gpm)   | Visual          |
|                      | (gallons)           | (+/- 3%)   | (+/- 3%)                | (+/- 10%)                | (+/- 0.1)      | (+/- 10)       |               | (+/- 10%)          | (ft bo   | js)     | (gpm)<br>(ml/m) | Description     |
| ·                    |                     | <del> </del>                                     |                         |                          |                | +              | +             |                    | ļ  |         |                 | Claudy          |
|                      |                     | 1 and 1  | 0000                    | 2.4                      | 750            | 1 24           |               |                    | <br>  N I A                                      |         |                 | Cloudy          |
|                      | 2.8                 | 62.6   | 2232                    | 2.4                      | 7.53           | -2.4           | .             |                    | NA   |         | NA              | brown           |
|                      | <del> </del>        | 33.8   | -                       |                          | <del> </del>   | <del> </del>   |               |                    | <del> </del>                                     |         | <u> </u>        | Claudy          |
|                      | 5.6                 | 605  | 2200                    | 2.2                      | 7 90           | 24.6           | ,             |                    | NI A   |         | <br>            | Cloudy          |
|                      | 5.6                 | 60.5   | 2290                    | 2.2                      | 7.88           | 24.6           | '             |                    | NA   |         | NA              | brown           |
|                      | -                   | 38.8   |                         |                          | -              | +              | -+            |                    |  |         |                 | Cloudy          |
|                      | 8.5                 | 63.4   | 2266                    | 1.8                      | 7.69           | 34.4           | .             |                    | NA   |         | NA              | Cloudy<br>brown |
|                      | 0.5                 | 34.2   | 2200                    | 1.0                      | 7.00           | J <del>1</del> | .             |                    | livo .   |         | INC             | DIOWIT          |
| , ,                  | +                   | 7 54.2   |                         |                          |                | 1              | -             |                    |  |         |                 | +               |
|                      |                     |  |                         |                          |                |                |               |                    |  |         |                 |                 |
|                      | +                   | -  |                         |                          |                | 1              | -             |                    | <u> </u>   |         |                 | +               |
|                      |                     |  |                         |                          |                |                |               |                    |  |         | 1               |                 |
|                      | +                   |  |                         |                          |                | <del> </del>   | $\dashv$      |                    | <del>                                     </del> |         |                 | +               |
|                      |                     |  | ļ                       |                          |                |                |               |                    |  |         |                 |                 |
|                      |                     |  |                         |                          |                | +              | +             |                    |  |         |                 | +               |
|                      |                     |  |                         |                          |                |                |               |                    |  |         |                 |                 |
| Analyses requ        | Upsted .            | Full Su  | uito.                   | Partial Suite            | (evolain)      | PID/FID Re     |               |                    | L  | Initial | l<br>Readings:  | Sample Reading  |
|                      | Rn, EDB, CN Phenol  | ruii ou  | iite                    | Falliai June             | 3 (Explain)    | Plu/Fiu ne     | eaoing<br>HNu | -                  |  | TOC:    |                 | TOC: NA         |
| na 220/22/, n        | in, EDB, CIVT Henor |  |                         |                          | }              |                | OVA           |                    |  | BZ: N   |                 | BZ: NA          |
| 1                    |                     |  |                         |                          | }              |                | -             |                    |  |         |                 |                 |
| A -1 -1/2/1 O -      |                     |  |                         |                          |                |                | Micro         | •                  |  | Bkgd:   | NA              | Bkgd: NA        |
| Additional Co        | mments:             |  |                         |                          | 1              | 0              |               | Serial No.:        |  |         |                 |                 |
| <u></u>              |                     |  |                         |                          |                | Condition      |               | :H:                |  |         |                 |                 |
| PPE Level: B         | 3 C D               |  |                         |                          |                | Signature:     | :             |                    |  |         |                 |                 |





|                 |                            |                  |                            |                          |                | Job No.:    | 11-                   | 517-00102      |            | , age           |                |  |  |  |  |
|-----------------|----------------------------|------------------|----------------------------|--------------------------|----------------|-------------|-----------------------|----------------|------------|-----------------|----------------|--|--|--|--|
| Well No.        |                            | Purge            | Equipment                  | Anal                     | lytical Equipn | nent        | Sampler               | 's Initials    | Time       |                 | Date           |  |  |  |  |
| M\              | W-1B                       | 1.40" [          | Bennett Pump               | pH meter (te             | emperature):   |             | JC                    |                |            | 9:25            | 12/11/2013     |  |  |  |  |
|                 |                            | 1.80" [          | Bennett Pump               | X YSI                    | 556            |             |                       |                |            |                 |                |  |  |  |  |
| Casing Diamet   | er (in.)                   | Perista          | altic Pump                 | Orio                     | on             |             |                       | Me             | eter Cal   | ibration        |                |  |  |  |  |
|                 |                            | Dedica           | ated Pump                  | Oth                      | er:            |             | Time:                 |                |            |                 |                |  |  |  |  |
| 1               | .913                       | 2" Gru           | ndfos                      | Serial No.:              |                |             |                       |                |            |                 |                |  |  |  |  |
|                 |                            | Water            | ra Pump                    |                          |                |             | pH <u>4</u>           | =              | at         |                 | °C             |  |  |  |  |
| Total Well Dep  | th (ft.)                   | Geote            | ch Pump                    | Conductivity             | y Meter:       |             | Lot #                 | 3AF099         |            |                 |                |  |  |  |  |
|                 | (                          |                  | Bailer                     | X YSI                    |                |             |                       |                |            |                 |                |  |  |  |  |
| 8               | 5.00                       |                  |                            | Orio                     |                |             | pH 7                  | =              | at         | i               | °C             |  |  |  |  |
| Ĭ               | 0.00                       |                  |                            | Oth                      |                |             | Lot #                 | 3AE725         |            |                 |                |  |  |  |  |
| Static Water I  |                            | Serial Numbe     |                            | Serial No.:              | ici.           |             |                       | SALIZO         | -A         | 00/10           |                |  |  |  |  |
| Static Water Lo | ever (it.)                 |                  |                            | Serial No                |                |             | nH 10                 | _              | at         | t               | °C             |  |  |  |  |
| ء ا             | 6.05                       |                  | Equipment                  |                          | Valent Matari  |             | Lot #                 | 3AE634         |            |                 | Č              |  |  |  |  |
| Ů               | 0.03                       |                  | Bennett Pump               | 1                        | Oxygen Meter:  |             | LOC#                  | 3AE634         | LAP.       | 05/15           |                |  |  |  |  |
|                 |                            | <del>-</del>     | Bennett Pump               | X YSI                    |                |             | Canduatana            | Ctondord: 1    | 440 uml    | naa/am Oth      |                |  |  |  |  |
| Water Thickne   | ss (ft.)                   |                  | altic Pump                 | Oth                      | ier            |             | Conductance           | s Stanuaru. 14 | 4 IS UITII | hos/cm Othe     | sı.            |  |  |  |  |
| _               | 0.00                       |                  | ated Pump                  | Serial No.               |                |             |                       |                |            |                 | 0-             |  |  |  |  |
| 1               | 9.00                       | 2" Gru           |                            |                          |                |             | Calibrated to         |                | ur         | nhos/cm at      | °C             |  |  |  |  |
|                 |                            |                  | ra Pump                    | ORP Meter                |                |             |                       |                |            |                 |                |  |  |  |  |
| Casing Volum    | e (gal.)                   | Geote            | ch Pump                    | X YSI                    |                |             | Lot #                 | 3AF774         | Exp.       | 06/14           |                |  |  |  |  |
|                 |                            | X Other:         | Bailer                     | Oth                      | er             |             | Dissolved Ox          |                |            |                 |                |  |  |  |  |
|                 | 3.10                       |                  |                            | Serial No.               |                |             | Calibrated to mg/l at |                |            |                 |                |  |  |  |  |
|                 |                            |                  |                            |                          |                |             |                       |                |            |                 |                |  |  |  |  |
| Stick-up        | Screen Int.                | Serial Numbe     | r:                         | Water Leve               | el Meter:      |             | Redox:                |                |            |                 |                |  |  |  |  |
| 1.30            | 15-35                      | Filtratio        | n Equipment:               | Ked                      | ck             |             |                       | Calibrated     | to         | mV              | at°C           |  |  |  |  |
| (ft.)           | (ft.)                      | 0.45 Micro       | n Filter                   | X Oth                    | er: Geotech    |             | Lot #                 | 3AE866         | Exp.       | 02/14           |                |  |  |  |  |
| Purge Contain   | erized:                    |                  |                            | Serial No.               |                |             |                       |                |            |                 |                |  |  |  |  |
| X Yes           | No                         | Brand: Geote     | ch                         |                          |                |             | Sample Dept           | th (feet)      |            |                 | Time:          |  |  |  |  |
| İ               |                            | Casing Volume    | multipliers: 1"=(.04       | 2"=(.16) 3"=(.3          | 7) 4"≃(.65)    |             | 1                     |                |            |                 |                |  |  |  |  |
|                 | Volume                     |                  |                            | Dissolved 0 <sub>2</sub> |                |             |                       |                |            | Pump            |                |  |  |  |  |
| Time            | Removed                    | Temp<br>(°C)     | Conductivity<br>(umhos/cm) | (mg/l)                   | рН             | ORP<br>(mV) | Turbidi<br>(NTU)      |                | Level      | Rate            | Visual         |  |  |  |  |
| Taile           | (gallons)<br>(milliliters) | (+/- 3%)         | (+/- 3%)                   | (+/- 10%)                | (+/- 0.1)      | (+/- 10     |                       |                | gs)        | (gpm)<br>(ml/m) | Description    |  |  |  |  |
|                 | (minuters)                 |                  |                            |                          | ļ              | ļ           |                       |                |            | (,              | ļ              |  |  |  |  |
|                 |                            |                  |                            |                          | 1              |             |                       |                |            |                 | Murky          |  |  |  |  |
| 10:09           | 3.1                        | 59               | 2544                       | 3.5                      | 7.88           | -94.3       |                       |                |            |                 | brown          |  |  |  |  |
|                 |                            |                  |                            |                          | İ              |             |                       |                |            |                 |                |  |  |  |  |
|                 |                            |                  |                            |                          |                |             |                       |                |            |                 | Murky          |  |  |  |  |
| 10:30           | 6.2                        | 68               | 2234                       | 0.60                     | 7.95           | -35.6       | .                     |                |            |                 | brown          |  |  |  |  |
|                 |                            |                  |                            |                          |                | 1           |                       |                |            |                 |                |  |  |  |  |
|                 |                            | -                |                            |                          |                |             |                       |                |            |                 | Murky          |  |  |  |  |
| 10:45           | 3.3                        | 68.6             | 2893                       | 1.8                      | 7.96           | -19.3       |                       |                |            |                 | brown          |  |  |  |  |
|                 |                            |                  |                            |                          |                |             |                       | 1              |            |                 |                |  |  |  |  |
| <b></b>         |                            |                  |                            |                          |                |             |                       |                |            | <del> </del>    |                |  |  |  |  |
|                 |                            |                  |                            |                          |                |             | ]                     |                |            |                 |                |  |  |  |  |
|                 |                            |                  |                            |                          |                |             |                       |                |            |                 | <u> </u>       |  |  |  |  |
|                 |                            |                  |                            |                          |                |             |                       |                |            |                 |                |  |  |  |  |
|                 |                            | -                |                            |                          |                | +           |                       |                |            |                 |                |  |  |  |  |
|                 |                            |                  |                            |                          |                |             |                       |                |            |                 |                |  |  |  |  |
|                 |                            |                  |                            | ļ                        |                |             |                       |                |            |                 |                |  |  |  |  |
|                 |                            |                  |                            |                          |                |             |                       |                |            |                 | ļ              |  |  |  |  |
|                 |                            |                  |                            | <u> </u>                 | L              |             |                       |                |            |                 |                |  |  |  |  |
| Analyses requ   | ested                      | Full S           | uite                       | Partial Suite            | e (explain)    | PID/FID Re  | eadings               |                | Initial    | Readings:       | Sample Reading |  |  |  |  |
| Dissolved meta  | lls - Rb-5 (field filter   | ed), total metal | s U-hg, Anions,            | TDS, PAH, PCI            | B, P,          |             | _HNu                  |                | TOC:       | NA              | TOC: NA        |  |  |  |  |
| 8260, Ra 226/2  | 27, Rn EDB, CN, P          | henol            |                            |                          |                |             | OVA                   |                | BZ: N      | IA              | BZ: NA         |  |  |  |  |
|                 |                            |                  |                            |                          |                |             | Microtip              |                | Bkgd:      | : NA            | Bkgd: NA       |  |  |  |  |
| Additional Cor  | nments:                    |                  |                            |                          |                |             | - Serial              | No.:           | -          |                 |                |  |  |  |  |
|                 | out of well: 164.6°F       | :                |                            |                          |                | Condition   |                       |                |            |                 |                |  |  |  |  |
| l '             | E Level: B C D             |                  |                            |                          |                |             |                       |                |            |                 |                |  |  |  |  |
| FFE Level: B    | 0.0                        |                  |                            |                          |                | Signature   |                       |                |            |                 |                |  |  |  |  |



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|                                |  |                   |                         |                |                | Job No.:     |               | 11-517             | -00102       |         | Page            | 1 of                  |
|--------------------------------|--|-------------------|-------------------------|----------------|----------------|--------------|---------------|--------------------|--------------|---------|-----------------|-----------------------|
| Well No.                       |  | Purge             | Equipment               | Anai           | lytical Equipn | nent         | s             | ampler's Ir        |              | Time    |                 | Date                  |
| MW-                            | 2 & Dup  |                   | Bennett Pump            | pH meter (to   | emperature):   |              | 1             | EDK                |              |         | 9:00**          | 11/25/2013            |
|                                | •  | 1.80" E           | Bennett Pump            | X YSI          | 556            |              |               |                    |              |         |                 |                       |
| Casing Diame                   | ter (in.)  | Perista           | ltic Pump               | Orio           | on             |              |               |                    | Met          | er Cali | bration         |                       |
|                                |  | Dedica            | ted Pump                | Oth            | er:            |              | Time:         |                    |              |         |                 |                       |
| 1                              | .913   | 2" Grui           | ndfos                   | Serial No.:    |                |              |               |                    |              |         |                 |                       |
|                                |  | Waterr            | a Pump                  |                |                |              | рН            | 4 :                | =            | at      |                 | °C                    |
| Total Well Dep                 | oth (ft.)  | X Geoted          | h Pump                  | Conductivity   | y Meter:       |              | Lot#          |                    |              | Ехр.    |                 |                       |
|                                |  | Other:            |                         | X YSI          | 556            |              |               |                    |              |         |                 |                       |
| 8                              | 0.00   |                   |                         | Orio           | on             |              | pH            | <u>_7</u> =        | =            | at      |                 | °C                    |
|                                |  |                   |                         | Oth            | er:            |              | Lot#          |                    |              | Exp     |                 |                       |
| Static Water L                 | evel (ft.)   | Serial Number     |                         | Serial No.:    |                |              |               |                    |              |         |                 |                       |
|                                |  | Sample            | Equipment               |                |                |              | рН            | 10 :               | =            | at      |                 | °C                    |
| 69.9                           | 98 TOC   | 1.40" E           | Bennett Pump            | Dissolved C    | xygen Meter:   |              | Lot #         |                    |              | Ехр.    |                 |                       |
|                                |  | 1.80" E           | Bennett Pump            | X YSI          | 556            |              | l             |                    |              |         |                 |                       |
| Water Thickne                  | ess (ft.)  | Perista           | ltic Pump               | Oth            | er             |              | Condu         | uctance Sta        | ndard: 14    | 13 umh  | ios/cm Oth      | er:                   |
|                                |  | Dedica            | ted Pump                | Serial No.     |                |              |               |                    |              |         |                 |                       |
| ^                              | 11.5   | 2" Grui           |                         |                |                |              | Calibra       | ated to            |              | un      | nhos/cm at      | °C                    |
|                                |  |                   | a Pump                  | ORP Meter      |                |              | l.            |                    |              | _       |                 |                       |
| Casing Volum                   | e (gal.)   |                   | h Pump                  | X_YSI          |                |              | Lot #         |                    |              | Exp.    |                 |                       |
|                                |  | X Other:          | Bailer                  | Oth            | er             |              | Dissol        | lved Oxyge         |              |         |                 |                       |
| '                              | 1.70   |                   |                         | Serial No.     |                |              |               | Cal                | librated to  |         | mg/             | at°C                  |
|                                |  |                   |                         |                |                |              |               |                    |              |         |                 |                       |
| Stick-up                       | Screen Int.  | Serial Number     |                         | Water Leve     |                |              | Redox         |                    |              |         |                 | 0-                    |
|                                | 55-80  |                   | Equipment:              | — Ked          |                |              |               | Ca                 | alibrated to |         | mV              | at°C                  |
| (ft.)                          | •                            | 0.45 <i>Micro</i> | n Filler                |                | er: Geotech    |              | Lot #         |                    |              | Ехр.    |                 |                       |
| Purge Containerized:  X Yes No |  | Brand: Geoted     | ah.                     | Serial No.     |                |              | Comp          | ie Depth (fe       | \cat\        |         |                 | Time:                 |
|                                | N  |                   | nultipliers: 1"=(.04)   | 2"=(16) 3"=(37 | 7) 4*=(65)     |              | Samp          | ne Deptir (re      | et)          |         |                 | Time.                 |
|                                | Volume   |                   |                         | Dissolved 02   | 1              | T            | ┺             |                    | ĺ            |         | Pump            |                       |
| Time                           | Removed  | Temp<br>(°C)      | Conductivity (umhos/cm) | (mg/l) _       | pН             | ORP<br>(mV)  |               | Turbidity<br>(NTU) | Water L      |         | Rate            | Visual                |
| 1                              | (gallons)<br>(milliliters)   | (+/- 3%)          | (+/- 3%)                | (+/- 10%)      | (+/- 0.1)      | (+/- 10      | ) (           | (+/- 10%)          | (ft bg       | s)      | (gpm)<br>(ml/m) | Description           |
|                                | ,  |                   |                         |                |                |              | _             |                    |              |         | (               |                       |
|                                | 11 gal   | 64.3              | 1704                    | 2.34           | 8.14           | 10.5         |               | NA                 | NA           |         |                 | Cloudy gray           |
|                                |  | 37.2              | 2                       |                |                |              |               |                    |              |         |                 | brown                 |
|                                | 40   | 04.4              | 1050                    | 0.00           | 0.00           | 50.4         |               | NI A               | 814          |         |                 |                       |
|                                | 18 gal   | 64.1<br>37.5      | 1659                    | 2.28           | 8.32           | 52.4         |               | NA                 | NA           |         |                 | Cloudy gray           |
|                                |  | - 37.5            |                         |                |                |              | _             |                    |              |         |                 | brown                 |
|                                | 24 gal   | 65.2              | 1650                    | 2.36           | 8.24           | 57.7         | '             | NA                 | NA           |         |                 | Cloudy gray           |
|                                |  | 36.1              |                         |                |                |              | $\perp \perp$ |                    |              |         |                 | brown                 |
|                                | *29 gal  | 65.0              | 1703                    | 2.93           | 8.59           | 36.2         |               | NA                 | NA           |         |                 |                       |
|                                | 3  |                   |                         |                |                |              |               |                    |              |         |                 | Cloudy gray           |
|                                |  | 36.6              |                         | <u> </u>       |                | <del> </del> |               |                    |              |         |                 | colorless             |
| :                              | 35 gal   | 61.4              | 1683                    | 2.40           | 8.22           | 41.5         |               | NA                 | NA           |         |                 | Slightly              |
|                                |  | 37.2              |                         |                |                |              |               |                    |              |         |                 | cloudy gray           |
|                                |  | 31.2              |                         |                |                | +            |               |                    | <u> </u>     |         |                 | colorless<br>Slightly |
|                                |  | ? _               | 1657                    | 2.59           | 8.52           | 57           |               | NA                 | NA           |         |                 | cloudy gray           |
|                                |  | 37.3              |                         |                |                |              |               |                    |              |         |                 | colorless             |
|                                |  |                   |                         |                |                | 1            | $\neg$        |                    |              |         |                 |                       |
| Analyses requ                  | ested  | Full Su           | iite                    | Partial Suite  | e (explain)    | PID/FID Re   | ading         |                    |              | Initial | Readings:       | Sample Reading        |
|                                | is (field filtered) - Rt   |                   |                         |                | , , ,          | NA           | HNu           |                    |              | TOC:    |                 | TOC: NA               |
| 8260                           |  |                   | = '                     | •              |                | NA NA        | OVA           |                    |              | BZ: N   |                 | BZ: NA                |
| *Pump down fo                  | r appx. 1-hour   |                   |                         |                |                | NA NA        | -<br>Microt   | tip                |              | Bkgd:   |                 | Bkgd: NA              |
|                                | mments: **Duplica  | te Sampled at t   | his well simultar       | neously        |                | -            | -             | Serial No.:        |              | -       |                 | -                     |
| Appx. 8 gallons                | removed by drillers  | during develor    | oment.                  |                |                | Condition    |               |                    | New          |         |                 |                       |
| PPE Level: D                   | ppx. 8 gallons removed by drillers during development. PE Level: D |                   |                         |                |                | Signature:   |               |                    |              |         |                 |                       |
|                                |  |                   |                         |                |                | <del></del>  |               |                    |              |         |                 |                       |



#### **Lightning Dock Geothermal Monitoring**

#### GROUNDWATER SAMPLING FIELD DATA SHEET

amec<sup>()</sup>

|                |                            |                 |                         |                    | ,               | Job No.:                |                  | 11-517-00     | 102       |            | Page          | 1 of                  |
|----------------|----------------------------|-----------------|-------------------------|--------------------|-----------------|-------------------------|------------------|---------------|-----------|------------|---------------|-----------------------|
| Well No.       |                            | Purge           | Equipment               | Anai               | lytical Equipn  |                         |                  | pler's Initia |           | Гime       | ·             | Date                  |
| MW-            | 2 & Dup                    | 1.40" E         | Bennett Pump            | pH meter (to       | emperature):    |                         | ED               | K             | j         | 11         | 1:00          | 12/10/2013            |
|                |                            | 1.80" E         | Bennett Pump            | X YSI              | 556             |                         |                  |               |           |            |               |                       |
| Casing Diame   | ter (in.)                  | Perista         | altic Pump              | Orio               | on              |                         |                  |               | Mete      | r Calibr   | ation         |                       |
|                |                            | Dedica          | ated Pump               | Oth                | er:             |                         | Time:            |               |           |            |               |                       |
| 1              | .913                       | 2* Gru          | ndfos                   | Serial No.:        |                 |                         |                  |               |           |            |               |                       |
|                |                            | Waterr          | ra Pump                 |                    |                 |                         | pH4              | =_            | _4.002    |            | at15          | °C                    |
| Total Well Dep | oth (ft.)                  | Geoted          | ch Pump                 | Conductivity       | y Meter:        |                         | Lot #            |               | E         | Ехр.       |               |                       |
| _              |                            | X Other:        | Bailer                  | X YSI              |                 |                         |                  |               |           |            |               | _                     |
| 8              | 0.00                       |                 |                         | Orio               |                 |                         | i .              | <u>7</u> =    |           |            | at15_         | °C                    |
|                |                            | 1               |                         | Oth                | ier:            |                         | Lot#             |               | E         | Ξхρ        |               |                       |
| Static Water L | evel (ft.)                 | Serial Number   |                         | Serial No.:        |                 |                         |                  | 10            | 40.40     |            | -1 45         | 90                    |
|                | O 05                       | <del></del>     | Equipment               | <b>-</b>           |                 |                         |                  | <u> 10</u> =  |           |            | . at15_       | c                     |
| 0              | 9.85                       |                 | Bennett Pump            |                    | Oxygen Meter:   |                         | Lot #            |               | t         | Exp.       |               |                       |
|                |                            |                 | Bennett Pump            | X YSI              |                 |                         | Conduct          | naa Ctand     | ard: 141  | ممطمعين    | Jam Oth       |                       |
| Water Thickne  | ess (ff.)                  |                 | altic Pump              | Oth                | ier             |                         | Conducta         | ance Standa   | aru: 141, | 3 umnos    | cm Othe       | er;                   |
| 1              | 1.35                       |                 | ated Pump               | Serial No.         |                 |                         | Calibrata        | dto 1/        | 110       |            | umbaa/am      | at15                  |
|                | 1.00                       | 2" Gru          |                         | ORP Meter:         |                 |                         | Calibrate        | d 10 14       | 113       |            | umnos/cm      | at15                  |
| Casing Volum   | up (mal.)                  |                 | ra Pump<br>ch Pump      | X YSI              |                 |                         | Lot#             |               | ,         | Ξхρ.       |               |                       |
| Casing volum   | le (gal.)                  | X Other:        | •                       | Oth                |                 |                         | 1                | d Oxygen:     |           | -xp.       |               |                       |
|                | 1.69                       | - Other.        | Dallei                  | Serial No.         |                 |                         | 1                | , ,           | 8.6       | 7          | ma/Lat        | 15°C                  |
|                | 1.00                       |                 |                         | Genaino.           |                 |                         | ~                | alibrated to  | 0.0       | '          | mg/r at       | 15 0                  |
| Stick-up       | Screen Int.                | Serial Number   | r·                      | Water Leve         | el Meter        |                         | Redox:           |               |           |            |               |                       |
| 1.20           | 15-35                      |                 | n Equipment:            | Ked                |                 |                         | 1                | Calibrated to | 229       | 9          | mV at         | 15°C                  |
| (ft.)          | 1                          |                 |                         |                    | ner: Bailer     |                         | Lot#             |               |           | -<br>Ехр.  |               |                       |
| Purge Contair  | •                          |                 |                         | Serial No.         |                 |                         |                  |               |           |            |               |                       |
| _X_Yes _       | No                         | Brand: Geote    | ch                      |                    |                 |                         | Sample [         | Depth (feet)  |           |            |               | Time:                 |
|                |                            | Casing Volume r | multipliers: 1"=(.04)   | ) 2"=(.16) 3"=(.37 | 7) 4"=(.65)     |                         | ]                |               |           |            |               |                       |
|                | Volume                     | Tama            | Conductivity            | Dissolved 02       |                 | ODB                     |                  | de idie.      |           |            | Pump          |                       |
| Time           | Removed                    | Temp<br>(°C)    | Conductivity (umhos/cm) | (mg/l)             | pH<br>(+/- 0.1) | ORP<br>(mV)             |                  | bidity V      | Vater Le  |            | Rate<br>(gpm) | Visual<br>Description |
|                | (gallons)<br>(milliliters) | (+/- 3%)        | (+/- 3%)                | (+/- 10%)          | (+/- 0.1)       | (+/- 10                 | ) (+/-           | 10%)          | (ft bgs   | '          | (ml/m)        | Description           |
|                |                            |                 |                         |                    |                 |                         |                  |               |           |            |               | Cloudy                |
|                |                            | 674.            | 1744                    | 2.93               | 6 50            | 117.1                   |                  |               | NA        |            | NΙΛ           | Cloudy                |
|                |                            | 67.4            | 1744                    | 2.93               | 6.58            | 117.1                   |                  | 1             | IVA       |            | NA            | translucent           |
|                | ļ                          | 30.0            |                         |                    |                 |                         |                  |               |           |            |               | brown                 |
|                |                            |                 |                         |                    |                 |                         |                  | ĺ             |           |            |               | Cloudy                |
|                |                            | 67.2            | 1719                    | 2.40               | 7.64            | 82.6                    |                  |               | NA        |            | NA            | translucent           |
|                |                            | 33.9            |                         |                    |                 | ļ                       |                  |               |           |            |               | brown                 |
| •              |                            |                 |                         |                    |                 | 1                       |                  |               |           |            |               | Cloudy                |
|                |                            | 68.3            | 1725                    | 2.65               | 7.85            | 77.5                    | -                |               | NA        |            | NA            | translucent           |
|                |                            | 32.5            |                         |                    |                 | <u> </u>                |                  |               |           |            |               | brown                 |
|                |                            |                 |                         |                    |                 |                         |                  |               |           |            |               |                       |
|                |                            |                 |                         |                    |                 | ļ                       |                  |               |           |            |               |                       |
|                |                            |                 |                         |                    |                 | ]                       |                  | -             |           |            |               |                       |
|                |                            |                 |                         | -                  |                 |                         |                  |               |           |            |               |                       |
|                |                            |                 |                         |                    |                 |                         |                  |               |           |            |               |                       |
|                |                            |                 |                         |                    |                 | -                       | -                |               |           |            |               |                       |
|                |                            |                 |                         |                    |                 |                         |                  |               |           |            |               |                       |
|                |                            |                 | <u>.</u>                | <u> </u>           | <u> </u>        | <br>                    |                  |               |           |            |               | 0                     |
| Analyses requ  |                            | Full Su         | nte                     | Partial Suite      | e (explain)     | PID/FID Re              |                  |               | -         | Initial Re |               | Sample Reading        |
| mazzo/227, Cy  | anide, 504.1, Pheno        | JIS             |                         |                    |                 | NA NA                   | -HNu             |               |           | TOC: N     | A             | TOC: NA               |
|                |                            |                 |                         |                    |                 | NA<br>NA                | _OVA<br>Microtin |               |           | BZ: NA     | •             | BZ: NA                |
| A.J.4101       |                            |                 |                         |                    |                 | NA NA                   | _Microtip        | rial Bla      |           | Bkgd: NA   | •             | Bkgd: NA              |
| Additional Co  | mments:                    |                 |                         |                    | }               | Condition               |                  | rial No.:     |           |            |               |                       |
| PPE Level: C   | 1                          |                 |                         |                    |                 | Condition<br>Signature: |                  |               |           |            |               |                       |
| n r⊏ Levei. L  | ,                          |                 |                         |                    | 1               | orginature:             |                  |               |           |            |               |                       |



Task:

**Lightning Dock Geothermal Monitoring** 

|                |                         |                 |                         |                 | ,              | Job No.:     | 11-517             | 7-00102  |                | Page          | : 1 of   |
|----------------|-------------------------|-----------------|-------------------------|-----------------|----------------|--------------|--------------------|--|----------------|---------------|--|
| Well No.       |                         | Purge           | Equipment               | Ana             | lytical Equipn | nent         | Sampler's I        | nitials  | Time           |               | Date   |
| N              | IW-3                    | 1.40" E         | Bennett Pump            | pH meter (t     | emperature):   |              | EDK                |  | 22:0           | 0             | 11/24/2013                                       |
|                |                         | 1.80" E         | Bennett Pump            | X_YS            | I 556          |              |                    |  |                |               |  |
| Casing Diame   | er (in.)                | Perista         | ıltic Pump              | Orie            | on             |              |                    | Met  | ter Calibratio | on            |  |
|                |                         | Dedica          | ited Pump               | Oth             | ner:           |              | Time:              |  |                |               |  |
| 1              | .913                    | 2" Gru          | ndfos                   | Serial No.:     |                |              |                    |  |                |               |  |
|                |                         | Water           | a Pump                  |                 |                |              | pH4                | =  | at             |               | _°C  |
| Total Well Dep | th (ft.)                | Geote           | ch Pump                 | Conductivit     | y Meter:       |              | Lot #              |  | Ехр.           |               |  |
|                |                         | X Other:        | Bailer                  | X YS            | I 556          |              |                    |  |                |               |  |
| 8              | 0.00                    |                 |                         | Ori             | on             |              | pH                 | =  | at             |               | _°C  |
|                |                         |                 |                         | Oth             | ner:           |              | Lot#               |  | Exp            |               |  |
| Static Water L | evel (ft.)              | Serial Number   | :                       | Serial No.:     |                |              |                    |  |                |               |  |
|                |                         | Sample          | Equipment               | 7               |                |              | pH <u>10</u>       | =  | at             |               | _°C  |
| 73.6           | 6 TOC                   | 1.40" E         | Bennett Pump            | Dissolved C     | Oxygen Meter:  |              | Lot #              |  | Exp.           |               |  |
|                |                         | 1.80" E         | Bennett Pump            | X YS            | 1 556          |              | ļ                  |  |                |               |  |
| Water Thickne  | ss (ft.)                | Perista         | altic Pump              | Oth             |                |              | Conductance St     | andard: 14                                       | 13 umhos/cn    | n Oth         | ner:   |
|                |                         | Dedica          | ited Pump               | Serial No.      |                |              |                    |  |                |               |  |
| ,              | -7.8                    | 2" Gru          | •                       |                 |                |              | Calibrated to      |  | umhos/d        | cm at         | °C   |
|                |                         |                 | a Pump                  | ORP Meter       | :              |              |                    |  |                |               |  |
| Casing Volum   | e (gal.)                | <del></del>     | ch Pump                 | X YS            |                |              | Lot#               |  | Ехр.           |               |  |
|                | ,                       | X Other:        | •                       | Oth             |                |              | Dissolved Oxyge    | en:  |                |               |  |
| ,              | -1.2                    |                 |                         | Serial No.      |                |              | , ,                |  |                | ma/           | 'l at°C  |
|                |                         |                 |                         |                 |                |              |                    |  |                | _ ,           |  |
| Stick-up       | Screen Int.             | Serial Number   | r:                      | Water Leve      | el Meter:      |              | Redox:             |  |                |               |  |
| ,              | 55-80                   | Filtration      | Equipment:              | Ked             | ck             |              | C                  | alibrated to                                     | )              | m\            | / at°C   |
| (ft.)          | (ft.)                   | 0.45 Micro      | n Filter                | X Oth           | ner: Geotech   |              | Lot#               |  | Ехр.           |               |  |
| Purge Contair  | erized:                 |                 |                         | Serial No.      |                |              |                    |  |                |               |  |
| X Yes          | No                      | Brand: Geote    | ch                      |                 |                |              | Sample Depth (f    | eet)   |                |               | Time:  |
|                |                         | Casing Volume r | nultipliers: 1"=(.04)   | 2"=(.16) 3"=(.3 | 7) 4"=(.65)    |              |                    |  |                |               | 22:00  |
|                | Volume                  | <b>-</b>        | On advet to             | Dissolved 02    |                | 000          | T 1:10             |  | P              | ump           |  |
| Time           | Removed                 | Temp<br>(°C)    | Conductivity (umhos/cm) | (mg/l)          | pH             | ORP<br>(mV)  | Turbidity<br>(NTU) | WaterL   |                | Rate          | Visual   |
|                | (gallons)               | (+/- 3%)        | (+/- 3%)                | (+/- 10%)       | (+/- 0.1)      | (+/- 10      |                    | (ft bg   |                | gpm)<br>ml/m) | Description                                      |
|                |                         |                 |                         |                 | <u> </u>       | <del> </del> |                    | <del>                                     </del> |                |               | <del>                                     </del> |
|                | 4                       | 73.9            | 1938                    | 2.11            | 8.83           | -65.1        | NA                 | NA   |                | NA            | Cloudy   |
|                |                         | 32.2            |                         |                 |                |              |                    |  |                |               | gray brown                                       |
|                | 5                       | 75.1            | 1745                    | 1.81            | 9.25           | -89.7        | NA                 | NA   |                | NA            | Cloudy   |
|                |                         | 34.5            |                         | 1.01            | 0.20           | 00.7         | 117                | '''  | '              | 1/1           | gray brown                                       |
|                |                         |                 |                         |                 |                | 1            |                    |  |                |               |  |
|                | 6                       | 74.2            | 1737                    | 3.50            | 9.33           | -75.6        | NA NA              | NA   |                | NA            | Cloudy   |
|                |                         | 23.7            |                         |                 |                |              |                    |  |                |               | gray brown                                       |
|                | 7                       | 71.0 _          | 1733                    | 3.81            | 9.44           | -88.1        | NA NA              | NA   | 1 1            | NA            | Cloudy   |
|                |                         | 22.1            |                         |                 |                |              |                    |  |                |               | gray brown                                       |
|                | _                       |                 |                         |                 |                |              |                    |  |                |               |  |
|                | 8                       | 74.9            | 1710                    | 3.72            | 9.40           | -152.7       | NA                 | NA   |                | NA            | Cloudy   |
|                |                         | 26.3            |                         |                 |                |              |                    | ļ  |                |               | gray brown                                       |
|                | 9                       | 77.2            | 1707                    | 4.94            | 9.28           |              | NA                 | NA   | 1              | NA            | Cloudy   |
|                |                         | 25.6            |                         |                 |                |              | ľ                  |  |                |               | gray brown                                       |
|                |                         |                 |                         |                 |                |              |                    |  |                |               |  |
|                |                         |                 |                         |                 |                | i            |                    |  |                |               |  |
|                |                         |                 |                         |                 |                | }            |                    |  |                |               | 1  |
|                |                         |                 |                         |                 |                |              |                    |  |                |               |  |
| Analyses requ  | ested                   | Full Su         | iite                    | Partial Suite   | e (explain)    | PID/FID Re   | eadings            | 1  | Initial Readi  | ings:         | Sample Reading                                   |
| •              | ls - Rb-S (field filter |                 |                         |                 | , ,,           | NA NA        | HNu                |  | TOC: NA        | <u></u>       | TOC: NA  |
| PAH, PCB, P, 8 |                         |                 | 5,                      |                 | 1              | NA NA        | OVA                |  | BZ: NA         |               | BZ: NA   |
| ,, . ,         | -                       |                 |                         |                 |                | NA NA        | Microtip           |  | Bkgd: NA       |               | Bkgd: NA   |
| Additional Co  | nments: Approx. 3       | gallons remov   | ed by                   |                 |                |              | Serial No.         | :  |                |               |  |
|                | evelopment. Subm        |                 |                         | )               | ļ.             | Condition    |                    | -  |                |               |  |
| PPF Level: D   |                         |                 | - `                     |                 |                | Signature    |                    |  |                |               |  |



Task:

**Lightning Dock Geothermal Monitoring** 

|                                     |                     |                 |                       |                     | •               | Job No.:                           |                         | 7-00102               |                  |  |  |  |
|-------------------------------------|---------------------|-----------------|-----------------------|---------------------|-----------------|------------------------------------|-------------------------|-----------------------|------------------|--|--|--|
| Well No.                            |                     | Purge           | Equipment             | Anal                | ytical Equipm   | ent                                | Sampler's               | nitials               | ime              | Date   |  |  |
|                                     | MW-3                |                 | Bennett Pump          | ľ ·                 | emperature):    |                                    | EDK                     |                       | 20:30            | 12/10/2013                                   |  |  |
|                                     |                     | 1.80° E         | Bennett Pump          | X YSI               | 556             |                                    |                         |                       |                  |  |  |  |
| Casing Diam                         | neter (in.)         |                 | itic Pump             | Orio                |                 |                                    |                         | Meter                 | r Calibration    |  |  |  |
|                                     |                     |                 | ted Pump              | Oth                 | er:             |                                    | Time:                   |                       |                  |  |  |  |
|                                     | 1.913               | 2" Grui         |                       | Serial No.:         |                 |                                    |                         |                       | 70 -1            | 45 90  |  |  |
|                                     |                     |                 | a Pump                |                     |                 |                                    |                         |                       | 72 at            | _15°C  |  |  |
| Total Well D                        | epth (ft.)          |                 | ch Pump               | Conductivity        |                 |                                    | Lot #                   | 3AF099 E              | xp.              |  |  |  |
|                                     | 00.00               | X Other:        | Bailer                | X YSI               |                 |                                    | -H 7.05                 | 7.4                   | 13 at1           | °C   |  |  |
|                                     | 80.00               |                 |                       | Orio                |                 |                                    | pH <u>7.05</u><br>Lot # | =/.4<br>3AE725 E      |                  | <u>.                                    </u> |  |  |
| Chatia Matau                        | 11 (4)              | Carial Normban  |                       | Oth                 | er:             |                                    | LU(#                    | 3AE/25 E              | χþ               |  |  |  |
| Static Water                        | Lever (II.)         | Serial Number   | Equipment             | Serial No.:         |                 |                                    | nH 10.12                | = 96                  | 67 at15          | °C   |  |  |
|                                     | 73.24               |                 | Bennett Pump          | Dissolved C         | xygen Meter:    |                                    | Lot #                   | 3AE634 E              |                  | 0  |  |  |
|                                     | 70.24               |                 | Bennett Pump          | X YSI               |                 |                                    |                         | OALOGT =              | Λρ.              |  |  |  |
| Water Thick                         | ness (ft )          |                 | ultic Pump            | Oth                 |                 |                                    | Conductance S           | tandard: 1413         | umhos/cm Ot      | her:   |  |  |
| Water Triick                        | ness (it.)          |                 | ited Pump             | Serial No.          | <b>.</b>        |                                    |                         |                       |                  |  |  |  |
|                                     | 7.85                | 2" Gru          | •                     | Conditio.           |                 |                                    | Calibrated to           | 1413                  | _ umhos/cm at _  | .15 °C                                       |  |  |
|                                     |                     |                 | a Pump                | ORP Meter:          |                 |                                    |                         |                       |                  |  |  |  |
| Casing Volu                         | me (gal.)           | <del></del>     | ch Pump               | X YSI               |                 |                                    | Lot#                    | Е                     | xp.              |  |  |  |
|                                     | ,                   | X Other:        | •                     | Oth                 |                 |                                    | Dissolved Oxyg          | en:                   |                  |  |  |  |
| 1                                   | 1.17                |                 |                       | Serial No.          |                 |                                    | C                       | alibrated to          | 8.67 mg          | g/l at15°C                                   |  |  |
|                                     |                     | ļ               |                       |                     |                 |                                    |                         |                       |                  |  |  |  |
| Stick-up                            | Screen Int.         | Serial Number   | r:                    | Water Leve          | el Meter:       |                                    | Redox:                  |                       |                  |  |  |  |
| 1.09                                | 55-80               | Filtratio       | n Equipment:          | Ked                 | k               |                                    |                         | Calibrated to         | 0229             | _ mV at15°C                                  |  |  |
| l(f                                 | ft.) (ft.)          | 0.45 Micro      | n Filter              | X Oth               | er: Geotech     |                                    | Lot #                   | E                     | xp.              |  |  |  |
| Purge Conta                         | ainerized:          |                 |                       | Serial No.          |                 |                                    |                         |                       |                  |  |  |  |
| <u>X_</u> Yes                       | No                  |                 |                       |                     |                 |                                    | Sample Depth (          | feet)                 |                  | Time:  |  |  |
|                                     |                     | Casing Volume r | nultipliers: 1*=(.04) | 2"=(.16) 3"=(.37)   | 4"=(.65)        | 1                                  | <u> </u>                |                       |                  | 12:10  |  |  |
|                                     | Volume              | Temp            | Conductivity          | Dissolved 02        |                 | ORP                                | Turbidity               |                       | Pump<br>Rate     | \  |  |  |
| Time                                | Removed (gallons)   | (°C)            | (umhos/cm)            | (mg/l)<br>(+/- 10%) | pH<br>(+/- 0.1) | (mV)                               | (NTU)                   | Water Lev<br>(ft bgs) | (gpm)            | Visual<br>Description                        |  |  |
|                                     | (milliliters)       | (+/- 3%)        | (+/- 3%)              | ,                   |                 | (+/- 10                            | ) (+/- 10%)             |                       | (ml/m)           |  |  |  |
|                                     | 1.2                 | 84.2            | 1870                  | 1.59                | 8.11            | -161.8                             |                         | NA                    | NA               | Cloudy                                       |  |  |
|                                     | 1.2                 | 33.8            | 1070                  | 1.59                | 0.11            | 1-101.6                            |                         | '\\                   | 110              | Translucent                                  |  |  |
|                                     |                     | 33.0            |                       |                     |                 | <del> </del>                       |                         | <del> </del>          |                  |  |  |  |
|                                     | 2.4                 | 84.7            | 1839                  | 0.98                | 8.24            | -173.6                             |                         | NA                    | NA               | Cloudy                                       |  |  |
|                                     |                     | 42.0            |                       |                     |                 | ļ                                  |                         |                       |                  | Translucent                                  |  |  |
|                                     | 3.5                 | 85.7            | 1861                  | 1.27                | 8.64            | -220.4                             |                         | NA                    | NA               | Cloudy                                       |  |  |
|                                     |                     | 37.3            |                       |                     |                 |                                    |                         |                       |                  | Translucent                                  |  |  |
|                                     |                     |                 |                       |                     |                 |                                    |                         |                       |                  |  |  |  |
|                                     |                     |                 |                       |                     |                 |                                    |                         |                       |                  |  |  |  |
|                                     |                     |                 |                       |                     |                 |                                    |                         |                       |                  |  |  |  |
|                                     |                     |                 |                       |                     |                 |                                    |                         |                       |                  |  |  |  |
|                                     |                     |                 |                       |                     |                 |                                    |                         |                       |                  |  |  |  |
|                                     |                     |                 |                       |                     |                 |                                    |                         |                       |                  |  |  |  |
|                                     |                     |                 |                       |                     |                 |                                    |                         |                       |                  |  |  |  |
|                                     |                     |                 |                       |                     |                 |                                    |                         |                       |                  |  |  |  |
|                                     |                     |                 |                       |                     |                 |                                    |                         |                       |                  |  |  |  |
|                                     |                     |                 |                       |                     |                 |                                    |                         |                       |                  |  |  |  |
|                                     |                     |                 |                       | Destrict C. T.      | /a.m.tt-> T     | DID (SID 5                         |                         |                       | nitial Daniel    | Comple Cont                                  |  |  |
| Analyses re                         | quested             | Full St         | ute                   | Partial Suite       | e (explain)     | PID/FID Re                         | e <b>adings</b><br>HNu  |                       | nitial Readings: | Sample Reading<br>TOC: NA                    |  |  |
| Inhanala a -                        | aide 504.1 Ba 006/0 | 227             |                       |                     |                 |                                    | -                       |                       |                  |  |  |  |
| phenols, cynaide, 504.1, Ra 226/227 |                     |                 |                       |                     | NA<br>NA        | NA OVA BZ: NA                      |                         |                       |                  |  |  |  |
| Additional Comments                 |                     |                 |                       |                     |                 | IVA                                | _Microtip<br>Serial No  |                       |                  |  |  |  |
| Additional C                        | Additional Comments |                 |                       |                     |                 | Serial No.: Condition of Well: New |                         |                       |                  |  |  |  |
| PPE Level:                          | D                   |                 |                       |                     |                 | Signature                          | :                       |                       |                  |  |  |  |





# GROUNDWATER SAMPLING FIELD DATA SHEET SVOA OC SAMPLE

| SVOA QC  | SAMPLE                                      |                     |                            |                                       |  | Job No.:           | 11-517                                       | -00102          | Page                  | 1 of            |
|--|---|---------------------|----------------------------|---------------------------------------|--|--------------------|--|-----------------|-----------------------|-----------------|
| Well No.                                       |   | Purge               | Equipment                  | Anal                                  | ytical Equipr                                  | nent               | Sampler's l                                  | nitials Tim     | <u>—</u><br>е         | Date            |
| N  | IW-4  | 1.40" B             | ennett Pump                | pH meter (te                          | emperature):                                   |                    | EDK  |                 | 14:35                 | 11/24/2013      |
|  |   | 1.80" B             | ennett Pump                | X YSI                                 | 556  |                    |  |                 |                       | <u> </u>        |
| Casing Diame                                   | ter (in.)                                   | Perista             | ltic Pump                  | Orio                                  | on   |                    |  | Meter C         | alibration            |                 |
|  |   | Dedica              | ted Pump                   | Oth                                   | er:  |                    | Time:  |                 |                       |                 |
| _ 1  | .913  | 2" Grui             | ndfos                      | Serial No.:                           |  |                    |  |                 |                       |                 |
|  |   | Waterr              | a Pump                     |                                       |  |                    | pH <u>4</u>                                  |                 |                       | .°C             |
| Total Well Dep                                 | th (ft.)                                    |                     | h Pump                     | Conductivity                          |  |                    | Lot #  | Exp             |                       |                 |
|  | 001   | X Other:            | Bailer                     | X YSI                                 |  |                    | l  |                 |                       | 90              |
| •  | ~80'  |                     |                            | ——Orio                                |  |                    | pH7  |                 |                       | °C              |
|  | 179   | Cardal Normban      |                            | Oth                                   | er:  |                    | Lot #  | Exp             |                       |                 |
| Static Water L                                 | evei (it.)                                  | Serial Number       | Equipment                  | Senai No                              |  |                    | pH <u>10</u>                                 | _               | at                    | °C              |
| 67 6   | 6 TOC                                       |                     | ennett Pump                | Dissolved C                           | Oxygen Meter:                                  |                    | Lot #  | Exp             |                       | . •             |
| 07.0   | 00100                                       | <del></del>         | ennett Pump                | X YSI                                 |  |                    | EGC #  | LλP             | •                     |                 |
| Water Thickne                                  | ess (ft )                                   |                     | Itic Pump                  | Oth                                   |  |                    | Conductance St                               | andard: 1413 ur | mhos/cm Oth           | ner:            |
| Traici Triiciaic                               | ,   |                     | ted Pump                   | Serial No.                            |  |                    |  |                 |                       |                 |
| ~  | 13.8  | 2" Grui             | •                          |                                       |  |                    | Calibrated to                                |                 | umhos/cm at _         | °C              |
|  |   | Waterr              | a Pump                     | ORP Meter:                            | :  |                    |  |                 |                       |                 |
| Casing Volum                                   | e (gal.)                                    | Geoted              | h Pump                     | X YSI                                 | 556  |                    | Lot #  | Exp             |                       |                 |
|  |   | X Other:            | Bailer                     | Oth                                   | er   |                    | Dissolved Oxyge                              | en:             |                       |                 |
| :  | 2.10  |                     |                            | Serial No.                            |  |                    | Ca   | librated to     | mg/                   | lat°C           |
|  |   |                     |                            |                                       |  |                    |  |                 |                       |                 |
| Stick-up                                       | Screen Int.                                 | Serial Number       |                            | Water Leve                            | el Meter:                                      |                    | Redox:                                       |                 |                       |                 |
| 1.38   | 55-80                                       |                     | n Equipment:               | Ked                                   |  |                    |  |                 |                       | ' at°C          |
| (ft.)  |   | 0.45 <i>Micro</i> i | n Filter                   | i <del></del>                         | er: Geotech                                    |                    | Lot #  | Exp             | •                     |                 |
| Purge Contair                                  | <del></del>                                 | -<br>-<br>-         | .L                         | Serial No.                            |  |                    | Commis Donath (f                             | 4\              |                       | Time:           |
| X Yes No Brand: Geotech Casing Volume multiple |   |                     | 2"-(16) 3"-(37)            | 4*=(.65)                              |  | Sample Depth (f    | eeı)   |                 | lime:                 |                 |
|  | V-t   | Casing volume in    | 1011pile13. 1 =(.04)       | Dissolved 0 <sub>2</sub>              | 4 =(.03)                                       |                    | <u>'                                    </u> |                 | Pump                  |                 |
| Time   | Volume<br>Removed                           | Temp<br>(°C)        | Conductivity<br>(umhos/cm) | (mg/l)                                | рН   | ORP<br>(mV)        | Turbidity<br>(NTU)                           | WaterLevel      | Rate                  | Visual          |
| Time   | (gallons)                                   | (+/- 3%)            | (+/- 3%)                   | (+/- 10%)                             | (+/- 0.1)                                      | (+/- 10            |  | (ft bgs)        | (gpm)<br>(ml/m)       | Description     |
|  |   |                     |                            |                                       | <u>                                       </u> | +                  |  | <del> </del>    |                       |                 |
|  | 22  | 44.9                | 3912                       | 2.98                                  | 7.64   | 33.7               | NA NA  | NA NA           | ~1.3                  | Cloudy          |
|  |   | 34.1                |                            |                                       |  | +                  |  | 1               |                       | Brown           |
|  | 26  | 45.4                | 3883                       | 2.07                                  | 7.56   |                    | NA NA  | NA              |                       | Cloudy          |
|  | 20  | 38.1                | 3901                       | 1.01                                  | 7.47   | 77.5               | N/A  | NIA             |                       | Brown           |
|  | 30  | 45.7                | 3901                       | 1.91                                  | 7.47   | 77.5               | NA NA  | NA NA           |                       | Cloudy<br>Brown |
| 12:30  | 33  | 44.2                | 3812                       | 1.87                                  | 7.48   | 75                 | NA NA  | NA              |                       | Cloudy          |
| 12.00  |   | 37.2                | 0012                       | 1.07                                  | ,.40   | , ,                |  | '''             |                       | Brown           |
|  | 35  | 45.2                | 3818                       | 2.0                                   | 7.49   | 68.1               | NA NA  | NA              |                       | Cloudy          |
|  |   | 37.7                |                            |                                       |  |                    | ŀ  |                 |                       | Brown           |
|  |   |                     |                            |                                       |  |                    |  |                 |                       | Slightly        |
|  |   | 45.0                | 3786                       | 1.74                                  | 7.48   | 66.1               | NA   | NA NA           |                       | cloudy          |
|  |   | 36.6                |                            |                                       |  |                    | l  |                 |                       | colorless       |
|  | 40  | 44.6                | 3773                       | 2.0                                   | 7.49   | 63.4               | NA   | NA              |                       |                 |
|  |   | 36.6                |                            |                                       |  |                    |  |                 |                       |                 |
|  | 43  | 44.6                | 3760                       | 1.81                                  | 7.5  | 63.2               | . NA   | NA              |                       |                 |
|  |   | 36.7                |                            |                                       |  |                    |  |                 |                       |                 |
| A 1  |   | Full Su             |                            | De etic I Contro                      | <u> </u>                                       | loio Eio o         |  | 1141            | -1.0                  | Samuela Baratia |
| Analyses requ                                  | i <b>estea</b><br>ils - Rb - S (field filte |                     |                            | Partial Suite                         | e (expiain)                                    | PID/FID Re         | •  |                 | al Readings:<br>C: NA | Sample Reading  |
| PCB, P, 8260                                   | us - nu - 3 (iieid liite                    | acu), rotarivieta   | us - u - 119, ANIOI        | 15, TUO, FAFI,                        |  | NA<br>NA           | _HNu<br>OVA                                  | BZ:             |                       | BZ: NA          |
| , 0200   |   |                     |                            |                                       |  | NA NA              | _OVA<br>Microtip                             |                 | d: NA                 | Bkgd: NA        |
| Additional Co                                  | mments:                                     |                     |                            | · · · · · · · · · · · · · · · · · · · |  | <del>- '''</del> - | Serial No.                                   | _               | u. WA                 | Digg. NA        |
|  | ns removed by drille                        | rs durina develo    | ppment                     |                                       |  | Condition          |  | New             |                       |                 |
| PPE Level: D                                   |   | . 9                 | •                          |                                       |  | Signature          |  |                 |                       |                 |



Page 1 of

11-517-00102

Task:

Job No.:



| Well No.<br>MW-4  |                   | Purge Equipment  |                        |                                 | Analytical Equipment          |                         |   | Sampler's Initials                         |           |                   | Date<br>12/9/2013 |  |  |
|---|-------------------|--|------------------------|---------------------------------|-------------------------------|-------------------------|---|--|-----------|-------------------|-------------------|--|--|
|   |                   | 1.40" Bennett Pump                                     |                        | pH meter (temperature):         |                               |                         | EDK   | 18:00                                      |           |                   |                   |  |  |
|   |                   |  | ennett Pump            | X YSI                           |                               |                         |   |  | <u> </u>  |                   |                   |  |  |
| Casing Diameter (in.)                                   |                   | Peristaltic Pump                                       |                        |                                 | Orion Orion                   |                         | Meter Calibration                               |  |           |                   |                   |  |  |
| 1.913   |                   | <del></del>  | ted Pump               | Oth                             | er:                           |                         | Time:   |  |           |                   |                   |  |  |
| Total Well Depth (ft.)  80.00  Static Water Level (ft.) |                   | 2" Grur  |                        | Serial No.:                     | Serial No.:                   |                         |   | _  | at        |                   | °C                |  |  |
|   |                   | _  | a Pump<br>h Pump       | Conductivity                    | Meter                         |                         | Lot #   | 3AF099                                     |           |                   | O                 |  |  |
|   |                   | Geotech Pump X Other: Bailer                           |                        |                                 | Conductivity Meter: X YSI 556 |                         | Lot #   | 3AI 033                                    | LAP.      | 00/13             |                   |  |  |
|   |                   |  |                        |                                 |                               | pH <u>7</u>             | =   | at   |           | °C                |                   |  |  |
|   |                   |  |                        |                                 | Other:                        |                         |   |  | Exp 05/15 |                   |                   |  |  |
|   |                   | Serial Number:   |                        | Serial No.:                     | Serial No.:                   |                         |   |  |           |                   |                   |  |  |
|   |                   | Sample Equipment                                       |                        |                                 | ]                             |                         | pH <u>10</u>                                    | =  | at        |                   | °C                |  |  |
| 67.68 TOC   |                   | 1.40" B  | ennett Pump            | Dissolved C                     | Dissolved Oxygen Meter:       |                         |   | 3AE634                                     | Ехр.      | 05/15             |                   |  |  |
|   |                   | 1.80" B  | ennett Pump            | X YSI 556                       |                               |                         |   |  |           |                   |                   |  |  |
| Water Thickness (ft.)                                   |                   | Perista  | ltic Pump              | <u> </u>                        | Other                         |                         |   | Conductance Standard: 1413 umhos/cm Other: |           |                   |                   |  |  |
|   | 0.70              | _  | ted Pump               | Serial No.                      | Serial No.                    |                         |   |  |           |                   |                   |  |  |
| 1:  | 3.70              | 2" Grur  |                        |                                 |                               |                         |   | Calibrated to umhos/cm at°C                |           |                   |                   |  |  |
| 0   | - (1)             | <del></del>  | a Pump                 |                                 | ORP Meter:                    |                         |   | Lot# CAFTTA Eve COM                        |           |                   |                   |  |  |
| Casing Volume   | e (gai.)          | X Other:   | h Pump<br>Bailer       |                                 | X YSI 556<br>Other            |                         |   | Lot # 3AF774 Exp. 06/14                    |           |                   |                   |  |  |
| 2   | 2.05              | - Other.   | Dalici                 | Serial No.                      |                               |                         | Dissolved Oxygen:  Calibrated to mg/l at°C      |  |           |                   |                   |  |  |
| _   |                   |  |                        |                                 |                               |                         |   |  |           | 9                 | u                 |  |  |
| Stick-up  | Screen Int.       | Serial Number  | :                      | Water Leve                      | Water Level Meter:            |                         |   |  |           |                   |                   |  |  |
| 1.38 55-80  |                   | Filtration Equipment:                                  |                        | Keck                            |                               |                         | c   | alibrated to mV                            |           |                   | at°C              |  |  |
| (ft.)   | (ft.)             | 0.45 Microi  | n Filter               | X Oth                           | er: Geotech                   |                         | Lot#  | 3AE866                                     | Ехр.      | 02/14             |                   |  |  |
| Purge Containerized:                                    |                   |  |                        | Serial No.                      |                               |                         |   |  |           |                   | <del></del>       |  |  |
| <u>X</u> YesNo  |                   | Brand: Geotech  Casing Volume multipliers: 1"=(.04) 2" |                        | 01 (40) 01 (07                  | ( 10) 0" ( 27) 4" ( C5)       |                         | Sample Depth (f                                 | feet)                                      |           |                   | Time:             |  |  |
|   | Volume<br>Removed | Temp   | Conductivity           | Dissolved 0 <sub>2</sub> (mg/l) | ) 4 ≅(.65)<br>pH              | ORP                     | Turbidity                                       | Water                                      | _evel     | Pump<br>Rate      | Visual            |  |  |
| Time  | (gallons)         | (°C)<br>(+/- 3%)                                       | (umhos/cm)<br>(+/- 3%) | (+/- 10%)                       | (+/- 0.1)                     | (mV)<br>(+/- 10         | (NTU)<br>) (+/- 10%)                            | (ft bo                                     | js)       | (gpm)<br>(ml/m)   | Description       |  |  |
|   | 2                 | 49.8   | 4234                   | 1.84                            | 7.19                          | 36.3                    |   | NA   |           | NA                | Cloudy<br>Brown   |  |  |
|   | 4                 | 50.2   | 3986                   | 1.59                            | 7.23                          | 40.0                    |   | NA   |           | NA                | Cloudy<br>Brown   |  |  |
|   | 6                 | 49.7   | 3955                   | 1.35                            | 7.27                          | 38.6                    |   | NA   | ,         | NA                | Cloudy<br>brown   |  |  |
|   |                   |  |                        |                                 |                               |                         |   |  |           |                   |                   |  |  |
|   |                   |  |                        |                                 |                               |                         |   |  |           |                   |                   |  |  |
|   |                   |  |                        |                                 |                               |                         |   |  |           |                   |                   |  |  |
| Analyses requested Full Suite Partial Suite (explain)   |                   |  |                        |                                 | (explain)                     | PID/FID Re              | adings  | Initial Readings: Sample Rea               |           |                   |                   |  |  |
| Ra 226/227, Phenol, Cyanide, EDB                        |                   |  |                        |                                 | (explain)                     | NA<br>NA<br>NA          | TOC: NA TOC: NA BZ: NA BZ: NA Bkgd: NA Bkgd: NA |  |           | TOC: NA<br>BZ: NA |                   |  |  |
| Additional Cor  | nments:           |  |                        |                                 |                               | Condition<br>Signature: |   | :<br>New                                   |           |                   |                   |  |  |





|  |                   |                                    |                        |                                    | ,                       | Job No.:               |                 | 11-517-                                    | -00102      |                           | Page            | 1 of          |  |
|--|-------------------|------------------------------------|------------------------|------------------------------------|-------------------------|------------------------|-----------------|--|-------------|---------------------------|-----------------|---------------|--|
| Well No.<br>MW-5   |                   | Purge Equipment Analytical Equipme |                        |                                    | nent                    |                        | Sampler's In    | itials                                     | Time        |                           | Date            |               |  |
|  |                   | 1.40"                              | Bennett Pump           | pH meter (t                        | pH meter (temperature): |                        |                 | EDK  |             |                           | 12:15           | 11/24/2013    |  |
|  |                   | 1.80" Bennett Pump                 |                        | X YSI                              | XYSI 556                |                        |                 |  |             |                           |                 |               |  |
| Casing Diameter (in.)  |                   | Perista                            | altic Pump             | Orio                               | Orion                   |                        |                 | Meter Calibration                          |             |                           |                 |               |  |
| 1.913  |                   | Dedica                             | ated Pump              | Oth                                | Other:                  |                        | Time            | e:   |             |                           |                 |               |  |
|  |                   | 2" Gru                             | ndfos                  | Serial No.:                        |                         |                        |                 |  |             |                           |                 |               |  |
|  |                   | Water                              | ra Pump                |                                    |                         |                        | pH_             | <u>4</u> =                                 | =           | at                        | ·               | C.            |  |
| Total Well Depth (ft.)   |                   | X Geote                            | ch Pump                | Conductivit                        | y Meter:                |                        | Lot i           | #  |             | Exp.                      |                 |               |  |
|  |                   | X Other:                           | Bailer                 | X YSI                              | 556                     |                        |                 |  |             |                           |                 |               |  |
| 78.00  |                   |                                    |                        | Orio                               | on                      |                        | pH_             | =  | =           | at                        | ·               | C             |  |
|  |                   | 4                                  |                        | Oth                                | er:                     |                        | Lot             | #  |             | Exp                       |                 |               |  |
| Static Water Level (ft.)   |                   | Serial Number:                     |                        | Serial No.:                        | Serial No.:             |                        |                 |  |             |                           |                 |               |  |
| 1  |                   | Sample                             | Equipment              | _                                  | 4                       |                        |                 | <u>10</u> =                                | =           | at                        | ·               | C             |  |
| 76.0   | 1 BTOC            | 1.40"                              | Bennett Pump           | Dissolved C                        | Dissolved Oxygen Meter: |                        |                 | #  |             | Exp.                      |                 |               |  |
|  |                   | 1.80"                              | Bennett Pump           | X YS                               | X YSI 556               |                        |                 |  |             |                           |                 |               |  |
| Water Thickne  | ess (ft.)         | Perista                            | altic Pump             | Oth                                | Other                   |                        |                 | Conductance Standard: 1413 umhos/cm Other: |             |                           |                 |               |  |
|  |                   | Dedica                             | ated Pump              | Serial No.                         | Serial No.              |                        |                 |  |             |                           |                 |               |  |
|  | ~3.5              | 2" Gru                             | ndfos                  |                                    |                         |                        |                 | Calibrated toumhos/cm atoC                 |             |                           |                 |               |  |
|  |                   | Water                              | ORP Meter              | ORP Meter:                         |                         |                        |                 |  |             |                           |                 |               |  |
| Casing Volume (gal.)   |                   | Geote                              | ch Pump                | X YS                               | XYSI 556                |                        |                 | Lot # Exp.                                 |             |                           |                 |               |  |
|  |                   | X Other:                           | Bailer                 | Oth                                | Other                   |                        |                 | Dissolved Oxygen:                          |             |                           |                 |               |  |
| '  | ~0.5              |                                    |                        | Serial No.                         | Serial No.              |                        |                 | Cai  | ibrated to  |                           | mg/l            | at°           |  |
|  | ,                 | 4                                  |                        |                                    |                         |                        |                 |  |             |                           |                 |               |  |
| Stick-up   | Screen Int.       | Serial Number:                     |                        | Water Leve                         | el Meter:               |                        | Red             |  |             |                           |                 |               |  |
|  | 63-78             |                                    | Equipment:             | Ked                                |                         |                        | İ               |  | librated to |                           | mV :            | at°           |  |
| (ft.)  |                   | 0.45 <i>Micro</i>                  | n Filter               | X Oth                              | er:                     |                        | Lot i           | #  |             | Exp.                      |                 |               |  |
| Purge Contair  |                   | 4                                  |                        | Serial No.                         |                         |                        | _               |  |             |                           |                 |               |  |
| X_Yes No   |                   | Brand: Geote                       |                        |                                    | (40) 0# (07) 6" (25)    |                        |                 | Sample Depth (feet) Time:                  |             |                           |                 |               |  |
|  | 1                 | Casing Volume m                    | ultipliers: 1"=(.04)   | 2"=(.16) 3"=(.37)                  | 4"=(.65)                | T                      | <u> </u>        |  | 1           |                           | T               | <del> </del>  |  |
| <b>-</b> :   | Volume<br>Removed | Temp                               | Conductivity           | Dissolved 0 <sub>2</sub><br>(mg/l) | рН                      | ORP                    |                 | Turbidity                                  | Water L     | _evel                     | Pump<br>Rate    | Visual        |  |
| Time   | (gallons)         | (°C)<br>(+/- 3%)                   | (umhos/cm)<br>(+/- 3%) | (+/- 10%)                          | (+/- 0.1)               | (mV)<br>(+/- 10        |                 | (NTU)<br>(+/- 10%)                         | (ft bg      | js)                       | (gpm)<br>(ml/m) | Description   |  |
|  |                   |                                    |                        |                                    |                         |                        |                 |  |             |                           | ļ               | ļ             |  |
|  |                   |                                    |                        |                                    |                         |                        |                 |  |             |                           | ~1.3            | Yellowish     |  |
|  | _                 |                                    |                        |                                    | 8.1                     |                        | . NA            |  | NA          |                           | gpm<br>w/pump   | gray,         |  |
|  | ~2                | 35.2                               | 3773                   | 1.9                                |                         | 144.2                  |                 |  |             |                           |                 | cloudy        |  |
| ·  | ļ                 |                                    |                        |                                    |                         |                        |                 |  |             |                           |                 | <u> </u>      |  |
|  |                   |                                    |                        |                                    |                         |                        |                 |  |             |                           |                 |               |  |
|  |                   | Bum                                | ped dry the            | n hailad dr                        | , rocover               | d on o                 | 44:4:           | onol                                       |             |                           |                 |               |  |
|  |                   |                                    | n total (afte          |                                    | y, recovere             | au an ac               | Julia           | onai                                       |             |                           |                 |               |  |
|  |                   | yanc<br>Woll                       | did not go             | dry during                         | campling t              | ho follos              | vinc            | morning                                    |             |                           |                 |               |  |
|  |                   | VVCII                              | ala not go             | ary during                         | bamping t               |                        | /VII 1 <u>L</u> | , morning                                  |             |                           |                 |               |  |
|  |                   |                                    |                        |                                    |                         |                        |                 |  |             |                           |                 |               |  |
|  |                   |                                    |                        |                                    |                         |                        | ļ               |  |             |                           |                 |               |  |
|  |                   | <b>†</b>                           |                        |                                    |                         | <del> </del>           | $\dashv$        |  |             |                           | <del> </del>    | <del> </del>  |  |
|  |                   |                                    |                        |                                    |                         |                        |                 |  |             |                           |                 |               |  |
|  |                   |                                    |                        |                                    |                         |                        | $\dashv$        |  |             |                           |                 | <u> </u>      |  |
|  |                   |                                    |                        |                                    |                         |                        |                 |  |             |                           |                 |               |  |
| <del>-</del>   | -                 |                                    |                        |                                    |                         |                        | $\dashv$        |  |             |                           |                 | <del> </del>  |  |
|  |                   |                                    |                        |                                    |                         |                        |                 |  |             |                           |                 |               |  |
| Analyses requ  | ested             | Full St                            | uite                   | Partial Suite                      | e (explain)             | PID/FID Re             | adin            | ns   |             | Initial                   | Readings:       | Sample Readii |  |
| Dissolved Metals - Rb-S (field filtered), Total Metals -U-Hg, Anions, TD |                   |                                    |                        |                                    | · (OAPIGIII)            | NA                     |                 | aumgs<br>HNu                               |             | Initial Readings: TOC: NA |                 | TOC: NA       |  |
| PCB, P, 8260   |                   |                                    | . 50, 1711,            | NA NA NA                           |                         |                        | <del></del>     |  |             |                           |                 |               |  |
|  |                   |                                    |                        |                                    |                         |                        | rotip           | BZ: NA<br>Bkgd: NA                         |             | BZ: NA<br>Bkgd: NA        |                 |               |  |
| Additional Co  | nments:           |                                    |                        |                                    |                         |                        | -               | Serial No.:                                |             |                           |                 | g=            |  |
| 4 1 gallon removed by drillers during development - bailed dry           |                   |                                    |                        |                                    |                         | Condition of Well: New |                 |  |             |                           |                 |               |  |
| PPE Level: B C D   |                   |                                    |                        |                                    |                         | Signature:             |                 |  |             |                           |                 |               |  |



Task:

Lightning Dock Geothermal Monitoring

|                   |                            |                   |                         |                                    |                | Job No.:    | 11-517          | 7-00102        | Pag                | je 1 of        |
|-------------------|----------------------------|-------------------|-------------------------|------------------------------------|----------------|-------------|-----------------|----------------|--------------------|----------------|
| Well No.          |                            | Purge             | Equipment               | Ana                                | lytical Equipn | nent        | Sampler's I     | nitials        | Time               | Date           |
| N                 | IW-5                       | 1.40" E           | Bennett Pump            | pH meter (to                       | emperature):   |             | EDK             |                | 12:0               | 00 12/9/2013   |
|                   |                            | 1.80" E           | Bennett Pump            | X YSI                              | 556            |             |                 |                |                    |                |
| Casing Diame      | ter (in.)                  | Perista           | altic Pump              | Orio                               | on             |             |                 | Mete           | er Calibration     |                |
|                   |                            | Dedica            | ated Pump               | Oth                                | ier:           |             | Time:           |                |                    |                |
| 1                 | .913                       | 2" Grui           | ndfos                   | Serial No.:                        |                |             |                 |                |                    |                |
|                   |                            | Waterr            | ra Pump                 |                                    |                |             | pH <u>4</u>     | =              | at                 | _°c            |
| Total Well Dep    | th (ft.)                   | Geoted            | ch Pump                 | Conductivity                       | y Meter:       |             | Lot #           |                | Ехр.               |                |
|                   |                            | X Other:          | Bailer                  | X YSI                              | 556            |             |                 |                |                    |                |
| 7                 | 8.00                       |                   |                         | Orio                               | on             |             | pH              | =              | at                 | _°c            |
|                   |                            |                   |                         | Oth                                | ier:           |             | Lot #           |                | Ехр                |                |
| Static Water L    | evel (ft.)                 | Serial Number     | :                       | Serial No.:                        |                |             |                 |                |                    |                |
|                   |                            | Sample            | Equipment               |                                    |                |             | pH <u>10</u>    | =              | at                 | _°C            |
| 7                 | 6.05                       | 1.40" E           | Bennett Pump            | Dissolved C                        | Oxygen Meter:  |             | Lot #           |                | Ехр.               |                |
|                   |                            | 1.80" E           | Bennett Pump            | X YSI                              | 556            |             |                 |                |                    |                |
| Water Thickne     | ss (ft.)                   | Perista           | altic Pump              | Oth                                | ier            |             | Conductance St  | andard: 141    | 3 umhos/cm O       | ther:          |
|                   |                            | Dedica            | ated Pump               | Serial No.                         |                |             |                 |                |                    |                |
| 3                 | .247                       | 2" Gru            | ndfos                   |                                    |                |             | Calibrated to   |                | umhos/cm at        | °C             |
|                   |                            | Waterr            | ra Pump                 | ORP Meter:                         | :              |             |                 |                |                    |                |
| Casing Volum      | e (gal.)                   | Geoted            | ch Pump                 | X YSI                              | 556            |             | Lot #           |                | Ехр.               |                |
|                   |                            | X Other:          | Bailer                  | Oth                                | ier            |             | Dissolved Oxyge | en:            |                    |                |
| 0                 | .485                       |                   |                         | Serial No.                         |                |             | Ca              | alibrated to _ | m                  | g/l at°C       |
|                   |                            |                   |                         |                                    |                |             |                 |                |                    |                |
| Stick-up          | Screen Int.                | Serial Number     | r:                      | Water Leve                         | al Meter:      |             | Redox:          |                |                    |                |
| 1.297             | 63-78                      | Filtration        | Equipment:              | Ked                                | ck             |             | c               | alibrated to   | m                  | nV at°C        |
| (ft.)             | (ft.)                      | 0.45 <i>Micro</i> | n Filter                | X Oth                              | ner: Geotech   |             | Lot #           |                | Exp.               |                |
| Purge Contain     | erized:                    |                   |                         | Serial No.                         |                |             |                 |                |                    |                |
| _ <u>X</u> _Yes _ | No                         | Brand: Geoted     |                         | <u> </u>                           |                |             | Sample Depth (f | ieet)          |                    | Time:          |
|                   | T                          | Casing Volume n   | multipliers: 1"=(.04)   | 2"=(.16) 3"=(.37                   | 7) 4"=(.65)    |             | <u> </u>        |                |                    | 12:00          |
| Time              | Volume<br>Removed          | Temp<br>(°C)      | Conductivity (umhos/cm) | Dissolved 0 <sub>2</sub><br>(mg/l) | pН             | ORP<br>(mV) |                 | Water Le       |                    | Visual         |
| 111110            | (gallons)<br>(milliliters) | (+/- 3%)          | (+/- 3%)                | (+/- 10%)                          | (+/- 0.1)      | (+/- 10     |                 | (ft bgs        | s) (gpm)<br>(ml/m) | Description    |
|                   | (111111111010)             |                   |                         |                                    | <u> </u>       |             |                 | ļ              |                    |                |
|                   |                            |                   |                         |                                    |                |             |                 |                |                    | Cloudy         |
|                   | 0.06                       | 47.0              | 2865                    | 2.5                                | 7.09           | 31.1        | l NA            | NA.            | NA                 | yellowish      |
|                   |                            | 38.3              |                         |                                    |                |             |                 |                |                    | gray           |
|                   |                            | -                 |                         |                                    |                |             |                 | 1              |                    |                |
|                   | 1                          | 10.1              | 2802                    | 0.5                                | 7.16           | 10.4        |                 | l NIA          | NIA                | Cloudy         |
|                   | 1                          | 48.1              |                         | 2.5                                | 7.16           | 43.4        | NA              | NA             | NA                 | yellowish      |
| <u> </u>          |                            | / 30.8            |                         | <u></u>                            | <del> </del>   | <del></del> |                 | <del> </del>   |                    | gray           |
|                   |                            |                   |                         |                                    |                |             |                 |                |                    | Cloudy         |
|                   | 1.5                        |                   | 2871                    | 3.9                                | 7.38           | 27.3        | NA NA           | NA             | NA                 | yellowish      |
|                   |                            | <b>29.7</b>       |                         |                                    | <u> </u>       |             |                 |                |                    | gray           |
|                   |                            |                   |                         |                                    |                |             |                 |                |                    |                |
|                   |                            |                   |                         |                                    |                |             |                 |                |                    |                |
|                   |                            |                   |                         |                                    |                |             |                 |                |                    |                |
|                   |                            |                   |                         |                                    |                |             |                 |                |                    |                |
|                   |                            |                   |                         |                                    |                |             |                 |                |                    |                |
|                   |                            |                   |                         |                                    |                |             |                 |                |                    |                |
|                   |                            |                   |                         |                                    |                |             |                 |                |                    |                |
|                   |                            |                   |                         |                                    |                |             |                 |                |                    |                |
| Analyses requ     | ested                      | Full Su           | uite                    | Partial Suite                      | e (explain)    | PID/FID Re  | adings          |                | Initial Readings:  | Sample Reading |
| Ra 226/227, PI    | enols, Cyanide, EC         | В                 |                         |                                    |                | NA          | HNu             | •              | TOC: NA            | TOC: NA        |
|                   |                            |                   |                         | ı                                  |                | NA          | _<br>_OVA       |                | BZ: NA             | BZ: NA         |
|                   |                            |                   |                         |                                    |                | NA          | <br>_Microtip   |                | Bkgd: NA           | Bkgd: NA       |
| Additional Co     | nments: Well wen           | t dry a few time  | es                      |                                    |                |             | Serial No       | :              |                    |                |
| during purging/   | sampling                   |                   |                         |                                    |                | Condition   | of Well:        |                |                    |                |
| PPE Lovel: D      | <del>-</del>               |                   |                         |                                    |                | Signaturo   |                 |                |                    |                |



11-517-00102

Job No.:



|                 |                     |                |                            |                    |                | Job No.:    | 11-517                    | -00102          | Pa              | ge 1 of            |
|-----------------|---------------------|----------------|----------------------------|--------------------|----------------|-------------|---------------------------|-----------------|-----------------|--------------------|
| Well No.        |                     | Purge          | Equipment                  | Anal               | lytical Equipr | nent        | Sampler's I               | nitials Time    | •               | Date               |
| M               | W-6                 | 1.40" E        | Bennett Pump               | pH meter (te       | emperature):   |             | EDK                       |                 | 12:00           | 11/23/2013         |
|                 |                     | 1.80" E        | Bennett Pump               | YSI                | 556            |             |                           |                 |                 |                    |
| Casing Diamet   | er (in.)            | Perista        | ltic Pump                  | Orio               | on             |             |                           | Meter Ca        | libration       |                    |
|                 |                     | Dedica         | ted Pump                   | Oth                | ier:           |             | Time:                     |                 |                 |                    |
| 1               | .913                | 2" Gru         | ndfos                      | Serial No.:        |                |             |                           |                 |                 |                    |
|                 |                     |                | a Pump                     |                    |                |             | pH <u>4</u>               | =               | nt '            | °C                 |
| Total Well Dep  | th (ft )            | <del></del>    | ch Pump                    | Conductivity       | v Meter        |             | Lot #                     | Exp.            |                 |                    |
| Total Wen bep   | ur (10.)            | X Other:       | •                          |                    | 556            |             | 120111                    | LAP.            |                 |                    |
| Ω               | 5.00                | - Other.       | Dallei                     | Orio               |                |             | pH7                       | _ :             | .+ '            | °C                 |
|                 | 3.00                |                |                            |                    |                |             | Lot #                     | °               |                 | O                  |
|                 |                     |                |                            | Oth                | ier:           |             | LOI #                     | ĽΧÞ             |                 |                    |
| Static Water Le | evei (π.)           | Serial Number  |                            | Serial No.:        |                |             | 40                        |                 |                 |                    |
|                 |                     |                | Equipment                  |                    |                |             | pH10                      |                 |                 | C                  |
| 67.1            | 2 TOC               | _              | Bennett Pump               |                    | Oxygen Meter:  |             | Lot #                     | Exp.            |                 |                    |
|                 |                     | 1.80" [        | Bennett Pump               | YSI                | 556            |             |                           |                 |                 |                    |
| Water Thickne   | ss (ft.)            | Perista        | litic Pump                 | Oth                | ier            |             | Conductance Sta           | andard: 1413 un | nhos/cm Othe    | er:                |
|                 |                     | Dedica         | ited Pump                  | Serial No.         |                |             |                           |                 |                 |                    |
| ~               | 19.4                | 2" Gru         | ndfos                      |                    |                |             | Calibrated to             | ι               | ımhos/cm at     | °C                 |
|                 |                     | Water          | a Pump                     | ORP Meter:         | :              |             |                           |                 |                 |                    |
| Casing Volume   | <br>e (gal.)        | Geote          | ch Pump                    | YSI                | 556            |             | Lot#                      | Exp.            |                 |                    |
|                 |                     | X Other:       | Bailer                     | Oth                | ier            |             | Dissolved Oxyge           | n:              |                 |                    |
| -               | 2.9                 |                |                            | Serial No.         |                |             | Ca                        | librated to     | mg/l            | at°C               |
|                 |                     |                |                            |                    |                |             |                           |                 | -               | -                  |
| Stick-up        | Screen Int.         | Serial Number  | :                          | Water Leve         | el Meter:      |             | Redox:                    |                 |                 |                    |
| <u>.</u>        | 60-85               | Filtration     | Equipment:                 | Ked                | ck             |             | C                         | alibrated to    | mV              | at°C               |
| (ft.)           | (ft.)               |                |                            | Oth                |                |             | Lot#                      | Exp.            |                 |                    |
| Purge Contain   |                     | 1              |                            | Serial No.         |                |             |                           |                 |                 |                    |
| _X_Yes          |                     | Brand: Geote   | ch.                        |                    |                |             | Sample Depth (fe          | eet)            |                 | Time:              |
|                 | <del></del>         |                | nultipliers: 1"=(.04       | ) 2"=(.16) 3"=(.37 | 7) 4"=(.65)    |             | 1                         | (ft.)           |                 |                    |
|                 | Malinaa             |                |                            | Dissolved 02       |                | 000         | T. addison                | (1.57)          | Pump            |                    |
| Time            | Volume<br>Removed   | Temp<br>(°C)   | Conductivity<br>(umhos/cm) | (mg/l)             | pH             | ORP<br>(mV) | Turbidity<br>(NTU)        | Water Level     | Rate            | Visual             |
|                 | (gallons)           | (+/- 3%)       | (+/- 3%)                   | (+/- 10%)          | (+/- 0.1)      | (+/- 10     |                           | (ft bgs)        | (gpm)<br>(ml/m) | Description        |
|                 | 0.5                 | 40.0           | 0500                       | 0.00               | 7              | 70.0        | NIA.                      | NIA .           | 1 ' '           | 01                 |
|                 | 25                  | 48.9           | 2563                       | 2.32               | 7.57           | 76.3        | NA                        | NA NA           | ~ 1gal/mi       | 1                  |
|                 | 00                  | 34.1           |                            | 0.10               | 7.00           |             |                           | NIA .           |                 | brown              |
|                 | 29                  | 47.8           | 2540                       | 2.12               | 7.86           | 54.7        | NA NA                     | NA              |                 |                    |
|                 |                     | 35.9           |                            |                    |                | <u> </u>    |                           |                 |                 | ļ                  |
|                 | 33                  | 47.3           | 2505                       | 2.09               | 7.78           | 41.5        | NA                        | NA              |                 |                    |
|                 |                     | <b>35.8</b>    |                            |                    |                |             |                           |                 | ļ               |                    |
|                 | 37                  | 48.2           | 2529                       | 2.30               | 7.88           | 48.4        | . NA                      | NA              |                 |                    |
|                 |                     | 35.3           |                            |                    |                |             |                           |                 |                 |                    |
|                 | 41                  | 48.4           | 2534                       | 2.42               | 7.87           | 68.2        | ! NA                      | NA              |                 |                    |
|                 |                     | 34.7           |                            |                    |                | 1           |                           |                 |                 |                    |
|                 | 45                  | 48.3           | 2519                       | 2.48               | 7.81           | 48.6        | NA NA                     | NA              |                 |                    |
|                 |                     | 35.7           |                            |                    |                |             |                           |                 |                 |                    |
|                 |                     |                |                            |                    |                |             |                           |                 |                 | Slightly           |
|                 | 50                  | 49.7           | 2518                       | 2.77               | 7.78           | 43.9        | ) NA                      | NA              |                 | cloudy,            |
|                 |                     | 34.5           |                            |                    |                |             |                           |                 |                 | colorless          |
|                 | 55                  | 48.2           | 2539                       | 2.17               | 7.78           | 30.1        | NA                        | NA              |                 |                    |
|                 |                     | 36.7           |                            |                    |                | 1           |                           |                 |                 |                    |
|                 |                     |                |                            |                    | T              | 1           |                           |                 |                 |                    |
|                 |                     |                |                            |                    |                |             |                           |                 |                 |                    |
| Analyses requ   | ested               | Full St        | ite                        | Partial Suite      | e (explain)    | PID/FID Re  | eadings                   | Initia          | I Readings:     | Sample Reading     |
| yooo requ       |                     | . 011 00       |                            | . armai culte      | - (Onpidiil)   | NA NA       | HNu                       |                 | : NA            | TOC: NA            |
|                 |                     |                |                            |                    |                |             | - OVA                     | BZ: I           |                 | BZ: NA             |
|                 |                     |                |                            |                    |                | NA<br>NA    | _OVA<br>Microtip          |                 | NA<br>J: NA     | BZ: NA<br>Bkgd: NA |
| Additional Con  | nments: ~ 7 gallon: | s removed by d | rillers during do          | velonment          |                | -13/1       | _ Wildroup<br>Serial No.: | •               | 13/3            | Engu. IVA          |
| Additional Con  | eme / gailon        | s removed by 0 | timere during de           | volopinerit        |                | Condition   |                           |                 |                 |                    |
| DDC L t - C     |                     |                |                            |                    |                |             |                           |                 |                 |                    |
| PPE Level: D    |                     |                |                            |                    |                | Signature   |                           |                 |                 |                    |





|                |                     |                   |                        |                                    |               | Job No.:        | 11-517           | -00102           | Pá   | age 1 of       |
|----------------|---------------------|-------------------|------------------------|------------------------------------|---------------|-----------------|------------------|------------------|--|----------------|
| Well No.       |                     | Purge             | Equipment              | Anai                               | ytical Equipm | ent             | Sampler's Ir     | nitials Time     |  | Date           |
| N              | W-6                 | 1.40" B           | ennett Pump            | pH meter (te                       | emperature):  |                 | EDK              | İ                | 15:00  | 12/9/2013      |
|                |                     | 1.80" B           | ennett Pump            | X YSI                              | 556           |                 |                  |                  |  |                |
| Casing Diamet  | er (in.)            | Perista           | ltic Pump              | Orio                               | on            |                 |                  | Meter Ca         | libration  |                |
|                |                     | Dedica            | ted Pump               | Oth                                | er:           |                 | Time:            |                  |  |                |
| 1              | .913                | 2" Grur           | ndfos                  | Serial No.:                        |               |                 |                  |                  |  |                |
|                |                     | Waterr            | a Pump                 |                                    |               |                 | pH <u>4</u>      | = a              | t  | °C             |
| Total Well Dep | th (ft.)            | Geoted            | h Pump                 | Conductivity                       | Meter:        |                 | Lot #            | Exp.             |  |                |
|                | ` '                 | X Other:          | Bailer                 | X YSI                              | 556           |                 |                  |                  |  |                |
| 8              | 5.00                | <u> </u>          |                        | Orio                               |               |                 | pH7              | = a              | t  | °C             |
| _              |                     |                   |                        | Oth                                |               |                 | Lot #            | Exp              |  |                |
| Static Water L | evel (ft.)          | Serial Number     | :                      | Serial No.:                        |               |                 |                  | •                |  |                |
|                | ,,,,                |                   | Equipment              |                                    |               |                 | pH <u>10</u>     | = a              | ıt   | °C             |
| 6              | 7.01                |                   | ennett Pump            | Dissolved C                        | Oxygen Meter: |                 | Lot#             | Exp.             |  | _              |
| •              | 7.01                |                   | ennett Pump            | X YSI                              |               |                 |                  |                  |  |                |
| Water Thickne  | ss (# )             |                   | Itic Pump              | Oth                                |               |                 | Conductance Sta  | andard: 1413 um  | hos/cm Oth                                       | ner            |
| water inickne  | ss (it.)            |                   | ted Pump               | Serial No.                         | ei            |                 | Conductance of   | indard. 1410 din | inos/cm Ou                                       |                |
| 10             | 0.594               | 2" Grui           | •                      | Octiai NU.                         |               |                 | Calibrated to    |                  | mhos/cm at                                       | °C             |
| "              |                     |                   |                        | ORP Meter:                         |               |                 | Calibrated to    | u                | minos/citi at _                                  |                |
| Casina Value   | n (gal )            | <del></del>       | a Pump                 | - {                                |               |                 | Lot #            | Exp.             |  |                |
| Casing Volum   | e (gai.)            | X Other:          | ch Pump                | X YSI                              |               |                 | l .              | •                |  |                |
|                | 2.92                | Other:            | Dallel                 | Serial No.                         | lei           |                 | Dissolved Oxyge  |                  | no = 1   | /l at°C        |
| ·              | 2.52                |                   |                        | Senai No.                          |               |                 | Ca               | iibrated to      | nig/   | rat C          |
|                |                     |                   |                        |                                    |               |                 | D. d.            |                  |  |                |
| Stick-up       | Screen Int.         | Serial Number     |                        | Water Leve                         |               |                 | Redox:           | -19              |  |                |
| 1.6            | 60-85               |                   | Equipment:             | Ked                                |               |                 | 1                |                  | m\   | / at°C         |
| (ft.)          |                     | 0.45 <i>Micro</i> | n Filter               |                                    | er: Geotech   |                 | Lot #            | Exp.             |  |                |
| Purge Contain  |                     |                   |                        | Serial No.                         |               |                 |                  |                  |  |                |
| <u>X_</u> Yes  | No                  | Brand: Geoted     |                        |                                    |               |                 | Sample Depth (fe | 1 1              |  | Time:          |
|                |                     | Casing Volume n   | nultipliers: 1"=(.04)  |                                    |               | Т               | <u> </u>         | (ft.)            |  | <del> </del>   |
|                | Volume              | Temp              | Conductivity           | Dissolved 0 <sub>2</sub><br>(mg/l) | PΗ            | ORP             | Turbidity        | WaterLevel       | Pump<br>Rate                                     | Visual         |
| Time           | Removed (gallons)   | (°C)<br>(+/- 3%)  | (umhos/cm)<br>(+/- 3%) | (+/- 10%)                          | (+/- 0.1)     | (mV)<br>(+/- 10 |                  | (ft bgs)         | (gpm)  | Description    |
|                |                     | (,                | (                      |                                    |               |                 | , (,             |                  | (ml/m)   | <del> </del>   |
|                | 3                   | 48.8              | 2675                   | 3.51                               | 7.83          | 29.8            | NA NA            | NA               | NA   | Cloudy         |
|                |                     | <b>24.8</b>       |                        |                                    |               | 1               |                  |                  |  | brown          |
|                | 6                   | 40.6              | 0551                   | 1.07                               | 7.70          | E4.4            | NA               | NIA              | NIA  | Cloudy         |
|                | 6                   | 49.6              | 2551                   | 1.87                               | 7.70          | 54.4            | · NA             | NA               | NA NA  | Cloudy         |
|                |                     | 36.5              |                        |                                    |               |                 |                  |                  |  | brown          |
|                | 9                   | 48.8              | 2570                   | 1.62                               | 7.60          | 42.1            | NA               | NA               | NA   | Cloudy         |
|                |                     | 36.7              |                        |                                    |               |                 |                  |                  |  | brown          |
|                |                     |                   |                        |                                    |               |                 |                  |                  |  |                |
|                |                     |                   |                        |                                    |               |                 |                  |                  |  |                |
|                |                     |                   |                        |                                    |               | T               |                  |                  |  |                |
|                |                     |                   |                        |                                    |               |                 |                  |                  |  |                |
|                |                     |                   |                        |                                    |               |                 |                  |                  |  |                |
|                |                     |                   |                        |                                    | İ             |                 |                  |                  |  |                |
|                |                     |                   |                        |                                    |               |                 |                  |                  |  |                |
|                |                     |                   |                        |                                    |               |                 |                  |                  |  |                |
|                | -                   |                   |                        |                                    |               | <del> </del>    |                  |                  | <del>                                     </del> | <del> </del>   |
|                |                     |                   |                        |                                    |               |                 |                  |                  |  |                |
|                |                     |                   |                        |                                    |               | -               | -                |                  | +  | +              |
|                |                     |                   |                        |                                    |               |                 |                  |                  |  |                |
|                |                     |                   |                        |                                    |               |                 |                  | L                |  |                |
| Analyses requ  |                     | Full Su           | iite                   | Partial Suite                      | e (explain)   | PID/FID R       | eadings          |                  | l Readings:                                      | Sample Reading |
| Ra 226/226, Pl | nenols, Cyanide, ED | В                 |                        |                                    |               | NA              | - HNu            | TOC              | : NA   | TOC: NA        |
|                |                     |                   |                        |                                    |               | NA              | OVA              | BZ: N            |  | BZ: NA         |
|                |                     |                   |                        |                                    |               | NA              | _Microtip        | _                | ł: NA  | Bkgd: NA       |
| Additional Co  | mments:             |                   |                        |                                    |               |                 | Serial No.:      |                  |  |                |
|                |                     |                   |                        |                                    |               | Condition       | of Well:         |                  |  |                |
| PPF Level: D   |                     |                   |                        |                                    |               | Signature       | :                |                  |  |                |



11-517-00102

Job No.:



|  |                                |                          |  |   |   | Job No.:               | 11-517                            | -00102                 | Pa                       | age 1 of              |
|--|--------------------------------|--------------------------|--|---|---|------------------------|-----------------------------------|------------------------|--------------------------|-----------------------|
| Well No.                               |                                | Purge                    | Equipment                              | Anai  | ytical Equipn                           | ent                    | Sampler's l                       | nitials Ti             | me                       | Date                  |
| IN                                     | IW-1                           | 1.40" E                  | Bennett Pump                           | pH meter (te                                    | emperature):                            |                        | EDK                               | 1                      | 17:00                    | 12/20/2013            |
|  |                                | 1.80" E                  | Bennett Pump                           | X YSI   | 556                                     |                        |                                   |                        |                          |                       |
| Casing Diamet                          | er (in.)                       | Perista                  | ltic Pump                              | Orio  | n                                       |                        |                                   | Meter                  | Calibration              |                       |
|  |                                | Dedica                   | ted Pump                               | Oth   | er:                                     |                        | Time:                             |                        |                          |                       |
| 1.                                     | .913                           | 2" Grui                  | ndfos                                  | Serial No.:                                     |   |                        |                                   |                        |                          |                       |
|  |                                | Waterr                   | a Pump                                 |   |   |                        | pH <u>4</u>                       | =                      | _ at                     | _°C                   |
| Total Well Dep                         | th (ft.)                       | <del> </del>             | h Pump                                 | Conductivity                                    | Meter:                                  |                        | Lot #                             | Ex                     | æ.                       |                       |
|  | ()                             | X Other:                 | -                                      | X YSI   |   |                        | 1                                 |                        | •                        |                       |
| 60                                     | 0.00                           |                          | 24                                     | Orio  |   |                        | pH7                               | =                      | at                       | °C                    |
|  |                                |                          |  | Oth   |   |                        | Lot #                             | Ex                     |                          |                       |
| Static Water Le                        | wol (# )                       | Serial Number            |  | Serial No.:                                     | G1.                                     |                        | 201 "                             |                        | Ψ,                       |                       |
| Static Water Le                        | ever (IL.)                     |                          |  | Jenai No  |   |                        | pH10                              | _                      | at                       | °C                    |
| 7                                      | 7.10                           |                          | Equipment                              | H   | naraa Matau                             |                        | Lot #                             | Ex                     |                          | . 0                   |
| ,                                      | 7.10                           |                          | Bennett Pump                           | Í   | xygen Meter:                            |                        | LOC#                              |                        | φ.                       |                       |
|  | <i></i>                        | <del></del>              | Bennett Pump                           | X YSI   |   |                        |                                   |                        |                          |                       |
| Water Thickne                          | ss (ft.)                       | <del></del>              | Itic Pump                              | Oth   | er                                      |                        | Conductance Sta                   | andara: 1413           | umnos/cm Oth             | ier:                  |
|  | 4 700                          |                          | ted Pump                               | Serial No.                                      |   |                        |                                   |                        |                          | _                     |
| 52                                     | 4.780                          | 2" Grui                  |  | 1   |   |                        | Calibrated to                     |                        | _ umhos/cm at _          | °C                    |
|  |                                |                          | a Pump                                 | ORP Meter:                                      |   |                        |                                   |                        |                          |                       |
| Casing Volume                          | e (gal.)                       | _                        | h Pump                                 | X YSI   |   |                        | Lot #                             | Ex                     | φ.                       |                       |
|  |                                | X Other:                 | Bailer                                 | Oth   | er                                      |                        | Dissolved Oxyge                   |                        |                          |                       |
| 7                                      | 8.36                           |                          |  | Serial No.                                      |   |                        | Ca                                | librated to            | mg/                      | 'l at°C               |
|  |                                | 1                        |  |   |   |                        |                                   |                        |                          |                       |
| Stick-up                               | Screen Int.                    | Serial Number            | :                                      | Water Leve                                      | el Meter:                               |                        | Redox:                            |                        |                          |                       |
| 1.9                                    | 570-590                        | Filtration               | Equipment:                             | Kec   | k                                       |                        | C                                 | alibrated to           | m\                       | / at°C                |
| (ft.)                                  | (ft.)                          | 0.45 Micro               | n Filter                               | X Oth   | er: Geotech                             |                        | Lot #                             | Ex                     | φ.                       |                       |
| Purge Contain                          | erized:                        |                          |  | Serial No.                                      |   |                        |                                   |                        |                          |                       |
| X_Yes                                  | No                             | Brand: Geoted            | :h                                     |   |   |                        | Sample Depth (f                   | eet)                   |                          | Time:                 |
|  |                                | Casing Volume n          | nultipliers: 1"=(.04)                  | 2"=(.16) 3"=(.37                                | ) 4"=(.65)                              |                        | <u> </u>                          | (ft.)                  |                          |                       |
| Time                                   | Volume<br>Removed<br>(gallons) | Temp<br>(°C)<br>(+/- 3%) | Conductivity<br>(umhos/cm)<br>(+/- 3%) | Dissolved 0 <sub>2</sub><br>(mg/l)<br>(+/- 10%) | pH<br>(+/- 0.1)                         | ORP<br>(mV)<br>(+/- 10 | Turbidity<br>(NTU)<br>) (+/- 10%) | Water Leve<br>(ft bgs) | el Pump<br>Rate<br>(gpm) | Visual<br>Description |
|  | (galions)                      | (+/- 0 /0)               | (47-070)                               |   |   | (47-10                 | (+/- 1076)                        |                        | (ml/m)                   |                       |
|  | ~80                            | 71.0                     | 3660<br>7                              | 1.51  | 9.78                                    | 20.7                   | į                                 |                        |                          |                       |
|  | ~125                           | 28.0                     | 3642                                   | 1.18  | 9.86                                    | -74.0                  |                                   |                        |                          |                       |
|  |                                | 36.7                     |  |   | *************************************** |                        |                                   |                        |                          |                       |
|  | ~165                           | 29.6                     | 2277                                   | 2.11  | 9.82                                    | -53.6                  |                                   |                        |                          |                       |
|  |                                |                          | i                                      |   |   |                        |                                   |                        |                          |                       |
| ************************************** |                                |                          |  |   |   |                        |                                   |                        |                          |                       |
|  |                                |                          |  |   |   |                        |                                   |                        |                          |                       |
|  |                                |                          |  |   |   | -                      | _                                 |                        |                          | -                     |
|  |                                |                          |  |   |   |                        |                                   |                        |                          |                       |
|  |                                |                          |  |   |   |                        |                                   |                        |                          |                       |
|  |                                |                          |  |   |   |                        |                                   |                        |                          |                       |
| Analyses requ                          | ested                          | Full Su                  | ite                                    | Partial Suite                                   | (explain)                               | <br>PID/FID Re         | adings                            | l Inc                  | itial Readings:          | Sample Reading        |
| Dissolved Metal                        | ls-Rb-S (Field Filter          | ed) / Total Meta         | ls U-Hg, PAH, P                        | CB, P, 8260                                     |   | NA                     | HNu                               |                        | DC: NA                   | TOC: NA               |
| Ra 226/226, Ph                         |                                |                          | = '                                    |   |   | NA                     | OVA                               |                        | Z: NA                    | BZ: NA                |
|  |                                |                          |  |   |   | NA                     | Microtip                          |                        | gd: NA                   | Bkgd: NA              |
| Additional Con                         | nments: ~ 7 gallon:            | s removed by d           | rillers during dev                     | elopment  |   |                        | Serial No.:                       |                        | -                        | -                     |
|  | -                              | Ť                        | •                                      | -   | Ì                                       | Condition              |                                   | New                    |                          | · <u></u>             |
| PPE Level: D                           |                                |                          |  |   |   | Signature:             |                                   |                        |                          |                       |
|  |                                |                          |  |   |   |                        |                                   |                        |                          |                       |



Task:



|   |                               |                               |  |                          |                 | 300 NO.:               | 11-                           | 517-00102         |           | Pa                              | ige 1 of                |
|---|-------------------------------|-------------------------------|--|--------------------------|-----------------|------------------------|-------------------------------|-------------------|-----------|---------------------------------|-------------------------|
| Well No.  |                               | Purge E                       | quipment                               | Anal                     | lytical Equipn  | nent                   | Sample                        | r's Initials      | Time      |                                 | Date                    |
| LD(   | G 53-7                        | 1.40" [                       | Bennett Pump                           | pH meter (te             | emperature):    |                        | JC/EDK                        |                   | 1 1       | 14:00                           | 12/13/2013              |
|   |                               | 1.80" [                       | Bennett Pump                           | YSI                      | 556             |                        |                               |                   | <u> </u>  |                                 |                         |
| Casing Diamet   | ter (in.)                     | Perista                       | altic Pump                             | Orio                     | on              |                        |                               | Me                | ter Calib | ration                          |                         |
|   |                               | Dedica                        | ated Pump                              | Oth                      | er:             |                        | Time:                         |                   |           |                                 |                         |
|   |                               | 2" Gru                        | ndfos                                  | Serial No.:              |                 |                        |                               |                   |           |                                 |                         |
|   |                               | Water                         | ra Pump                                |                          |                 |                        | pH <u>4</u>                   | =                 | at _      |                                 | °C                      |
| Total Well Dep  | th (ft.)                      | Geote                         | ch Pump                                | Conductivity             | y Meter:        |                        | Lot #                         |                   | Ехр.      |                                 |                         |
|   |                               | Other:                        | Bailer                                 | YSI                      | 556             |                        |                               |                   |           |                                 |                         |
|   |                               |                               |  | Orio                     | on              |                        | pH                            | =                 | at _      |                                 | °C                      |
|   |                               |                               |  | Oth                      | er:             |                        | Lot #                         |                   | Ехр       |                                 |                         |
| Static Water L  | evel (ft.)                    | Serial Number:                |  | Serial No.:              |                 |                        |                               |                   |           |                                 |                         |
|   |                               | Sample                        | Equipment                              |                          |                 |                        | pH <u>10</u> _                | =_                | at _      |                                 | °C                      |
| 3   | 9.55                          | 1.40"                         | Bennett Pump                           | Dissolved C              | oxygen Meter:   |                        | Lot #                         |                   | Ехр.      |                                 |                         |
|   |                               | 1.80"                         | Bennett Pump                           | YSI                      | 556             |                        |                               |                   |           |                                 |                         |
| Water Thickne   | ss (ft.)                      | Perista                       | altic Pump                             | Oth                      | er              |                        | Conductance                   | e Standard: 14    | 113 umho  | s/cm Oth                        | er:                     |
|   |                               | Dedica                        | ated Pump                              | Serial No.               |                 |                        |                               |                   |           |                                 |                         |
|   |                               | 2" Gru                        | indfos                                 |                          |                 |                        | Calibrated to                 |                   | uml       | nos/cm at _                     | °C                      |
|   |                               | Water                         | ra Pump                                | ORP Meter:               | :               |                        |                               |                   |           |                                 |                         |
| Casing Volum  | e (gal.)                      | Geote                         | ch Pump                                | YSI                      | 556             |                        | Lot #                         |                   | Ехр.      |                                 |                         |
|   |                               | Other:                        | Bailer                                 | Oth                      | er              |                        | Dissolved Ox                  | , ,               |           |                                 |                         |
|   |                               |                               |  | Serial No.               |                 |                        |                               | Calibrated to     |           | mg/l                            | at°C                    |
|   |                               |                               |  |                          |                 |                        |                               |                   |           |                                 |                         |
| Stick-up  | Screen Int.                   | Serial Number:                |  | Water Leve               | el Meter:       |                        | Redox:                        |                   |           |                                 |                         |
| 8' 4"   |                               |                               | Equipment:                             | Ked                      |                 |                        |                               | Calibrated t      |           | mV                              | at°C                    |
| (ft.)   | <del></del>                   | 0.45 <i>Micro</i>             | n Filter                               | ı ——                     | er: Geotech     |                        | Lot #                         |                   | Exp.      |                                 |                         |
| Purge Contain   |                               |                               |  | Serial No.               |                 |                        | _ : _:                        |                   |           |                                 | 1                       |
| <u>X</u> Yes _  | No                            | Brand: Geote                  |  | (40) 011 (077)           | 411 ( 25)       |                        | Sample Dep                    |                   | .1        |                                 | Time:                   |
|   | 1                             | Casing Volume mu              | tipliers: 1*=(.04) 2*=                 | Dissolved 0 <sub>2</sub> |                 | T                      | L                             | (ft.              | )         |                                 | <u> </u>                |
| Time  | Volume<br>Removed<br>(liters) | Temp<br>(°C)<br>(+/- 3%)      | Conductivity<br>(umhos/cm)<br>(+/- 3%) | (mg/l)<br>(+/- 10%)      | pH<br>(+/- 0.1) | ORP<br>(mV)<br>(+/- 10 | Turbidi<br>(NTU<br>) (+/- 10° | ) Water           |           | Pump<br>Rate<br>(gpm)<br>(ml/m) | Visual<br>Description   |
| 13:11   | 1                             | 2.25                          | 634                                    | 7.09                     | 6.77            | 61.3                   |                               | 40.24             |           | NA                              | Clear                   |
| 13:35   | 2.5                           | 3.86                          | 1020                                   | 2.05                     | 6.51            | 58.7                   |                               | 40.38             | 3         | NA                              | Clear                   |
| 13:50   | 4                             | 2.07                          | 582                                    | 2.07                     | 6.67            | 14.1                   |                               | 40.50             | )         |                                 | Clear                   |
|   |                               |                               |  |                          |                 |                        |                               | 40.68             | 3         |                                 |                         |
|   |                               |                               |  |                          |                 |                        |                               |                   |           |                                 |                         |
| Analysis  |                               | Eull C                        | ita                                    | Portial Suite            | (ovoloin)       | DID/EID B              |                               |                   | Initial D | toodingo                        | Comple Reading          |
| Analyses requ   |                               | Full St<br>red) / Total Metal |  | Partial Suite            | : (explain)     | PID/FID Re             | -                             |                   | TOC:      | leadings:<br>NA                 | Sample Readings TOC: NA |
| Dissolved Metals-12b-S (Field Filtered) / Total Metals U-Hg, PAH, PCB, Ra 226/226, Phenol, EDB, RN, |                               |                               |  |                          | NA<br>NA        | HNu<br>OVA<br>Microtip |                               | BZ: NA<br>Bkgd: N |           | BZ: NA<br>Bkgd: NA              |                         |
| Additional Col  | mments: ~ 7 gallons           | s removed by drill            | ers auring develo                      | oment                    |                 | Condition              |                               | No.:<br>New       |           |                                 |                         |



|                 |                      |   |                       |  |                 | Job No.:     |              | 11-517        | -00102                                  | Pa             | ige 1 of              |
|-----------------|----------------------|---|-----------------------|--|-----------------|--------------|--------------|---------------|---|----------------|-----------------------|
| Well No.        |                      | Purge I                                 | Equipment             | Anal   | ytical Equipn   | nent         | 8            | Sampler's In  | itials Tin                              | ne             | Date                  |
| LDO             | G 63-7               | 1.40" B                                 | ennett Pump           | pH meter (te                                     | emperature):    |              |              | EDK           |   | 13:00          | 12/20/2013            |
|                 |                      | 1.80" B                                 | ennett Pump           | YSI  | 556             |              |              |               |   |                |                       |
| Casing Diamet   | er (in.)             | Perista                                 | ltic Pump             | Orio   | on              |              |              |               | Meter (                                 | Calibration    |                       |
|                 |                      | Dedica                                  | ted Pump              | Oth  | er:             |              | Time:        |               |   |                |                       |
|                 | 2                    | 2" Grur                                 | ndfos                 | Serial No.:                                      |                 |              |              |               |   |                |                       |
|                 |                      | Waterra                                 | a Pump                |  |                 |              | pH_          | 4 =           | =                                       | at             | °C                    |
| Total Well Dep  | th (ft.)             | Geotec                                  | h Pump                | Conductivity                                     | / Meter:        |              | Lot #        |               | Exp                                     | ).             |                       |
|                 |                      | Other:                                  | Bailer                | YSI  | 556             |              |              |               |   |                |                       |
|                 |                      |   |                       | —— Orio  | on              |              |              |               |   |                | °C                    |
|                 |                      |   |                       | Oth  | er:             |              | Lot #        |               | Exp                                     | )              |                       |
| Static Water Le | evel (ft.)           | Serial Number                           |                       | Serial No.:                                      |                 |              | l            |               |   |                | 0 -                   |
|                 |                      |   | Equipment             |  |                 |              | 1            |               |   |                | °C                    |
|                 |                      | <del></del>                             | ennett Pump           |  | oxygen Meter:   |              | Lot #        |               | Exp                                     | 0.             |                       |
|                 |                      | <del></del>                             | ennett Pump           | YSI  |                 |              |              |               |   |                |                       |
| Water Thickne   | ss (ft.)             | <del></del>                             | ltic Pump             | Oth  | er              |              | Cond         | luctance Sta  | ndard: 1413 L                           | ımhos/cm Oth   | er:                   |
|                 |                      |   | ted Pump              | Serial No.                                       |                 |              |              |               |   |                | 90                    |
| ļ               |                      | 2" Grur                                 |                       | ODD Mater  |                 |              | Calib        | rated to      | *************************************** | umhos/cm at    | °C                    |
| Carina Value    | · (==1)              | <del> </del>                            | a Pump<br>h Pump      | ORP Meter:                                       | 556             |              | Lot #        |               | Ex                                      | 2              |                       |
| Casing Volume   | ; (gai.)             | Other:                                  | •                     | Oth  |                 |              | l            | olved Oxygei  | ·                                       | J.             |                       |
|                 |                      | - Culei.                                | Dallel                | Serial No.                                       | le i            |              | Disse        |               |   | ma/            | at°C                  |
|                 |                      |   |                       | ocharito.  |                 |              | ľ            | Ou,           | ibitated to                             |                | ut0                   |
| Stick-up        | Screen Int.          | Serial Number                           | :                     | Water Leve                                       | el Meter:       |              | Redo         | x:            |   |                |                       |
|                 |                      |   | Equipment:            | Ked  |                 |              |              |               | librated to                             | m∨             | at°C                  |
| (ft.)           | (ft.)                |   |                       |  | er: Geotech     |              | Lot#         |               | Exp                                     |                |                       |
| Purge Contain   | erized:              | 1                                       |                       | Serial No.                                       |                 |              |              |               |   |                |                       |
| X Yes _         | No                   | Brand: Geotec                           | :h                    |  |                 |              | Samp         | ole Depth (fe | et)                                     |                | Time:                 |
|                 |                      | Casing Volume m                         | nultipliers: 1"=(.04) | 2"=(.16) 3"=(.37                                 | ') 4"=(.65)     |              | <u>L</u>     |               | (ft.)                                   |                |                       |
|                 | Volume               | Temp                                    | Conductivity          | Dissolved 0 <sub>2</sub>                         | -11             | ORP          |              | Turbidity     | VA7-41                                  | Pump           | \C1                   |
| Time            | Removed              | (°C)                                    | (umhos/cm)            | (mg/l)<br>(+/- 10%)                              | pH<br>(+/- 0.1) | (mV)         |              | (NTU) (NTU)   | Water Leve<br>(ft bgs)                  | Hate (gpm)     | Visual<br>Description |
|                 | (liters)             | (+/- 3%)                                | (+/- 3%)              |  |                 | (+/- 10      | <u>'</u>     | (+/- 10%)     |   | (ml/m)         |                       |
|                 |                      |   |                       |  |                 |              |              |               |   |                | Slightly              |
| 13:30           | 2.5                  | 56.1                                    | 1247                  | 1.08   | 9.19            | -3.1         |              |               | NA                                      | NA             | cloudy, with          |
|                 |                      | 35.3                                    | 3                     |  |                 |              |              |               |   |                | dark                  |
|                 |                      |   |                       | <u> </u>   |                 |              | -            |               |   |                | sediment              |
| 15:00           | ~5                   | 65.6                                    | 1266                  | 1.00   | 9.64            | 28.6         |              |               | NA                                      | NA             | Colorless,            |
|                 |                      | 37.5                                    | 3                     |  |                 |              |              |               |   |                | slight<br>sheen       |
|                 |                      | • |                       | <del>                                     </del> |                 | -            |              |               |   |                | Sileen                |
|                 |                      |   |                       | 1  |                 |              |              |               |   |                |                       |
|                 |                      |   |                       | ļ  | ·               | -            |              |               |   |                |                       |
|                 |                      |   |                       |  |                 |              |              |               |   |                |                       |
|                 |                      |   |                       |  |                 | ļ            |              |               |   |                |                       |
| :               |                      |   |                       |  |                 |              |              |               |   |                |                       |
|                 |                      |   |                       |  |                 |              |              |               |   |                |                       |
|                 |                      |   |                       |  |                 |              |              |               |   |                | -                     |
|                 |                      |   |                       |  |                 | <del> </del> |              |               |   |                |                       |
|                 |                      |   |                       |  |                 |              |              |               |   |                |                       |
|                 |                      |   |                       | <u> </u>   |                 | <del> </del> |              |               |   |                |                       |
|                 |                      |   |                       |  |                 |              |              |               |   |                |                       |
| A 1             |                      |   |                       | De alle Com                                      | (               | DIDÆE =      |              |               |   | <u> </u>       | Comple 5 "            |
| Analyses requ   |                      | Full Su                                 |                       | Partial Suite                                    | e (explain)     | PID/FID Re   |              | js            |   | ial Readings:  | Sample Reading        |
|                 | s-12b-S (Field Filte | reuj/rotativleta                        | ais U-FIY, PAH, I     | rub, r, 826U                                     |                 | NA<br>NA     | -HNu         |               |   | C: NA          | TOC: NA<br>BZ: NA     |
| Ra 226/226, Ph  | enoi, EDB, HN,       |   |                       |  |                 | NA<br>NA     | OVA<br>Micro |               |   | : NA<br>gd: NA | BZ: NA<br>Bkgd: NA    |
| Additional Con  | nments: ~ 7 gallons  | s removed by di                         | rillers durina dev    | elopment   |                 | 14/          | -            | Serial No.:   | DK                                      | g              | Juga. 171             |
|                 | . 94                 |   |                       | -  | Ì               | Condition    | of We        |               | New                                     |                |                       |
| PPE Level: D    |                      |   |                       |  |                 | Signature:   |              |               |   |                |                       |
|                 |                      |   |                       |  |                 | ,            |              |               |   |                |                       |



AMEC Project No. 1151700102

RECEIVED OCD

October 25, 2013

Mr. Carl Chavez, CHMM
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3490
Carl J. Chavez@state.nm.us

7013 GCT 25 A II: 09

RE: Form G-103 for Geothermal Injection Well LDG 55-7 for Lightning Dock Geothermal HI-01, LLC, Hidalgo County, New Mexico

Dear Mr. Chavez:

On behalf of Lightning Dock Geothermal HI-01, LLC, AMEC Environment & Infrastructure, Inc. submits the attached Form G-103 (subsequent sundry notice) and circular chart for the casing integrity test recently conducted on the above referenced geothermal injection well for the Lightning Dock Geothermal project located in Hidalgo County, New Mexico. The down hole work was performed by United Drilling of Roswell, New Mexico and Capuano Engineering Consultants provided oversight on the test. We are pleased to report that the well held pressure to at least 1000 psi for the required test duration.

We have enclosed the original of the chart and Form G-103 and Mr. Randy Dade in your Artesia office will receive two copies of the chart and sundry notice for this test. Thank you very much for your assistance in the development of this important energy project. Should you have questions regarding this sundry notice, please do not hesitate to contact me by email at <a href="mailto:David.Janney@amec.com">David.Janney@amec.com</a> or by phone at (505) 821-1801.

Respectfully submitted,

David W. Janney, PG

Agent for Lightning Dock Geothermal Power HI-01, LLC

Cc: Randy Dade, NMOCD Artesia

Chuck Smiley - Lightning Dock Geothermal, HI-01, LLC

Michelle Henrie -- Attorney for Lightning Dock Geothermal, HI-01, LLC

**Attachments** 

One (1) Forms G-103 for the CIT of LDG 55-7

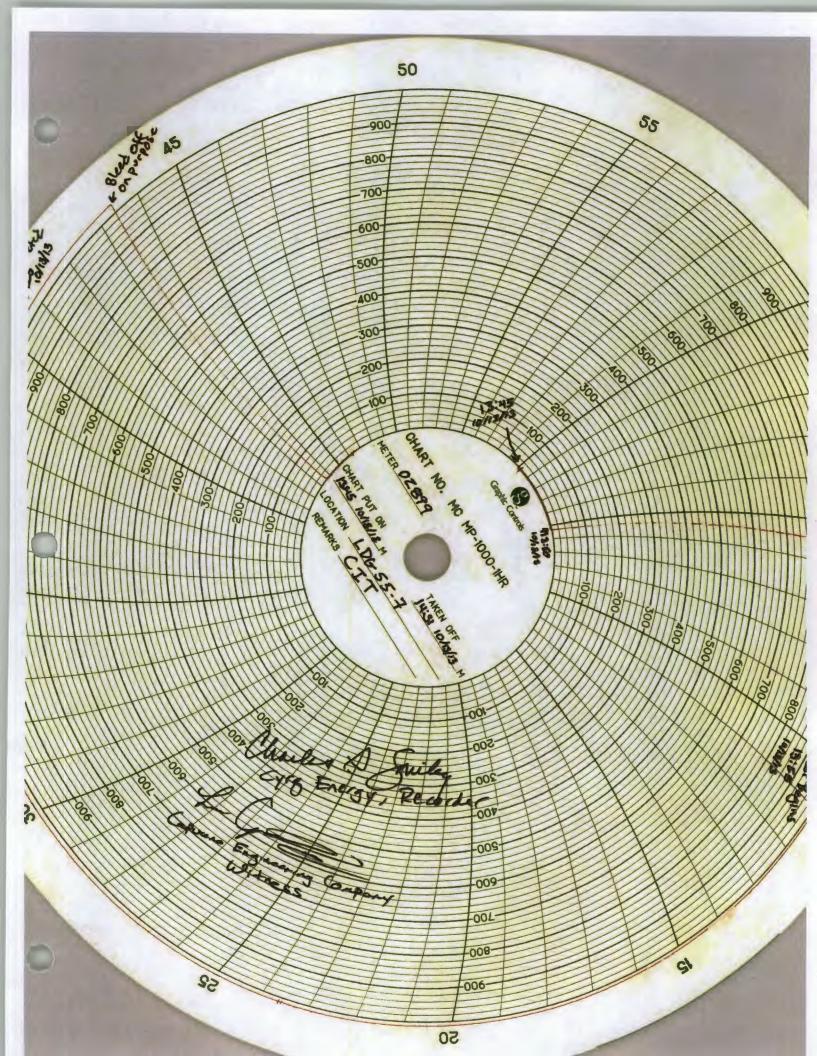
### STATE OF NEW MEXICO

# OIL CONSERVATION DIVISION P. O. BOX 2088 SANTA FE. NEW MEXICO 87501

Form 6-103 Adopted 10-1-74 Boyland 10-1-75

| ENERGY AND MINERALS DEPAR   | IMENT SANTA FI                    | E, NEW MEXICO 87501  | Revised 10-1-78                        |
|---|-----------------------------------|--|--|
| NO. OF COPIES RECEIVED  |                                   |  | •                                      |
| DISTRIBUTION  | <u> </u>                          | ,  |  |
| File  | SUNDRY N                          | OTICES AND REPORTS   |  |
| N. M. B. M.   |                                   | ON   | S. Indicate Type of Lease              |
| U. S. G. S  | GEOTHERM                          | AL RESOURCES WELLS   | Federal 🗸 📗                            |
| Operator  |                                   | •  | S.a State Lease No.<br>Federal NM34790 |
| Land Office   | <u> </u>                          |  | rederal NM34790                        |
| Do Not Use This Form for Proposels For Permit —" (Farm G-101) for Su  1. Type of well Geothermal P. | ch Proposels.)                    | ck to a Different Reservoir. Use "Application  | 7. Unit Agreement Name                 |
| Low-Temp Th   |                                   | P71  |  |
| 2. Name of Operator   | ock Geothermal HI-01, LLC         | alan ayahinda ayada kayada kayada kalan ahan ahan ahan ahan ahan ahan ahan                   | a. Farm or Lease Name Federal NM34790  |
| 3. Address of Operator  | Atain Chant Cuita COO Calit I     | ate City I Hab 94404   | 9. Well No.                            |
| 136 South   | Main Street, Suite 600, Salt La   | are City, Otan 64 101  | LDG 55-7                               |
| 4. Location of Well   |                                   | South 2412   | 10. Field and Pool, or Wildcat         |
| Unit Letter J   | 2329 Feet From The                | Line andFeet Fro   | Lightning Dock Geothermal Resource     |
| East Line, Section  | 7 Township                        | . 25S, 19W NM/   |  |
| mmmmm   | 1111111115. Elevation (Shor       | whether DF, RT, GR, etc.)  | 12. County                             |
|   | 4201 GR                           | , ,  | Hidalgo                                |
| 16. Cì  | eck Appropriate Box To Indi       | cate Nature of Notice, Report or Other   | Data                                   |
| NOTICE OF IN  |                                   | •  | WENT REPORT OF:                        |
| PERFORM REMEDIAL WORK   | PLUG AND ABANDON                  | REMEDIAL WORK  | ALTERING CASING                        |
| TEMPORARILY ABANDON   |                                   | COMMENCE DRILLING OPNS.  | PLUG & ABANDONMENT                     |
| PULL OR ALTER CASING  | CHANGE PLANS                      | CASING TEST AND CEMENT J   |  |
|   |                                   |  | . [                                    |
|   |                                   | OTHER  |  |
| OTHER   |                                   | _0   |  |
| 17 Describe Bronound or experience  | d Operations (Clearly 1988) all a | ertinent details, and give pertinents dates, i   | and die order and date of speed a see  |
| proposed work) SEE RULE 203   |                                   |  | actually contained base of sauring any |
|   |                                   |  |  |
| 10/11/2013 Move on well and   | l begin rigging up.               | •  |  |
| 10/12/2012 Complete rigging   | up and RIH to 1000 feet with      | open ended pipe.   |  |
|   |                                   | Test all safety valves and gradually pressu<br>slightly to approximately 1050 psi, test is g |  |
| Remove packer, rig up to clea   | an out well.                      |  |  |
| Please find attached the prop   | erly signed and dated circular    | test chart for the CIT described above.  |  |
|   |                                   |  | ,                                      |
| •   | ,                                 | •  |  |
|   |                                   |  |  |

| ·  |  |                    |
|--|--|--------------------|
| 18. I hereby certify that the information above is true and com- | spirie to the best of my knowledge and betief. |                    |
| sianes David W Amay, PG  |  | September 16, 2013 |
|  |  |                    |
| APPROVED BY Carl of Chines                                       | TITLE Environmental Engineer                   | DATE 10/29/2013    |
| CONDITIONS OF APPROVAL, IF ANY:                                  | •  |                    |



#### Cyrq Energy Benchmark Surveying

All elevations are NAVD88 - feet. Based on OPUS solutions and Automatic Leveling.

| Point   | Elevation | Notes                                  |
|---------|-----------|--|
| MW-1a   | 4202.83   | Cap set in concrete                    |
| MW-2    | 4204.15   | Cap set in concrete                    |
| MW-3    | 4210.26   | Cap set in concrete                    |
| MW-4    | 4193.54   | Cap set in concrete                    |
| MW-5    | 4210.24   | Cap set in concrete                    |
| MW-6    | 4197.90   | Cap set in concrete                    |
| IW-1    | 4198.13   | Cap set in concrete                    |
| Point 1 | 4197.29   | SW corner of property                  |
| Point 2 | 4209.73   | SE corner of property                  |
| Point 3 | 4191.24   | NW corner of property                  |
| Point 4 | 4193.78   | near west terminus of Greenhouse Drive |
| Point 5 | 4198.75   | NE corner of property                  |
| Point 6 | 4191.31   | Near well 14-7                         |
| 45-7    | 4200.78   | Top of flange                          |
| 55-7    | 4203.33   | Top of valve                           |
| 63-7    | 4216.63   | Top of valve                           |
| 53-7    | 4211.99   | Top of valve                           |
| 47-7    | 4200.86   | Top of valve                           |





### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86
Animas, N.M. 88020

David Janney 8519 Jefferson NE Albuquerque, N.M. 87113

Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-1, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-1, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within he state, subject to the following conditions:

- 1. Well A-798-MON POD-1 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-1 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-1 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-1. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.

7. Well record shall be filed on or before November 30, 2014.

Charles M. Backson, District & Manager

By a McMillan

Animas Basin Manager

uc: State Engineer

MM:pg

File No. A-798-MON

#### **NEW MEXICO OFFICE OF THE STATE ENGINEER**



### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



(check applicable box):

|   | For fees, see State Engineer we               | bsite: http://www.ose.state.nm.us/   | 3-200 39 \$5.00                           |
|---|---|--------------------------------------|---|
| Purpose:                                | ☐ Pollution Control And / Or Recovery         | ☐ Geo-Thermal                        |   |
| ☐ Exploratory                           | ☐ Construction Site De-Watering               | Other (Describe):                    |   |
| Monitoring                              | ☐ Mineral De-Watering                         |                                      |   |
| A separate permit wil                   | be required to apply water to beneficial use. |                                      |   |
| ☐ Temporary Reque                       | est - Requested Start Date:                   | Requested End                        | Date:                                     |
| Plugging Plan of Ope                    | erations Submitted?  Yes  No                  |                                      |   |
|   |   | •                                    | <u> </u>                                  |
| 1. APPLICANT(S)                         |   |                                      |   |
|   | ck Geothermal HI-01, LLC                      | Name:                                |   |
| Contact or Agent:<br>Mike Gipson or Kac | check here if Agent 🔲<br>ie Peterson          | Contact or Agent:  David Janney      | dieck here if Agent 🛛                     |
| Mailing Address: PO                     | Box 86  | Mailing Address: 8519 Jeffers        | on NE                                     |
| City: Animas                            |   | City: Albuquerque                    |   |
| State: NM                               | Zip Code: 88020                               | State: NM                            | Zip Code: 87113                           |
| Phone:<br>Phone (Work): 575. 5          | ☐ Home ☐ Cell<br>648.0301                     | Phone:<br>Phone (Work): 505.821.1801 | ☐ Home ☐ Cell                             |
| E-mail (optional): kad                  | ie.peterson@cyrqenergy.com                    | E-mail (optional): david.janne       | y@amec.com                                |
|   |   |                                      |   |
|   | FOR OSE INTERN                                |                                      | ation for Permit. Form wr-07, Rev 8/25/11 |
|   |   | 10 7.01                              | Number:                                   |
|   | Trans Description Sub-Basin: A.A.             |                                      |   |
|   | PCW/LOG Due Da                                |                                      |   |
|   |   |                                      | Page 1 of 3                               |

| NM State Plane (NAD83) (Feet)  NM West Zone NM East Zone NM Central Zone  NM Central Zone  X or Easting or  NM Central Solution (NAD83) (Meters)  UTM (NAD83) (Meters)  Zone 12N  1/10 <sup>th</sup> of second)  Complete boxes labeled "Other" below with PLSS (Public Land Survey System, i.e. Quarters, Section,   |  | ate location must b  | e reported in NM S  | tate Plane (NAD 83), UTM (NAD 83), <u>or</u> Latitude/Longitude  |
|---|--|--|---|--|
| MN West Zone   Zone 12N   Zone 13N   MN Meast Zone   NN East Zone   NN East Zone   NN East Zone   NN East Zone   Zone 13N   Yor Northing or Longitude:   District Zone   NN East Zone   NN East Zone   NN East Zone   NN East Zone   Zone 13N   Yor Northing or Longitude:   District Zone   NN East Zone   NN East Zone   NN East Zone   Zone 13N   Yor Northing or Longitude:   District Zone   NN East | (Lat/Long - WGS84)   |  |   |  |
| Well Number (if known):  X or Easting or Latitude:  Or Latitude:  Or Longitude:  Or Longitude:  Or Longitude:  Diock & Subdivision; OR Land Grant Name if known.  Section 7, Township, Range; Hydrographic Survey Map & Tract; Lo Block & Subdivision; OR Land Grant Name if known.  NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 − POD Descriptions)  Additional well descriptions are attached:  Yes So of If yes, how many  Other description relating well to common landmarks, streets, or other:  Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached?  Yes No If yes, how many  Approximate depth of well (feet): 85.00  Outside diameter of well casing (inches): 2.25  Driller Name: Rodgers & Co., Inc.  Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  Each of these wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in they will be constructed with 2-inch ID schedule 40 PVC casing and have up is a 25-foot screened interval. Wells will be constructed according to State regulations.   | <ul><li>☐ NM West Zone</li><li>☐ NM East Zone</li></ul>                                    |  | Zone 12N  | Lautong (WCOOT) (to the hearest  |
| NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions)  Additional well descriptions are attached:  Yes  No   | Well Number (if known):  |  |   | PLSS (Public Land Survey System, i.e. Quarters, Section, Township, Range); Hydrographic Survey Map & Tract; Lot,   |
| Additional well descriptions are attached:  | LDG MW-1   | 32° 8' 43"   | -108° 50' 08"   | Section 7, Township 25 S, Range 19 W   |
| Additional well descriptions are attached:  |  |  |   |  |
| Additional well descriptions are attached:  |  |  |   |  |
| Additional well descriptions are attached:  |  |  |   |  |
| Additional well descriptions are attached:  |  |  |   |  |
| Well is on land owned by: Lightning Dock Geothermal HI-01, LLC and Rosette Inc.  Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached?   |  |  |   |  |
| Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No If yes, how many  Approximate depth of well (feet): 85.00 Outside diameter of well casing (inches): 2.25  Driller Name: Rodgers & Co., Inc. Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal power plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Oil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in tow temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.  | Other description relating well  | to common landmar  | ks, streets, or other:  |  |
| Approximate depth of well (feet): 85.00  Driller Name: Rodgers & Co., Inc.  Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal power plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Dil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.  | Well is on land owned by: Lig  | htning Dock Geothe   | ermal HI-01, LLC ar   | nd Rosette Inc.  |
| Driller Name: Rodgers & Co., Inc.  Driller License Number: 225  ADDITIONAL STATEMENTS OR EXPLANATIONS  Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal power plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Dil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.   |  | nore than one (1) w  | ell needs to be des   | cribed, provide attachment. Attached? 🔲 Yes 🛛 No   |
| Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal power plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Dil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in the temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.  | Approximate depth of well (fee   | et): 85.00   |   | Outside diameter of well casing (inches): 2.25   |
| Each of these monitoring wells will be used to monitoring groundwater quality related to the operation of the geothermal povolant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Dil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in low temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.   | Driller Name: Rodgers & Co.  | , Inc.   | 1   | Oriller License Number: 225  |
| plant. These wells are a requirement of the Discharge Permit GTHT-001 issued for the project by the New Mexico Dil Conservation Divison. They will be completed in shallow alluvium to an approximate depth of 85 feet in tow temperature geothermal water. Each well will be constructed with 2-inch ID schedule 40 PVC casing and have up to a 25-foot screened interval. Wells will be constructed according to State regulations.   | . ADDITIONAL STATEMENTS  | OR EXPLANATION   | ıs  |  |
|   | plant. These wells are a requ<br>Conservation Divison. They<br>geothermal water. Each well | uirement of the Disc<br>will be completed i<br>I will be constructed | charge Permit GTH<br>n shallow alluvium<br>d with 2-inch ID scl | T-001 issued for the project by the New Mexico Dil<br>to an approximate depth of 85 feet in low temperature<br>nedule 40 PVC casing and have up to a 25-foot screened  |
|   | iliterval. Wells will be collect   | deted according to   | State regulations.  | and the state of t |
|   |  |  |   |  |
|   |  |  |   |  |
|   |  |  |   |  |
|   |  |  |   |  |
|   |  |  |   |  |

FOR OSE INTERNAL USE

Application for Permit, Form wr-07

File Number: A 790-W0 1001 Trn Number:

Page 2 of 3

|   | QUIREMENTS: The applicant must include the information has been included and/or a   |   | h well type. Please check the appropriate   |  |  |  |  |
|---|---|---|---|--|--|--|--|
| include a description of any proposed pump test, if applicable.  Monitoring:  Include the reason for the monitoring well, and,  ☐ The duration of the planned monitoring. | Pollution Control and/or Recovery:  Include a plan for pollution control/recovery, that includes the following:  A description of the need for the pollution control or recovery operation.  The estimated maximum period of time for completion of the operation.  The annual diversion amount.  The annual consumptive use amount.  The maximum amount of water to be diverted and injected for the duration of the operation.  The method and place of discharge.  The method of measurement of water produced and discharged.  The source of water to be injected.  The method of measurement of water injected.  The charactenistics of the aquifer.  The method of determining the resulting annual consumptive use of water and depletion from any related stream system.  Proof of any permit required from the New Mexico Environment Department.  An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located. | Construction De-Watering:  Include a description of the proposed dewatering operation, The estimated duration of the operation, The maximum amount of water to be diverted, A description of the need for the dewatering operation, and, A description of how the diverted water will be disposed of.  Geo-Thermal: Include a description of the geothermal heat exchange project, The amount of water to be diverted and re-injected for the project, The time frame for constructing the geothermal heat exchange project, and, The duration of the project. Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request. | Mine De-Watering:  Include a plan for pollution control/recovery, that includes the following: A description of the need for mine dewatering. The estimated maximum period of time for completion of the operation. The source(s) of the water to be diverted. The geohydrologic characteristics of the aquifer(s). The maximum amount of water to be diverted per annum. The maximum amount of water to be diverted for the duration of the operation. The quality of the water. The method of measurement of water diverted. The recharge of water to the aquifer. Description of the estimated area of hydrologic effect of the project. The method and place of discharge. An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. A description of the methods employed to estimate effects on surface water rights and underground water rights. Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect. |  |  |  |  |
| 1 We (name of   | AC applicant(s)), Mike Gipson or Kacie Peter  | CKNOWLEDGEMENT  | al HL01 11 C  |  |  |  |  |
|   | Pr  | int Name(s)   | ar mor, LLO   |  |  |  |  |
| Muhu e  | pregoing statements are true to the best of (   | Applicant Signature   | ateuno!   |  |  |  |  |
| Applicant oight   |   | OF THE STATE ENGINEER   |   |  |  |  |  |
| provided it is n  | This application is:  ☑ approved ☐ partially approved ☐ denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New  |   |   |  |  |  |  |
| Mexico nor de   | trimental to the public welfare and further so  | ubject to the <u>attached</u> conditions o  | f approval.   |  |  |  |  |
| Witness my han  | Witness my hand and seal this 12th day of November 20 13 , for the State Engineer,  |   |   |  |  |  |  |
| Scott A.  | Scott A. Verhines, P.E. , State Engineer  |   |   |  |  |  |  |
| By:<br>Signature  |   |   |   |  |  |  |  |
| Title: Distric  | et 3 Manager  |   |   |  |  |  |  |

FOR OSE INTERNAL USE

File Number: A-798-MM-POD1

Application for Permit, Form wr-07

Trn Number:

#### ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

FILE:

A-798

APPLICATION: A-798-MON

APPLICANTS:

Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-798-MON POD-1 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-1 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-1 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-1. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November , 2013 .

Scott A. Verhines, P.E. State Engineer

Charles L. Jackson, MPA

District 3 Manager



### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86
Animas, N.M. 88020

David Janney 8519 Jefferson NE Albuquerque, N.M. 87113

Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-2, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-2, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within the state, subject to the following conditions:

- 1. Well A-798-MON POD-2 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-2 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-2 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-2. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA

District /3 Manager

Martin McMillan

Animas Basin Manager

cc: State Engineer

MM:pg

File No. A-798 WON

### **NEW MEXICO OFFICE OF THE STATE ENGINEER**



### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



(check applicable box):

|   | For fees, see State Engineer wet             | osite: http://www.ose.state.nm.us/   | 3-20044 \$5.00                          |
|---|--|--------------------------------------|---|
| Purpose:                                  | ☐ Pollution Control And / Or Recovery        | ☐ Geo-Thermal                        |   |
| ☐ Exploratory                             | ☐ Construction Site De-Watering              | Other (Describe):                    |   |
|   | ☐ Mineral De-Watering                        |                                      |   |
| A separate permit will be                 | e required to apply water to beneficial use. |                                      |   |
| ☐ Temporary Request                       | - Requested Start Date:                      | Requested End                        | = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 |
| Plugging Plan of Operat                   | tions Submitted?  Yes  No                    |                                      | DATE NOV                                |
|   |  |                                      |   |
| 1. APPLICANT(S)                           |  |                                      |   |
| Name: Lightning Dock                      | Geothermal HI-01, LLC                        | Name:                                | 2 0                                     |
| Contact or Agent:<br>Mike Gipson or Kacie | check here if Agent  Peterson                | Contact or Agent:<br>David Janney    | check here if Agent 🛛                   |
| Mailing Address: PO Bo                    | ox 86  | Mailing Address: 8519 Jeffers        | on NE                                   |
| City: Animas                              |  | City: Albuquerque                    |   |
| State: NM                                 | Zip Code: 88020                              | State: NM                            | Zip Code: 87113                         |
| Phone:<br>Phone (Work): 575. 548          | ☐ Home ☐ Cell<br>3.0301                      | Phone:<br>Phone (Work): 505.821.1801 | ☐ Home ☐ Cell                           |
| E-mail (optional): kacie.                 | peterson@cyrqenergy.com                      | E-mail (optional): david.janne       | y@amec.com                              |
|   |  |                                      |   |

| FOR OSE INTERNAL USE   | Application for Permit, Form wr-07, Rev 8/25/11 |
|--|---|
| File Number: A-798 MON POD 2   | Trn Number:                                     |
| Trans Description (optional):  |   |
| Sub-Basin: Animas  |   |
| PCW/LOG Due Date:  |   |
| Control of the contro |   |

| ate location must b          | e reported in NM S   | tate Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude   |
|------------------------------|--|--|
|                              |  | ,  |
| ·                            | Zone 12N   | 1/10 <sup>th</sup> of second)  |
| X or Easting or<br>Latitude: | Y or Northing or Longitude:  | Optional: Complete boxes labeled "Other" below with PLSS (Public Land Survey System, i.e. Quarters, Section, Township, Range); Hydrographic Survey Map & Tract; Lot, Block & Subdivision; OR Land Grant Name if known.   |
| 32° 8' 28"                   | -108° 50' 16"  | Section 7, Township 25 S, Range 19 W   |
|                              |  |  |
|                              |  |  |
|                              |  |  |
|                              |  |  |
|                              |  | WR-08 (Attachment 1 – POD Descriptions) If yes, how many   |
| to common landmar            | rks, streets, or other   |  |
| haring Dook Cooth            |  | ad Basette Inc   |
|                              |  | cribed, provide attachment. Attached?  |
| et): 85.00                   |  | Outside diameter of well casing (inches): 2.25   |
| , Inc.                       | 1  | Driller License Number: 225  |
|                              |  | Annot brother training the same and the same |
|                              | X or Easting or Latitude:  32° 8' 28"  s need to be described are attached:  to common landman to common landman to common landman to common the common to common landman to c | Zone 12N Zone 13N  X or Easting or Latitude:  32° 8' 28"  -108° 50' 16"  s need to be described, complete form are attached: Yes No to common landmarks, streets, or other:  htning Dock Geothermal HI-01, LLC are nore than one (1) well needs to be described.   |

FOR OSE INTERNAL USE Application for Permit, Form wr-07 File Number: A - 798-MON FOO 2 Trn Number: Page 2 of 3

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: Pollution Control and/or Recovery: Exploratory: Construction Mine De-Watering: Include a Include a plan for pollution De-Watering: Include a plan for pollution control/recovery, that includes the following: description of control/recovery, that includes the ☐ Include a description of the ☐ A description of the need for mine any proposed following: proposed dewatering operation. pump test, if A description of the need for the dewatering. pollution control or recovery operation.

The estimated maximum period of applicable. ☐ The estimated duration of ☐ The estimated maximum period of time the operation. for completion of the operation. time for completion of the operation. ☐ The maximum amount of ☐ The source(s) of the water to be diverted. ☐ The annual diversion amount. water to be diverted. ☐The geohydrologic characteristics of the ☐ The annual consumptive use A description of the need aquifer(s). ☐The maximum amount of water to be amount. for the dewatering operation, diverted per annum. ☐ The maximum amount of water to be diverted and injected for the duration of A description of how the ☐The maximum amount of water to be diverted water will be disposed diverted for the duration of the operation. the operation. ☐ The method and place of discharge. ☐The quality of the water. ☐ The method of measurement of Geo-Thermal: ☐The method of measurement of water Monitoring: water produced and discharged. diverted. Include the Include a description of the ☐ The recharge of water to the aquifer. ☐ Description of the estimated area of reason for the ☐ The source of water to be injected. geothermal heat exchange ☐ The method of measurement of project. monitoring well, and, water injected. ☐ The amount of water to be hydrologic effect of the project. ☐ The characteristics of the aquifer. diverted and re-injected for the ☐The method and place of discharge. ☐ The The method of determining the project, An estimation of the effects on surface duration of the planned resulting annual consumptive use of ☐ The time frame for water rights and underground water rights water and depletion from any related constructing the geothermal from the mine dewatering project. monitoring. stream system. heat exchange project, and, A description of the methods employed to Proof of any permit required from the ☐ The duration of the project. estimate effects on surface water rights and New Mexico Environment Department. Preliminary surveys, design underground water rights. ☐Information on existing wells, rivers, An access agreement if the data, and additional applicant is not the owner of the land on information shall be included to springs, and wetlands within the area of which the pollution plume control or provide all essential facts hydrologic effect. recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal HI-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. Applicant Signature **ACTION OF THE STATE ENGINEER** This application is: X approved partially approved ☐ denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer, Werhines, P.E. , State Engineer Charles L. Jackson, MPA District 3 Manager

FOR OSE INTERNAL USE

Application for Permit, Form wr-07

File Number: A 798 MON - POO 2 Trn Number:

Page 3 of 3

# ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

**FILE:** A-798

APPLICATION: A-798-MON

APPLICANTS: Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-798-MON POD-2 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-2 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-2 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-2. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November , 2013 .

Scott A. Verhines, P.E. State Engineer

Charles L. Chackson, MPA District 3 Manager



### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson

P.O. Box 86

Animas, N.M. 88020

David Janney

8519 Jefferson NE

Albuquerque, N.M. 87113

#### Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-3, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-3, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within he state, subject to the following conditions:

- 1. Well A-798-MON POD-3 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-3 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-3 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-3. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA

District /3 Manager

Martin McMillan

nimas Basin Manager

cc: State Engineer

MM:pg

# nm Sate

### **NEW MEXICO OFFICE OF THE STATE ENGINEER**

### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



(check applicable box):

|   | For fees, see State Engineer web              | site: http://www.ose.state.nm.us/  | 3-20044 4 5ce                             |  |
|---|---|------------------------------------|---|--|
| Purpose:                                  | ☐ Pollution Control And / Or Recovery         | ☐ Geo-Thermal                      |   |  |
| ☐ Exploratory                             | ☐ Construction Site De-Watering               | Other (Describe):                  |   |  |
| Monitoring                                | Mineral De-Watering                           |                                    |   |  |
| A separate permit will                    | be required to apply water to beneficial use. |                                    |   |  |
| ☐ Temporary Reque                         | st - Requested Start Date:                    | Requested End                      | Date:                                     |  |
| Plugging Plan of Ope                      | rations Submitted?  Yes  No                   |                                    |   |  |
|   |   |                                    |   |  |
|   |   |                                    |   |  |
| 1. APPLICANT(S)                           |   |                                    |   |  |
| Name: Lightning Do                        | ck Geothermal HI-01, LLC                      | Name:                              | SO 2813                                   |  |
| Contact or Agent:                         | check here if Agent                           | Contact or Agent:                  | check happe if Age of ⊠                   |  |
| Mike Gipson or Kaci                       | ie Peterson                                   | David Janney                       |   |  |
| Mailing Address: PO                       | Box 86  | Mailing Address: 8519 Jefferson NE |   |  |
| City: Animas                              |   | City: Albuquerque                  | 17 0 5                                    |  |
| State: NM                                 | Zip Code: 88020                               | State: NM                          | Zip Code: 87113                           |  |
| Phone:                                    | ☐ Home ☐ Cell                                 | Phone:                             | ☐ Home ☐ Cell                             |  |
| Phone (Work): 575. 5                      |   | Phone (Work): 505.821.1801         |   |  |
| E-mail (optional): kac                    | ie.peterson@cyrqenergy.com                    | E-mail (optional): david.janne     | ey@amec.com                               |  |
|   |   |                                    |   |  |
|   |   |                                    |   |  |
|   |   |                                    |   |  |
|   |   |                                    |   |  |
|   | FOR OSE INTERN                                |                                    | cation for Permit, Form wr-07, Rev 8/25/1 |  |
| File Number: A-798 MON POD-3. Trn Number: |   |                                    |   |  |
|   | Trans Description (optional):                 |                                    |   |  |
|   | Sub-Basin: Auturas                            |                                    |   |  |
|   | PCW/LOG Due Da                                | le:                                | Page 1 of 3                               |  |

| . WELL(S) Describe the well(s  Location Required: Coordin                                |  |   | State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude  |
|--|--|---|--|
| (Lat/Long - WGS84)   |  | - · · · · · · · · · · · · · · · · · · ·   |  |
| ☐ NM State Plane (NAD83) ☐ NM West Zone ☐ NM East Zone ☐ NM Central Zone                 |  | JTM (NAD83) (Meto<br>]Zone 12N<br>]Zone 13N   | ers)   |
| Well Number (if known):  | X or Easting or<br>Latitude:   | Y or Northing or Longitude:   | Optional: Complete boxes labeled "Other" below with PLSS (Public Land Survey System, i.e. Quarters, Section, Township, Range); Hydrographic Survey Map & Tract; Lot, Block & Subdivision; OR Land Grant Name if known.                       |
| LDG MW-3   | 32° 8' 52"   | -108° 49' 59"   | Section 7, Township 25 S, Range 19 W   |
|  |  | And desired the second of the |  |
|  |  |   |  |
|  |  |   |  |
|  |  |   |  |
| NOTE: If more well location<br>Additional well descriptions                              |  |   | n WR-08 (Attachment 1 POD Descriptions)  If yes, how many  |
| Other description relating wel   |  |   | :  |
|  |  |   |  |
| Well is on land owned by: Lig  |  |   |  |
| Well Information: NOTE: If a   | more than one (1) w  | ell needs to be des   | scribed, provide attachment. Attached? 🔲 Yes 🛛 No  |
| Approximate depth of well (fe  | et): 85.00   |   | Outside diameter of well casing (inches): 2.25   |
| Driller Name: Rogers & Co.,  | Inc.   |   | Driller License Number: 225  |
| . ADDITIONAL STATEMENTS  | S OR EXPLANATION   | IS  |  |
| plant. These wells are a req<br>Conservation Divison. They<br>geothermal water. Each wel | uirement of the Disc<br>will be completed i<br>I will be constructed | charge Permit GTH<br>n shallow alluviun<br>d with 2-inch ID sc  | Iwater quality related to the operation of the geothermal power<br>IT-001 issued for the project by the New Mexico Oil<br>In to an approximate depth of 85 feet in low temperature<br>hedule 40 PVC casing and have up to a 25-foot semeened |
| interval. Wells will be const  | ructed according to  | State regulations   | SIO III  |
|  |  |   | OFFICE<br>STATE OFFICE   |
|  |  |   |  |
|  |  |   |  |
|  |  |   |  |
|  |  |   | ∴ m cr   |
|  |  |   | <b>~</b> Ø   |

Application for Permit, Form wr-07 FOR OSE INTERNAL USE File Number: A-799-MM P003 Trn Number: Page 2 of 3 4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: Construction Mine De-Watering: Pollution Control and/or Recovery: Exploratory: ☐ Include a Include a plan for pollution De-Watering: Include a plan for pollution control/recovery, that includes the following: description of control/recovery, that includes the Include a description of the proposed dewatering A description of the need for mine any proposed following: dewatering. pump test, if A description of the need for the operation, ☐ The estimated maximum period of time pollution control or recovery operation. ☐ The estimated duration of applicable. for completion of the operation. ☐ The estimated maximum period of the operation. time for completion of the operation. ☐ The maximum amount of ☐ The source(s) of the water to be diverted. The annual diversion amount. ☐ The geohydrologic characteristics of the water to be diverted, The annual consumptive use A description of the need aquifer(s). ☐The maximum amount of water to be amount. for the dewatering operation, diverted per annum. ☐ The maximum amount of water to be diverted and injected for the duration of A description of how the ☐The maximum amount of water to be diverted water will be disposed diverted for the duration of the operation. the operation. ☐ The method and place of discharge.
☐ The method of measurement of ☐ The quality of the water.
☐ The method of measurement of water of. Geo-Thermal: Monitoring: diverted. ☑ Include the water produced and discharged. Include a description of the ☐ The source of water to be injected. ☐ The method of measurement of ☐The recharge of water to the aguifer. geothermal heat exchange reason for the Description of the estimated area of monitoring project, hydrologic effect of the project. water injected. ☐ The amount of water to be well, and, ☐The method and place of discharge. ☐ The characteristics of the aquifer. diverted and re-injected for the ☐ The An estimation of the effects on surface ☐ The method of determining the project. duration resulting annual consumptive use of ☐ The time frame for water rights and underground water rights of the planned from the mine dewatering project. water and depletion from any related monitoring. constructing the geothermal A description of the methods employed to stream system. heat exchange project, and, estimate effects on surface water rights and Proof of any permit required from the ★ The duration of the project. New Mexico Environment Department. Preliminary surveys, design underground water rights. ☐ Information on existing wells, rivers, An access agreement if the data, and additional springs, and wetlands within the area of applicant is not the owner of the land on information shall be included to which the pollution plume control or provide all essential facts hydrologic effect. recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal HI-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. **ACTION OF THE STATE ENGINEER** This application is: partially approved ☐ denied X approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer, Werhitnes, P.E. , State Engineer Charles L. Jackson, MPA District 3 Manager Application for Permit, Form wr-07 FOR OSE INTERNAL USE

File Number: A-796-WWW

1003

Trn Number:

## ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

**FILE:** A-798

APPLICATION: A-798-MON

APPLICANTS: Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-798-MON POD-3 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-3 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-3 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-3. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November , 2013 .

Scott A. Verhines, P.E, State Engineer

Charles L. Jackson, MPA District 3 Manager



### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson

P.O. Box 86

David Janney 8519 Jefferson NE

Albuquerque, N.M. 87113

Animas, N.M. 88020

Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-4, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-4, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within the state, subject to the following conditions:

- 1. Well A-798-MON POD-4 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-4 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-4 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-4. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA

District 3 Manager

By: // (a Car W)
Martin McMillan

\nimas Basin Manager

cc: State Engineer

MM:pg

| File | No. 1- | 798   | MON |
|------|--------|-------|-----|
|      |        | , , , | ,   |



### **NEW MEXICO OFFICE OF THE STATE ENGINEER**

### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



Page 1 of 3

(check applicable box):

|   | For fees, see State Engineer wel              | osite: http://www.ose.state.nm.us/ 3-20044 5 =       |
|---|---|--|
| Purpose:                                  | ☐ Pollution Control And / Or Recovery         | ☐ Geo-Thermal  |
| ☐ Exploratory                             | ☐ Construction Site De-Watering               | Other (Describe):                                    |
|   | ☐ Mineral De-Watering                         |  |
| A separate permit will                    | be required to apply water to beneficial use. |  |
| ☐ Temporary Reques                        | st - Requested Start Date:                    | Requested End Date:                                  |
| Plugging Plan of Oper                     | rations Submitted?  Yes  No                   | 1.00   |
|   |   |  |
| 1. APPLICANT(S)                           |   |  |
|   | ck Geothermal HI-01, LLC                      | Name:  |
| Contact or Agent:<br>Mike Gipson or Kacie | check here if Agent   e Peterson              | Contact or Agent: check here if Agent   David Janney |
| Mailing Address: PO E                     | Box 86  | Mailing Address: 8519 Jefferson NE                   |
| City: Animas                              |   | City: Albuquerque                                    |
| State: NM                                 | Zip Code: 88020                               | State: NM Zip Code: 87113                            |
| Phone:<br>Phone (Work): 575. 54           | ☐ Home ☐ Cell<br>48.0301                      | Phone:   |
| E-mail (optional): kaci                   | ie.peterson@cyrqenergy.com                    | E-mail (optional): david.janney@amec.com             |
|   | Trans Description                             | 798 MON POD-4 Trn Number: optional):                 |

| . WELL(S) Describe the well(s)   | ) applicable to this ap  | plication.  |   |  |
|--|--|---|---|--|
| Location Required: Coordin<br>(Lat/Long - WGS84)                         | nate location must b   | e reported in NM S  | tate Plane (NAD 83), UTM (NAI   | D 83), <u>or</u> Latitude/Longitude                            |
| ☐ NM State Plane (NAD83) ☐ NM West Zone ☐ NM East Zone ☐ NM Central Zone | , ,  | UTM (NAD83) (Mete<br>]Zone 12N<br>]Zone 13N   | ers) 🔀 Lat/Lo<br>1/10 <sup>th</sup> of so   | ng (WGS84) (to the nearest econd)                              |
| Well Number (if known):  | X or Easting or<br>Latitude:   | Y or Northing or Longitude:   |   | system, i.e. Quarters, Section, aphic Survey Map & Tract; Lot, |
| LDG MW-4   | 32° 8' 45"   | -108° 50' 40"   | Section 7, Township 25 S, R   | ange 19 W  |
|  |  |   |   |  |
|  |  |   |   |  |
|  |  |   |   |  |
|  |  |   |   |  |
| NOTE: If more well location<br>Additional well descriptions              |  |   | n WR-08 (Attachment 1 – POD<br>If yes, how many   | Descriptions)  |
| Other description relating well  | l to common landmar  | ks, streets, or other   |   |  |
| Well is on land owned by: Lig  | htning Dock Geoth  | ermal Hi-01, LLC a  | nd Rosette Inc.   |  |
| Well Information: NOTE: If r   | more than one (1) w  | ell needs to be des   | cribed, provide attachment. A   | ttached? ☐ Yes ☒ No  |
| Approximate depth of well (fe  | et): 85.00   |   | Outside diameter of well casing (   | inches): 2.25  |
| Driller Name: Rogers & Co.,  | inc.   | [ [   | Oriller License Number: 225   |  |
| plant. These wells are a requirement. These wells are a requirement.     | ells will be used to<br>uirement of the Disc<br>will be completed i<br>I will be constructed | monitoring ground<br>charge Permit GTH<br>n shallow alluvium<br>d with 2-inch ID se | T-001 issued for the project by<br>to an approximate depth of 8<br>hedule 40 PVC casing and hav | 5 feet in low temperature                                      |
| , nortan trono trin no const   |  | · · · · · · · · · · · · · · · · · · ·   |   | $\Sigma_{C}$   |
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|  |  |   |   | - 23   |
|  |  |   |   |  |

FOR OSE INTERNAL USE
File Number: A-798-MON POD 4 Application for Permit, Form wr-07 Tm Number: Page 2 of 3 4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: xploratory: Pollution Control and/or Recovery: Construction Mine De-Watering: Include a De-Watering: Include a plan for pollution Include a plan for pollution control/recovery, that includes the following: description of control/recovery, that includes the Include a description of the any proposed following: proposed dewatering A description of the need for mine operation. pump test, if A description of the need for the dewatering. The estimated duration of ☐ The estimated maximum period of time applicable. pollution control or recovery operation. ☐ The estimated maximum period of for completion of the operation. the operation, time for completion of the operation. The maximum amount of ☐ The source(s) of the water to be diverted. The geohydrologic characteristics of the ☐ The annual diversion amount. water to be diverted, The annual consumptive use A description of the need aquifer(s). ☐The maximum amount of water to be amount. for the dewatering operation, diverted per annum. ☐ The maximum amount of water to be diverted and injected for the duration of ☐ A description of how the ☐The maximum amount of water to be diverted water will be disposed diverted for the duration of the operation. the operation. ☐The quality of the water. ☐ The method and place of discharge. of. ☐ The method of measurement of ☐The method of measurement of water Monitorina: Geo-Thermal: water produced and discharged. Include a description of the diverted. Include the ☐The recharge of water to the aquifer. reason for the ☐ The source of water to be injected. geothermal heat exchange Description of the estimated area of ☐ The method of measurement of project, monitoring hydrologic effect of the project. water injected. well, and, ☐ The amount of water to be The method and place of discharge. ☐ The ☐ The characteristics of the aquifer. diverted and re-injected for the ☐ The method of determining the project,

The time frame for An estimation of the effects on surface duration of the planned resulting annual consumptive use of water rights and underground water rights monitoring. water and depletion from any related constructing the geothermal from the mine dewatering project. stream system. heat exchange project, and, A description of the methods employed to Proof of any permit required from the estimate effects on surface water rights and The duration of the project. New Mexico Environment Department. Preliminary surveys, design underground water rights. An access agreement if the data, and additional Information on existing wells, nvers. applicant is not the owner of the land on information shall be included to springs, and wetlands within the area of which the pollution plume control or provide all essential facts hydrologic effect. recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacle Peterson, Lightning Dock Geothermal HI-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. Applicant Signature **ACTION OF THE STATE ENGINEER** This application is: X approved partially approved ☐ denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer, Scott A. Werhings, P.E. , State Engineer Charles L. Jackson, MPA Title: District 3 Manager Print Application for Permit, Form wr-07

FOR OSE INTERNAL USE

File Number: A-798-MON POD4

Trn Number.

# ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

**FILE:** A-798

APPLICATION: A-798-MON

APPLICANTS: Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-798-MON POD-4 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-4 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-4 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-4. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November , 2013 .

Scott A. Varhines, P.E. State Engineer

Charles L. Jackson, MPA

District 3 Manager



### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86

David Janney 8519 Jefferson NE Albuquerque, N.M. 87113

Animas, N.M. 88020

Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-5, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-5, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not 'etrimental to the public welfare or contrary to the conservation of water within ne state, subject to the following conditions:

- 1. Well A-798-MON POD-5 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
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- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA

District 3 Manager

Martin McMillan

limas Basin Manager

cc: State Engineer

pq:MM

### NEW MEXICO OFFICE OF THE STATE ENGINEER



### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



Page 1 of 3

(check applicable box):

|  | For fees, see State Engineer web              | site: http://www.ose.state.nm.us/ 36                           | 30044 45              |   |
|--|---|--|-----------------------|---|
| Purpose:                                 | ☐ Pollution Control And / Or Recovery         | Geo-Thermal  |                       |   |
| □ Exploratory                            | Construction Site De-Watering                 | Other (Describe):  |                       |   |
| <b>⊠</b> Monitoring                      | ☐ Mineral De-Watering                         |  |                       |   |
| A separate permit will                   | be required to apply water to beneficial use. |  |                       |   |
| ☐ Temporary Reques                       | st - Requested Start Date:                    | Requested End Date   |                       |   |
| Plugging Plan of Oper                    | rations Submitted?   Yes   No                 |  |                       |   |
|  |   |  |                       |   |
|  |   |  |                       | 2   |
| 1. APPLICANT(S)                          |   |  | _90                   |   |
| lame: Lightning Doo                      | ck Geothermal HI-01, LLC                      | Name:  | YAA                   |   |
| Contact or Agent: Mike Gipson or Kacie   | check here if Agent 🗍<br>e Peterson           | Contact or Agent:  David Janney                                | check here it Agent   |   |
| Mailing Address: PO E                    | 3ox 86  | Mailing Address: 8519 Jefferson N                              |                       | <del>ان در در در در در در در در در در در در در </del> |
| City: Animas                             |   | City: Albuquerque  |                       |   |
| State: NM                                | Zip Code: 88020                               | State: NM Z  | îp Code: 87113        |   |
| Phone:                                   | ☐ Home ☐ Cell                                 |  | ☐ Home ☐ Cell         | S <sub>O</sub>  |
| Phone (Work): 575. 54                    | ie.peterson@cyrqenergy.com                    | Phone (Work): 505.821.1801  E-mail (optional): david.janney@ar | nec com               | <u>- ₽≥¥</u>  |
| L-mail (optional). Naci                  | o.peterson@oyrqenergy.com                     | Laman (optional). david.jamicy@ai                              |                       |   |
|  |   |  |                       | 520   |
|  |   |  |                       | 2m=   |
|  |   |  |                       | 一语  |
|  |   |  |                       |   |
|  | FOR OSE INTERNA                               | 12 002   | or Permit, Form wr-07 | Rev 8/25/11   |
| File Number: 4-798 MON POD 5 Trn Number: |   |  |                       |   |
| Trans Description (optional):            |   |  |                       |   |
|  | Sub-Basin:                                    | iuras  |                       |   |

| Location Required: Coordin<br>(Lat/Long - WGS84)                        | ate location must be                     | e reported in NM S                         | tate Plane (NAD 83), UTM (NAD 83), <u>or</u>  | Latitude/Longitude                                 |
|---|--|--|---|--|
| NM State Plane (NAD83)  □ NM West Zone □ NM East Zone □ NM Central Zone |  | JTM (NAD83) (Mete<br>Zone 12N<br>Zone 13N  | ers) \times Lat/Long (WGS 1/10 <sup>th</sup> of second)   | 684) (to the nearest                               |
| Well Number (if known):   | X or Easting or<br>Latitude:             | Y or Northing or Longitude:                | Optional: Complete boxes labeled " PLSS (Public Land Survey System, Township, Range); Hydrographic St Block & Subdivision; OR Land Gran | i.e. Quarters, Section,<br>urvey Map & Tract; Lot, |
| LDG MW-5  | 32° 8' 27"                               | -108° 50' 01"                              | Section 7, Township 25 S, Range 19  | W  |
|   |  |  |   |  |
|   |  |  |   |  |
|   |  |  |   | 72   |
|   |  |  |   | OFFIG<br>STATE<br>DEL                              |
| Additional well descriptions  |  |  | WR-08 (Attachment 1 – POD Descrip<br>If yes, how many   | tions  |
| Other description relating well   | to common landmar                        | ks, streets, or other:                     |   |  |
| Well is on land owned by: Lig   | htni <mark>ng Dock Geoth</mark> e        | ermal HI-01, LLC at                        | nd Rosette Inc.   |  |
| Well Information: NOTE: If n  | nore than one (1) we                     | ell needs to be des                        | cribed, provide attachment. Attached  | ? ☐ Yes ☒ No                                       |
| Approximate depth of well (fee  | et): <b>85.00</b>                        |  | Outside diameter of well casing (inches):   | 2.25   |
| Driller Name: Rodgers & Co.   | , Inc.                                   |  | Oriller License Number: 225   |  |
|   | ells will be used to r                   | nonitoring ground                          | water quality related to the operation  |  |
| Conservation Divison. They  | will be completed in will be constructed | n shallow alluvium<br>I with 2-inch ID scl | T-001 issued for the project by the Ne<br>to an approximate depth of 85 feet in<br>nedule 40 PVC casing and have up to                  | low temperature $\mathcal{O}_{\square}$            |
|   |  |  |   |  |
|   |  |  |   |  |

FOR OSE INTERNAL USE Application for Permit, Form wr-07 File Number: A-798-MON POD 5 Trn Number: Page 2 of 3 4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: Exploratory: Pollution Control and/or Recovery: Construction Mine De-Watering: ☐ include a ☐ Include a plan for pollution De-Watering: ☐ Include a plan for pollution control/recovery, that includes the following: description of control/recovery, that includes the Include a description of the any proposed following: proposed dewatering ☐ A description of the need for mine pump test, if A description of the need for the operation, dewatering. pollution control or recovery operation. The estimated duration of ☐ The estimated maximum period of time applicable. ☐ The estimated maximum period of for completion of the operation. the operation, time for completion of the operation. ☐ The maximum amount of ☐ The source(s) of the water to be diverted. ☐ The annual diversion amount. ☐ The annual consumptive use The geohydrologic characteristics of the water to be diverted, A description of the need aquifer(s). ☐The maximum amount of water to be amount. for the dewatering operation, diverted per annum. ☐ The maximum amount of water to be diverted and injected for the duration of A description of how the ☐The maximum amount of water to be diverted for the duration of the operation. the operation. diverted water will be disposed ☐ The method and place of discharge. ☐The quality of the water. of. Monitoring: Geo-Thermal: ☐The method of measurement of water ☐ The method of measurement of Include the water produced and discharged. ☐ Include a description of the diverted. ☐ The source of water to be injected. ☐The recharge of water to the aquifer. reason for the geothermal heat exchange The method of measurement of project,

The amount of water to be Description of the estimated area of monitoring hydrologic effect of the project. water injected. well, and, ☐ The ☐ The characteristics of the aquifer. diverted and re-injected for the ☐The method and place of discharge. The method of determining the project. An estimation of the effects on surface duration resulting annual consumptive use of ☐ The time frame for water rights and underground water rights of the planned monitoring. water and depletion from any related constructing the geothermal from the mine dewatering project. stream system. heat exchange project, and, A description of the methods employed to ☐ Proof of any permit required from the estimate effects on surface water rights and ☑ The duration of the project. underground water rights. New Mexico Environment Department. ☐ Preliminary surveys, design data, and additional An access agreement if the ☐Information on existing wells, rivers. applicant is not the owner of the land on information shall be included to springs, and wetlands within the area of which the pollution plume control or hydrologic effect. provide all essential facts recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal HI-01, ILC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. **ACTION OF THE STATE ENGINEER** This application is: X approved partially approved ☐ denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer, Charles L. Jackson, MPA District 3 Manager Application for Permit, Form wr-07 FOR OSE INTERNAL USE

File Number: A-798-MIN PODS

Trn Number:

# ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

**FILE:** A-798

APPLICATION: A-798-MON

APPLICANTS: Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-798-MON POD-5 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-5 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-5 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-5. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November , 2013 .

Scott M. Verhines, P.E. State Engineer

Charles L. Jackson, MPA

District 3 Manager



### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86

Animas, N.M. 88020

David Janney 8519 Jefferson NE Albuquerque, N.M. 87113

#### Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-6, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798-MON POD-6, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within he state, subject to the following conditions:

- 1. Well A-798-MON POD-6 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-6 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-6 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-6. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA

District/3 Manager

Martin McMillan

nimas Basin Manager

c: State Engineer

MM:pg

#### **NEW MEXICO OFFICE OF THE STATE ENGINEER**



### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



(check applicable box):

|  | (chock appl                                   | iodbio boxy.                        | 3-20039 \$500             |
|--|---|-------------------------------------|---------------------------|
|  | For fees, see State Engineer web              | osite: http://www.ose.state.nm.us/  | 3-2039                    |
| Purpose:                               | ☐ Pollution Control And / Or Recovery         | ☐ Geo-Thermal                       |                           |
| ☐ Exploratory                          | ☐ Construction Site De-Watering               | Other (Describe):                   |                           |
|  | ☐ Mineral De-Watering                         |                                     |                           |
| A separate permit will                 | be required to apply water to beneficial use. |                                     | 2013 OCI<br>OFFI<br>STATI |
| ☐ Temporary Reques                     | st - Requested Start Date:                    | Requested Er                        | BOOK S                    |
| Plugging Plan of Oper                  | rations Submitted?  Yes  No                   |                                     | ිරුදි 🚉                   |
|  |   |                                     | <b>全</b> 量 9              |
| 1. APPLICANT(S)                        | :k Geothermal HI-01, LLC                      | Name:                               |                           |
| Contact or Agent: Mike Gipson or Kacie | check here if Agent                           | Contact or Agent:<br>David Janney   | check here if Agent ⊠     |
| Mailing Address: PO E                  | 3ox 86  | Mailing Address: 8519 Jeffe         | erson NE                  |
| City: Animas                           |   | City: Albuquerque                   |                           |
| State: NM                              | Zip Code: 88020                               | State: NM                           | Zip Code; 87113           |
| Phone:<br>Phone (Work): 575. 54        | ☐ Home ☐ Cell<br>48.0301                      | Phone:<br>Phone (Work): 505.821.180 | ☐ Home ☐ Cell             |
| E-mail (optional): kaci                | ie.peterson@cyrqenergy.com                    | E-mail (optional): david.jan        | ney@amec.com              |
|  |   | I                                   |                           |

| FOR OSE INTERNAL USE          | Application for Permit, Form wr-07, Rev 8/25/11 |
|-------------------------------|---|
| File Number: A- 798 MON FOD-C | Trn Number:                                     |
| Trans Description (optional): |   |
| Sub-Basin: Auguras            |   |
| PCW/LOG Due Date:             |   |
|                               | 5 1 15  |

|  | ate location must b                         | •   | tate Plane (NAD 83), UTM (NAD 83), <u>or</u> Latitude/Longitude   |
|--|---|---|---|
| 'Lat/Long - WGS84)  NM State Plane (NAD83) NM West Zone NM East Zone NM Central Zone |   | JTM (NAD83) (Mete<br>]Zone 12N<br>]Zone 13N | ers)  |
| Well Number (if known):  | X or Easting or<br>Latitude:                | Y or Northing or Longitude:                 | Optional: Complete boxes labeled "Other" below with PLSS (Public Land Survey System, i.e. Quarters, Section, Township, Range); Hydrographic Survey Map & Tract; Lot, Block & Subdivision; OR Land Grant Name if known.                            |
| LDG MW-6   | 32° 8' 54"                                  | -108° 50' 06"                               | Section 7, Township 25 S, Range 19 W  |
|  |   |   |   |
|  |   |   | -   |
|  |   |   |   |
|  |   |   |   |
| NOTE: If more well location<br>Additional well descriptions                          |   |   | n WR-08 (Attachment 1 – POD Descriptions)  If yes, how many   |
| Other description relating wel   | l to common landmar                         | ks, streets, or other                       | :   |
| Well is on land owned by: Lig  | htning Dock Geothe                          | ermal HI-01, LLC a                          | nd Rosette Inc.   |
| Well Information: NOTE: If I   |   | ell needs to be de                          | scribed, provide attachment. Attached? 🔲 Yes 🖾 No   |
| Approximate depth of well (fe  | et): <b>85.0</b> 0                          |   | Outside diameter of well casing (inches): 2.25  |
| Driller Name: Rogers & Co.,  | Inc.  |   | Driller License Number: 225   |
| B. ADDITIONAL STATEMENTS   | S OR EXPLANATION                            | NS  |   |
| This well is a requirement of Divison. It will be completed                          | the Discharge Perr<br>i in shallow alluviur | nit GTHT-001 issu<br>n to an approxima      | lity related to the operation of the geothermal power plant.<br>ed for the project by the New Mexico Oil Conservation<br>te depth of 85 feet in low temperature geothermal water. It wi<br>e up to a 25-foot screened interval according to State |
| regulations.   |   |   | OFFICE STATE EN DEN EL  |
|  |   |   | nmor<br>Por<br>≥  |
|  |   |   | A L L L L L L L L L L L L L L L L L L   |

FOR OSE INTERNAL USE

File Number: A-798-MON POD 6 Application for Permit, Form wr-07 Trn Number: Page 2 of 3 4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: Pollution Control and/or Recovery: Construction xploratory: Mine De-Watering: ☐ Include a plan for pollution De-Watering: ] Include a ☐ Include a plan for pollution control/recovery, that includes the Include a description of the control/recovery, that includes the following: description of proposed dewatering any proposed following: A description of the need for mine A description of the need for the operation. pump test, if dewatering. pollution control or recovery operation. The estimated duration of ☐ The estimated maximum period of time applicable. ☐ The estimated maximum period of the operation. for completion of the operation. time for completion of the operation. ☐ The maximum amount of ☐ The source(s) of the water to be diverted. ☐ The annual diversion amount. The geohydrologic characteristics of the water to be diverted, ☐ A description of the need ☐ The annual consumptive use aquifer(s). amount. for the dewatering operation, The maximum amount of water to be ☐ The maximum amount of water to be diverted per annum. diverted and injected for the duration of A description of how the The maximum amount of water to be diverted water will be disposed the operation. diverted for the duration of the operation. ☐ The method and place of discharge. of. ☐The quality of the water. The method of measurement of The method of measurement of water Monitoring: Geo-Thermal: Include the water produced and discharged. ☐ Include a description of the diverted. ☐ The source of water to be injected. reason for the geothermal heat exchange ☐The recharge of water to the aquifer. ☐ The method of measurement of project. Description of the estimated area of monitorina well, and, water injected. The amount of water to be hydrologic effect of the project. ☐ The characteristics of the aquifer. The method and place of discharge. ☐ The diverted and re-injected for the The method of determining the An estimation of the effects on surface duration project, of the planned resulting annual consumptive use of ☐ The time frame for water rights and underground water rights water and depletion from any related from the mine dewatering project. monitoring. constructing the geothermal heat exchange project, and, stream system. A description of the methods employed to Proof of any permit required from the The duration of the project. estimate effects on surface water rights and New Mexico Environment Department. Preliminary surveys, design underground water rights. ☐ An access agreement if the ☐Information on existing wells, rivers, data, and additional applicant is not the owner of the land on springs, and wetlands within the area of information shall be included to hydrologic effect. which the pollution plume control or provide all essential facts recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacle Peterson, Lightning Dock Geothermal HI-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge/and belief. ACTION OF THE STATE ENGINEER This application is: □ approved partially approved denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water involved. Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer က္ Charles L. Jackson, MPA Title: District 3 Manager Print Application for Permit, Form wr-07 FOR OSE INTERNAL USE

File Number: A-798-MON

Page 3 of 3

Trn Number:

POD 6

### ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

**FILE:** A-798

**APPLICATION:** A-798-MON

APPLICANTS: Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-798-MON POD-6 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-798-MON POD-6 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-6 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-6. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 12th day of November , 2013 .

Scott A. Verhines, P.E, State Engineer

harites L. Jackson, MPA

District 3 Manager



### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

November 12, 2013

FILE: A-798

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86
Animas, N.M. 88020

David Janney 8519 Jefferson NE Albuquerque, N.M. 87113

Greetings:

Enclosed is your copy of Monitor Well Permit A-798-POD-7, which has been approved.

Your attention is called to the Conditions of Approval under permit A-798~MON POD-7, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for Monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within he state, subject to the following conditions:

- 1. Well A-798-MON POD-7 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- The casing of well A-798-MON POD-7 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-798-MON POD-7 shall not exceed 85 feet.
- 4. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 5. No appropriation of water shall be made from well A-798-MON POD-7. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 6. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 7. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA
District 3 Manager / //

Martin McMillan

nimas Basin Manager

J: State Engineer

MM:pg

# Interstate Stress Commission

#### **NEW MEXICO OFFICE OF THE STATE ENGINEER**

### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



Page 1 of 3

(check applicable box):

|   | For fees, see State Engineer wel              | heita: http://www.nea.etata.nm.i | 18 3-20039 \$5°C                                |  |
|---|---|----------------------------------|---|--|
| D   |   |                                  | 0 0,000.  |  |
| Purpose:  | Pollution Control And / Or Recovery           | -                                |   |  |
| ☐ Exploratory                                     | ☐ Construction Site De-Watering               | Other (Describe):                |   |  |
|   | ☐ Mineral De-Watering                         |                                  |   |  |
| A separate permit will                            | be required to apply water to beneficial use. |                                  |   |  |
| ☐ Temporary Reques                                | st - Requested Start Date:                    | Requested                        | End Date:                                       |  |
| Plugging Plan of Operations Submitted?   Yes   No |   |                                  |   |  |
|   |   |                                  |   |  |
| 1. APPLICANT(S)  Name: Lightning Doo              | k Geothermal Hi-01, LLC                       | Name:                            |   |  |
| Contact or Agent:                                 | check here if Agent                           | Contact or Agent:                | check here if Agent ⊠                           |  |
| Mike Gipson or Kaci                               | _   | David Janney                     | Check here if Agent [2]                         |  |
| Mailing Address: PO E                             | 3ox 86  | Mailing Address: 8519 Je         | fferson NE                                      |  |
| City: Animas                                      |   | City: Albuquerque                |   |  |
| State: NM   | Zip Code: 88020                               | State: NM                        | Zip Code: 87113                                 |  |
| Phone:  | ☐ Home ☐ Cell                                 | Phone:                           | ☐ Home ☐ Cell                                   |  |
| Phone (Work): 575. 54                             |   | Phone (Work): 505.821.1          |   |  |
| E-mail (optional): kaci                           | e.peterson@cyrqenergy.com                     | E-mail (optional): david.ja      | anney@amec.com                                  |  |
|   |   |                                  | OFFICE OF                                       |  |
|   |   |                                  | Application for Permit, Form wi-07, Rev 8/25/11 |  |
|   | FOR OSE INTERN                                |                                  | <del></del>                                     |  |
|   | File Number: /-                               | 798 MON AOD-7                    | Trn Number:                                     |  |
|   | Trans Description (                           |                                  |   |  |
|   | Sub-Basin: A                                  |                                  |   |  |

| Location Required: Coordin                                       | ate location must h                       | e reported in NM S                          | tate Plane (NAD 83), UTM (NAD 83), or L   | atitude/l ongite                   | ıde              |
|--|---|---|---|------------------------------------|------------------|
| (Lat/Long - WGS84)   | ate location must b                       | e reported in Nin o                         | tate mane (NAD 00), 0 mm (NAD 00), <u>or</u> t  | atitude/Longic                     | 1 <b>46</b>      |
| NM State Plane (NAD83) NM West Zone NM East Zone NM Central Zone |   | UTM (NAD83) (Mete<br>]Zone 12N<br>]Zone 13N | 1/10 <sup>th</sup> of second)   |                                    |                  |
| Well Number (if known):  | X or Easting or<br>Latitude:              | Y or Northing or Longitude:                 | Optional: Complete boxes labeled "Of<br>PLSS (Public Land Survey System, i.e<br>Township, Range); Hydrographic Sur<br>Block & Subdivision; OR Land Grant I                        | e. Quarters, Sec<br>vey Map & Trac | tion,<br>t; Lot, |
| LDG MW-1B  | 32° 8' 39"                                | -108° 50' 08"                               | Section 7, Township 25 S, Range 19 V  | V                                  |                  |
|  |   |   |   |                                    |                  |
|  |   |   |   |                                    |                  |
|  |   |   |   |                                    |                  |
|  |   |   |   |                                    |                  |
| NOTE: If more well location Additional well descriptions         |   | bed, complete form<br>Yes 🛛 No              | WR-08 (Attachment 1 – POD Description of WR-08)   | ons)                               |                  |
| Other description relating well                                  | to common landmar                         | ks, streets, or other                       |   |                                    |                  |
| Well is on land owned by: Lig                                    | htning Dock Geothe                        | ermal HI-01, LLC a                          | nd Rosette Inc.   |                                    |                  |
| Weil Information: NOTE: If n If yes, how many                    | nore than one (1) w                       | ell needs to be des                         | cribed, provide attachment. Attached?   | ☐ Yes 🖾 l                          | lo               |
| Approximate depth of well (fee                                   | et): 85.00                                | (   | Outside diameter of well casing (inches): 2   | .25                                |                  |
| Driller Name: Rogers & Co., I                                    | nc.                                       |   | Oriller License Number: 225   |                                    |                  |
| . ADDITIONAL STATEMENTS  | OR EXPLANATION                            | IS  |   | • •                                |                  |
| This well is a requirement of<br>Divison. It will be completed   | the Discharge Pern<br>in shallow alluviun | nit GTHT-001 issue<br>n to an approximat    | ity related to the operation of the geother<br>of for the project by the New Mexico Oil<br>we depth of 85 feet in low temperature ge<br>a 25-foot screened interval and will be o | Conservation othermal water        | r. Privill       |
| to state regulations.  |   |   |   |                                    |                  |
|  |   |   |   | DĦ                                 | F<br>G           |
|  |   |   |   |                                    |                  |

FOR OSE INTERNAL USE
File Number: A - 798 - MON POD 7 Application for Permit, Form wr-07 Trn Number: Page 2 of 3 4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: Exploratory: Pollution Control and/or Recovery: Construction Mine De-Watering: ] Include a Include a plan for pollution De-Watering: ☐ include a plan for pollution description of control/recovery, that includes the Include a description of the control/recovery, that includes the following: A description of the need for mine any proposed following: proposed dewatering pump test, if A description of the need for the operation, dewatering. pollution control or recovery operation.

The estimated maximum period of ☐ The estimated duration of ☐ The estimated maximum period of time applicable. for completion of the operation. the operation, ☐ The source(s) of the water to be diverted.
☐ The geohydrologic characteristics of the time for completion of the operation. ☐ The maximum amount of ☐ The annual diversion amount.☐ The annual consumptive use water to be diverted. A description of the need aquifer(s). for the dewatering operation, ☐The maximum amount of water to be amount. diverted per annum. ☐ The maximum amount of water to be diverted and injected for the duration of ☐The maximum amount of water to be A description of how the the operation. diverted water will be disposed diverted for the duration of the operation. The method and place of discharge. The quality of the water. Monitoring: ☐ The method of measurement of Geo-Thermal: ☐ The method of measurement of water water produced and discharged. Include the Include a description of the diverted. ☐ The source of water to be injected. ☐The recharge of water to the aquifer. reason for the geothermal heat exchange The method of measurement of project. Description of the estimated area of monitoring water injected. hydrologic effect of the project. ☐ The amount of water to be well, and, ☐ The characteristics of the aquifer.☐ The method of determining the diverted and re-injected for the The method and place of discharge. ☐ The project. duration An estimation of the effects on surface resulting annual consumptive use of ☐ The time frame for water rights and underground water rights of the planned monitorina. water and depletion from any related from the mine dewatering project. constructing the geothermal stream system. heat exchange project, and, A description of the methods employed to Proof of any permit required from the The duration of the project. estimate effects on surface water rights and New Mexico Environment Department. Preliminary surveys, design underground water rights. An access agreement if the data, and additional Information on existing wells, rivers. applicant is not the owner of the land on information shall be included to springs, and wetlands within the area of which the pollution plume control or hydrologic effect. provide all essential facts recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal Hi-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. **Applicant Signature ACTION OF THE STATE ENGINEER** This application is: X approved partially approved ☐ denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 12th day of November 20 13 , for the State Engineer. A. Verhines, P.E. State Engineer Charles L. Jackson, MPA District 3 Manager Print Application for Permit, Form wr-07 FOR OSE INTERNAL USE File Number: A - 7.98-MON POD 7

Page 3 of 3

Trn Number:



### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

David Janney

November 25, 2013

FILE: A-799

Lightning Dock Geothermal, HI-01, LLC c/o Mike Gipson or Kacie Peterson P.O. Box 86

8519 Jefferson NE Albuquerque, N.M. 87113

Animas, N.M. 88020

Greetings:

Enclosed is your copy of Monitor Well Permit A-799, which has been approved.

Your attention is called to the Conditions of Approval under permit A-799-MON-POD1, which states as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for a monitor well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within the state, subject to the following conditions:

- 1. Well A-799-MON POD-1 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-799-MON POD-1 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-799-MON POD-1 shall not exceed 600 feet.
- 4. PVC casing set using any cement grout is subject to collapse and/or deformation due to column weight and heat of hydration of the curing cement. Casing manufacturer should be consulted to establish the timing and placement of safe intervals of annular sealant.
- 5. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 6. No appropriation of water shall be made from well A-799-MON POD-1. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 7. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 8. Well record shall be filed on or before November 30, 2014.

Sincerely,

Charles L. Jackson, MPA

District & Managery
By: We Well,

Martin McMillan

Animas Basin Manager

MM:pg

Cc: State Engineer

| File No. | - 199 | MON |
|----------|-------|-----|
|----------|-------|-----|



#### **NEW MEXICO OFFICE OF THE STATE ENGINEER**

### APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER



(check applicable box):

|   | For fees, see State Engineer w                   | rebsite: http://www.ose.state.nm.us/   | -20044 450            |
|---|--|--|-----------------------|
| Purpose:  | ☐ Pollution Control And / Or Recover             |  |                       |
| ☐ Exploratory   | ☐ Construction Site De-Watering                  | Other (Describe):                      |                       |
| Monitoring  | ☐ Mineral De-Watering                            |  |                       |
| A separate permit wi                                    | Il be required to apply water to beneficial use. |  |                       |
| ☐ Temporary Requ  | est - Requested Start Date:                      | Requested End [                        | Date:                 |
| Plugging Plan of Ope                                    | erations Submitted?  Yes  No                     |  |                       |
|   |  |  |                       |
| Name: Lightning Do Contact or Agent: Mike Gipson or Kad | check here if Agent  check here if Agent         | Name:  Contact or Agent:  David Janney | check here if Agent 🔯 |
| Mailing Address: PO                                     | Box 86   | Mailing Address: 8519 Jefferso         | n NE                  |
| City: Animas  |  | City: Albuquerque                      |                       |
| Oity. Allimas   |  |  |                       |
|   | Zip Code: 88020                                  | State: NM                              | Zip Code: 87113       |
| State: NM Phone:  | ☐ Home ☐ Cell                                    | Phone:                                 | . SIO ==              |
| State: NM Phone: Phone (Work): 575.                     | ☐ Home ☐ Cell<br>548.0301                        |  |                       |
| State: NM Phone: Phone (Work): 575.                     | ☐ Home ☐ Cell                                    | Phone:                                 | Home Deal So          |

| FOR OSE INTERNAL USE          | Application for Permit, Form wr-07, Rev 8/25/1 |  |  |
|-------------------------------|--|--|--|
| File Number: 4-799 Way Pod-1  | Tm Number:                                     |  |  |
| Trans Description (optional): |  |  |  |
| Sub-Basin: Auima5             |  |  |  |
| PCW/LOG Due Date:             |  |  |  |

| 2. | WELL | (8) | Describe th | e well(s) | applicable to this application. |
|----|------|-----|-------------|-----------|---------------------------------|
|----|------|-----|-------------|-----------|---------------------------------|

| Location Required: Coordin<br>(Lat/Long - WGS84)  | ate location must be  | e reported in NM S  | itate Plane (NAD 83), UTM (NAD 83), <u>or</u> Latitude/  | Longitude  |
|---|---|---|--|--|
| ☐ NM State Plane (NAD83) ☐ NM West Zone ☐ NM East Zone ☐ NM Central Zone  |   | JTM (NAD83) (Mete<br>]Zone 12N<br>]Zone 13N                                       | ers)   | e nearest  |
| Well Number (if known):   | X or Easting or<br>Latitude:  | Y or Northing<br>or Longitude:  | Optional: Complete boxes labeled "Other" by PLSS (Public Land Survey System, i.e. Quarte Township, Range); Hydrographic Survey Map Block & Subdivision; OR Land Grant Name if  | ers, Section,<br>& Tract; Lot,                           |
| LDG IW  | 32° 8' 40"  | -108° 50' 18"   | Section 7, Township 25 S, Range 19 W   |  |
|   | 39.46"  | 13.37"  |  |  |
|   |   |   |  |  |
|   |   |   |  |  |
|   |   |   |  |  |
|   |   |   |  |  |
|   |   |   | WR-08 (Attachment 1 – POD Descriptions)  | C.   |
| Additional well descriptions  |   |   | if yes, how many   | 35   |
| Other description relating well   | to common landman   | ks, streets, or other   | ATE OF THE PROPERTY OF THE PRO | <u>-</u>   |
| Well is on land owned by: Lig   | htning Dock Geothe  | rmal HI-01, LLC a   | nd Rosette Inc. $\frac{1}{2}$  | 2  |
| Well information: NOTE: if n  | nore than one (1) we<br>—   | ell needs to be des   | cribed, provide attachment. Attached?  |  |
| Approximate depth of well (fee  | et): 85.00  | (   | Outside diameter of well casing (inches): 2.25   | 2  |
| Driller Name: Rodgers & Co.,  | Inc.  |   | Oriller License Number: 225  |  |
| . ADDITIONAL STATEMENTS   |   |   |  |  |
| logged in the field. The moni<br>0.020 continuous slot screen<br>existing grade. 585 of blank ovia tremie pipe to a minimum | toring well will cons<br>will be installed fro<br>casing will be install<br>of 3 feet above the | ist of 2-inch diam<br>on approximately<br>led above the scre<br>screen section. A | o approximately 600 feet. The borehole geology<br>eter Schedule 80 PVC rated for geothermal use.<br>800 feet below existing grade to approximately then section. A 10/20 silica sand filter pack will be<br>minimum 3-foot think pure bentonite plug will be<br>ore will be pressure-grouted from the bottom of  | 15 feet of<br>585 feet below<br>le emplaced<br>be placed |
|   |   |   |  |  |

FOR OSE INTERNAL USE

File Number:

Application for Permit, Form wr-07

Trn Number:

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application: Pollution Control and/or Recovery: Construction Mine De-Watering: Exploratory: ☐ include a ☐ Include a plan for pollution De-Watering: Include a plan for poliution control/recovery, that includes the following: description of control/recovery, that includes the ☐ Include a description of the ☐ A description of the need for mine proposed dewatering any proposed following: pump test, if operation. dewatering. A description of the need for the applicable. pollution control or recovery operation. The estimated duration of ☐ The estimated maximum period of time The estimated maximum period of for completion of the operation. the operation. ☐ The source(s) of the water to be diverted. time for completion of the operation. ☐ The maximum amount of The geohydrologic characteristics of the ☐ The annual diversion amount. water to be diverted. ☐ A description of the need aquifer(s). ☐ The annual consumptive use amount. for the dewatering operation, The maximum amount of water to be The maximum amount of water to be diverted per annum. diverted and injected for the duration of ☐ A description of how the ☐The maximum amount of water to be diverted water will be disposed diverted for the duration of the operation. the operation. ☐ The quality of the water. ☐ The method and place of discharge. of. ☐ The method of measurement of **Monitoring:** ☐The method of measurement of water Geo-Thermal: water produced and discharged. Include a description of the diverted. Include the ☐ The source of water to be injected. ☐The recharge of water to the aquifer. reason for the geothermal heat exchange Description of the estimated area of ☐ The method of measurement of monitoring project, hydrologic effect of the project. water injected. The amount of water to be well, and, The method and place of discharge. ☐ The ☐ The characteristics of the aquifer. diverted and re-injected for the An estimation of the effects on surface ☐ The method of determining the project. duration resulting annual consumptive use of water rights and underground water rights of the planned ☐ The time frame for water and depletion from any related from the mine dewatering project. monitoring. constructing the geothermal A description of the methods employed to stream system. heat exchange project, and, Proof of any permit required from the ☑ The duration of the project. estimate effects on surface water rights and Preliminary surveys, design underground water rights. New Mexico Environment Department. ☐Information on existing wells, rivers, ☐ An access agreement if the data, and additional applicant is not the owner of the land on springs, and wetlands within the area of information shall be included to which the pollution plume control or provide all essential facts hydrologic effect. recovery well is to be located. relating to the request. **ACKNOWLEDGEMENT** I, We (name of applicant(s)), Mike Gipson or Kacie Peterson, Lightning Dock Geothermal HI-01, LLC Print Name(s) affirm that the foregoing statements are true to the best of (my, our) knowledge and belief. Applicant Signature **ACTION OF THE STATE ENGINEER** This application is: approved partially approved ☐ denied provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval. Witness my hand and seal this 25th day of November 20 13 , for the State Engineer, Verhimes, P.E. , State Engineer Charles L. Jackson, MPA Title: District 3 Manager Application for Permit, Form wr-07 FOR OSE INTERNAL USE

File Number:

Tm Number:

#### ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

FILE:

A-799

APPLICATION: A-799-MON

APPLICANTS:

Lightning Dock Geothermal, HI-01, LLC

- 1. Well A-799-MON POD-1 shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-1 New Mexico Statutes Annotated.
- 2. The casing of well A-799-MON POD-1 shall not exceed 2.25 inches outside diameter.
- 3. The depth of the well A-799-MON POD-1 shall not exceed 600 feet.
- 4. PVC casing set using any cement grout is subject to collapse and/or deformation due to column weight and heat of hydration of the curing cement. Casing manufacturer should be consulted to establish the timing and placement of safe intervals of annular sealant.
- 5. Well record shall be filed with the District 3 Office of the State Engineer within 20 days after completion of the well. Failure to timely file the well record shall result in cancellation of this permit.
- 6. No appropriation of water shall be made from well A-799-MON POD-1. The well shall be for monitoring purposes only, unless and until a permit for a specific use has been issued by the State Engineer.
- 7. The State Engineer retains jurisdiction to administer the conditions of this permit.
- 8. Well record shall be filed on or before November 30, 2014.

Witness my hand and seal this 25th day of November, 2013.

Scott A Verhines, P.E.,

ackson, MPA

District 3 Manager

#### **BOREHOLE LOG MW-1A**



| Project Number 11-517-00102.06  Field Geologist E. Koenig  Drilling Contractor Rodgers & Co., Inc.                               | Start Date 11/18/2013 Formation of Completion Alluvium Borehole Diameter 8 inches | Surface Completion Stickup  Completed 11/18/2013  Filter Pack 57 - 85 feet  Screened Interval 60 - 85 feet |  |
|--|---|--|--|
| Driller John Tanner  Drilling Method Hollow Stem Auger 8" Elevation TOC 4203.94 ft above MSL  Elevation Pad 4202.83 ft above MSL | N (ft) 417894  Static Water Level (BGS/Elev.                                      | E (ft) 2412787  MSL) 4136.39 ft above MSL  |  |

| Depth<br>(ft)       | Well Diagram                            | Graphic<br>Log | Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fall<br>frop hamme | Material Description  | Elev.<br>(ft)                | Remarks                |
|---------------------|---|----------------|--------------------|---|---|------------------------------|------------------------|
| 5-<br>10-<br>15-    |   |                |                    | 18  | Silty Sand, fine to medium grained, non-plastic,gray brown, dry.  Clayey Sand with Gravel, predominantly medium grained, trace coarse sand, medium plasticity, moist, brown; gravel predominantly 1/2 inch. | 4198<br>4198<br>4193<br>4188 |                        |
| 20-                 |   |                | $\times$           | 11  | Silty Clay, low plasticity, moist, gray brown.  | 4183                         |                        |
| 25                  | -2 inch schedule                        |                |                    |   | Clayey Sand With Gravel,<br>predominantly fine- to medium<br>grained, medium plasticity.  | 4178                         | Very moist at ~30 feet |
| 30-                 | 80 CPVC casing; Cement grout            |                | $\times$           | 5   | gramed, mediam plasticity.  | 4173                         |                        |
| 35-<br>-<br>40-     |   |                | ×                  | 30  | Clay with Sand with Gravel, medium plasticity, moist, brown.  | 4168                         |                        |
| 45 –<br>50 –        |   |                | ><                 | 66  | Clayey Sand, predominantly medium grained, medium plasticity, gray brown.   | 4158 -<br>4153 -             |                        |
| 55-                 | - 3/8 inch coated bentonite pellets     |                |                    |   | Sand with Silt with Gravel, poorly graded, medium grained, moist, brown; gravel up to 3/4 inch, angular.  | 4148                         |                        |
| 60−<br><u>√</u> 65− | -10/20 Silica<br>sand                   |                | <b>&gt;</b>        | 37  | Clayey Sand with Gravel,<br>predominantly fine to medium<br>grained, medium plasticity,<br>moist, gray brown; gravel  | 4143<br>4 <u>¥</u> 38        |                        |
| 70-                 | -0.020 Slotted                          |                |                    |   | predominantly ~1/2 inch, subangular, ranging up to 3/4 inch.  | 4133                         |                        |
| 75                  | well screen  - Slough, flowing          |                |                    |   | Bottom 5-10 feet contains sandy layers and flowing sands.   | 4128                         |                        |
| 80-                 | sands<br>(estimated from<br>sand usage) |                |                    |   |   | 4123                         |                        |
| 85<br>-<br>-        | K X K X                                 |                |                    |   | Total Depth = 85 ft   | 4118                         |                        |

**SAMPLE TYPE LEGEND** 





#### **BOREHOLE LOG MW-1B**



| Field Geologist E. Koenig   | Type of Completion Monitoring Well Start Date 11/19/2013 Formation of Completion Alluvium Borehole Diameter 8 inches | Surface Completion Stickup  Completed 11/19/2013  Filter Pack 57 - 85 feet  Screened Interval 60 - 85 feet |
|---|--|--|
| Drilling Contractor Rodgers & Co., Inc.  Driller John Tanner            | Borehole Diameter Billenes   | Screened Interval  |
| Drilling Method Hollow Stem Auger 8" Elevation TOC 4203.00 ft above MSL | N (ft)   | E (ft)   |
| Elevation Pad 4202.00 ft above MSL                                      | ▼ Static Water Level (BGS/Elev. I  | MSL)   |

| Depth<br>(ft) | Well Diagram                               | Graphic<br>Log | Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fall<br>frop hamme | Material Description  | Elev.<br>(ft)                                | Remarks               |
|---------------|--|----------------|--------------------|---|---|--|-----------------------|
| 5-            |  |                |                    |   | Silty Clayey Sand, fine to medium grained, low plasticity, brown, trace gravel.  Clayey Sand, predominantly | 4202   |                       |
| 10-           |  |                | $\times$           | 18  | medium grained, medium plasticity, moist, brown.  | 4192   |                       |
| 15 -<br>20 -  |  |                |                    | 18  |   | 4187   |                       |
| 25 -          |  |                |                    | 10  | Clayey Sand with Gravel;  | 4177   |                       |
| 30-           | - Cement Grout - 2 inch schedule 80 CPVC   |                | $\geq$             | 6   | gravel subangular, ~1/2 inch  Clay, medium plasticity, very moist, brown.                                   | 4172   | Very moist zone.      |
| 35-           | casing                                     |                |                    |   | Clayey Sand, medium grained, — medium plasticity, moist, gray   | 4167   |                       |
| 40-<br>45-    |  |                | $\geq$             | 47  | brown. Silty Clayey Sand,   | 4162   |                       |
| <b>5</b> 0-   |  |                |                    | 77  | predominantly coarse, low plasticity, moist, gray brown.  Clayey Sand, predominantly                        | 4157 4152 4152 4152 4152 4152 4152 4152 4152 |                       |
| 55-           | - 3/8 inch coated                          |                |                    |   | medium grained, medium plasticity, moist, gray brown.   | 4147   |                       |
| 60            | bentonite pellets                          |                |                    |   | Clayey Sand with Gravel; gravel predominantly ~1/2 inch ranging up to 3/4 inch,                             | 4142   | Very moist at~65 feet |
| 65-           | - 10/20 silica                             |                | <b>&gt;</b>        | 42  | \subangular.  Clay, medium plasticity, very moist, gray brown.  | 4137   |                       |
| 70-<br>75-    | sand -0.020 Slotted well screen            |                |                    |   | Trace Gravel below ~72 feet.  | 4132   | Wet                   |
| 75-<br>80-    |  |                |                    |   | Clay with Sand, medium plasticity, trace gravel, wet to supersaturated. Flowing sands                       | 4127   | vvet                  |
| 85-           | - Slough and flowing sands (estimated from |                |                    |   | at bottom of hole.  Total Depth = 85 ft   | 4117   |                       |
| :             | sand usage)                                |                |                    |   | τοιαι σοριτι – σο π   | -  |                       |

**SAMPLE TYPE LEGEND** 



Auger Cuttings Sample



#### BOREHOLE LOG MW-2



| ClientLightning Dock Geothermal HI-01, L |                                  | Surface Completion Stickup    |   |
|--|----------------------------------|-------------------------------|---|
| Project Number 11-517-00102.06           | Start Date 11/14/2013            | Completed11/14/2013           |   |
| Field GeologistE. Koenig                 | Formation of Completion Alluvium | Filter Pack 52 - 80 feet      | _ |
| Drilling Contractor Rodgers & Co., Inc.  | Borehole Diameter 8 inches       | Screened Interval55 - 80 feet |   |
| Driller John Tanner                      |                                  |                               |   |
| Drilling Method Hollow Stem Auger 8"     | N (ft) 419017                    | E (ft) 2412933                |   |
| Elevation TOC 4205.00 ft above MSL       | · ,                              | ` '                           |   |
| Elevation Pad 4204.15 ft above MSL       | Static Water Level (BGS/Elev.    | MSL) 4135.15 ft above MSL     |   |

| Depth<br>(ft)  | Well Diagram   | Graphic<br>Log<br>Sample | Interval Blows/ft. 140 lb. 30" free-fall drop hamme | Material Description   | Elev.<br>(ft)                                     | Remarks                  |
|--|--|--------------------------|---|--|---|--------------------------|
| 5- 10- 15- 20- 25- 30- 35- 40- 45- 50- 55- 60- 70- 75- 80- 85- | - 3/8 inch coated bentonite pellets  - 10/20 silica sand 0.020 Slotted well screen |                          |   | Clayey Sand With Gravel, predominantly fine to medium grained, medium plasticity, damp, gray brown; gravel up to 3/4 inch, angular.  Silty Clayey Sand, fine to medium grained, low plasticity, moist, yellow gray brown; trace fine gravel up to 3/8 inch, subangular.  Occasional thin clayey horizons and gravel horizons.  Clayey Sand, predominantly medium grained with occasional coarse horizons, medium plasticity, brown.  Gravel horizon with trace caliche at ~39 feet; gravel up to 3/4 inch, subround to subangular.  Sand is coarse at 45 feet.  Clayey Gravel with Sand, poorly graded, ranging up to 1 inch, subround; medium plasticity, moist, gray brown.  Likely sandy intervals near bottom of boring. | 4199 4194 4189 4169 4164 4139 4134 4129 4124 4119 | Gravel horizon at 5 feet |

**SAMPLE TYPE LEGEND** 





#### **BOREHOLE LOG MW-3**



Client Lightning Dock Geothermal HI-01, LLC Type of Completion **Monitoring Well** Stickup Surface Completion Project Number \_\_\_\_11-517-00102.06 Start Date 11/15/2013 Completed \_\_\_\_11/15/2013 Filter Pack 52 - 80 feet Field Geologist E. Koenig Formation of Completion **Alluvium** Drilling Contractor Rodgers & Co., Inc. Screened Interval 55 - 80 feet Borehole Diameter 8 inches Driller John Tanner N (ft) 418962 Drilling Method Hollow Stem Auger 8" E (ft) 2413681 Elevation TOC 4211.08 ft above MSL 4210.26 ft above MSL ▼ Static Water Level (BGS/Elev. MSL) 4137.84 ft above MSL

| Depth<br>(ft)   | Well Diagram   | Graphic<br>Log<br>Sample<br>Interval | Blows/ff. 140 fb. 30" free-fall Top harmine Material Description  | Elev.<br>(ft) | Remarks |
|-----------------|--|--------------------------------------|---|---------------|---------|
| 5-<br>10-       |  | _                                    | Silty Clayey Sand with Gravel, predominantly fine to medium grained, trace coarse sand, low plasticity,damp, gray brown; gravel predominantly 1/2 inch, subangular. | 4200          |         |
| 15 <u>-</u>     |  |                                      | Clayey Sand with Gravel,<br>predominantly medium- to<br>coarse grained, medium  | 4195          |         |
| 20-<br>-<br>25- |  |                                      | plasticity, damp to moist; gravel 1/2-3/4 inch, subangular.   | 4190          |         |
| 30              | -2 inch schedule<br>80 CPVC<br>casing; Cement<br>grout |                                      |   | 4185          |         |
| 35              |  | _                                    | Subangular gravel horizon:<br>gravel up to 1 inch at 39 feet  | 4175          |         |
| 40              |  |                                      | BGS.  Gravel with Clay and Sand,  | 4170          |         |
| 45<br>50        | - 3/8 inch coated                                      |                                      | poorly graded, ranging up to 3/4 inch, angular; finer fraction medium grained sand and clay, medium plasticity, gray brown.   | 4165          |         |
| 55              | bentonite pellets                                      |                                      | Clayey Sand, medium- to coarse grained, medium plasticity, gray brown.  | 4155          |         |
| 60 -  <br>65 -  | - 10/20 silica   | 00                                   | Gravel with Clay and Sand, poorly graded, subangular, ranging up to 3/4 inch, subangular.   | 4150          |         |
| 70<br>▼         | sand<br>0.020 Slotted<br>well screen                   |                                      | Clayey Sand, predominantly medium grained, medium plasticity, moist, gray brown. Sandy horizons likely below 75   | 4140          |         |
| 80              |  |                                      | feet.  Sand with Silt, poorly graded, highly cemented, predominantly medium grained.  | 4130          |         |
| 85-             |  |                                      | Auger refusal at 80 feet.   | 4125          |         |

**SAMPLE TYPE LEGEND** 

Total Depth = 80 ft





#### BOREHOLE LOG MW-4



| Client Lightning Dock Geothermal HI-01, L | LC <sub>Type</sub> of Completion Monitoring Well | Surface Completion Stickup     |
|---|--|--------------------------------|
| Project Number11-517-00102.06             | Start Date11/13/2013                             | Completed 11/13/2013           |
| Field Geologist E. Koenig                 | Formation of Completion Alluvium                 | Filter Pack 52 - 80 feet       |
| Drilling Contractor Rodgers & Co., Inc.   | Borehole Diameter _ 8 inches                     | Screened Interval 55 - 80 feet |
| Driller John Tanner                       |  |                                |
| Drilling Method Hollow Stem Auger 8"      | N (ft) 419101                                    | E (ft)                         |
| Elevation TOC 4194.89 ft above MSL        | . ,  | ,                              |
| Elevation Pad 4193.54 ft above MSL        | Static Water Level (BGS/Elev.                    | MSL) 4127.21 ft above MSL      |

| Depth<br>(ft)  | Well Diagram   | Graphic<br>Log<br>Sample<br>Interval<br>Blows/ft.<br>140 lb. 30"<br>free-fall | Material Description   | Elev.<br>(ft)  | Remarks  |
|--|--|---|--|--|--|
| 5- 10- 15- 20- 25- 30- 35- 40- 45- 50- 55- 60- 75- 80- 85- | - 2 inch schedule 80 CPVC casing; Cement grout  - 3/8 inch coated bentonite pellets  - 10/20 silica sand 0.020 Slotted well screen |   | Clay with Sand, medium plasticity, windblown, dry, gray brown.  Silty Clayey Sand, medium grained, low PI, trace fine gravel ~3/8 inch.  Clayey Sand, fine- to medium grained, medium plasticity, moist, gray brown.  Traces of coarse sand and fine, angular gravel, ~3/8 inch.  Clayey Sand, medium- to coarse grained, medium plasticity, moist gray brown.  Bottom 5-10 feet likely contains sandy horizons. | 4189  4189  4184  4179  4174  4169  4164  4159  4144  4139  4144  4139  4114  4119  4114  4109 | Increasing in moisture at ~20 feet. Perched water at ~37 feet. |

**SAMPLE TYPE LEGEND** 

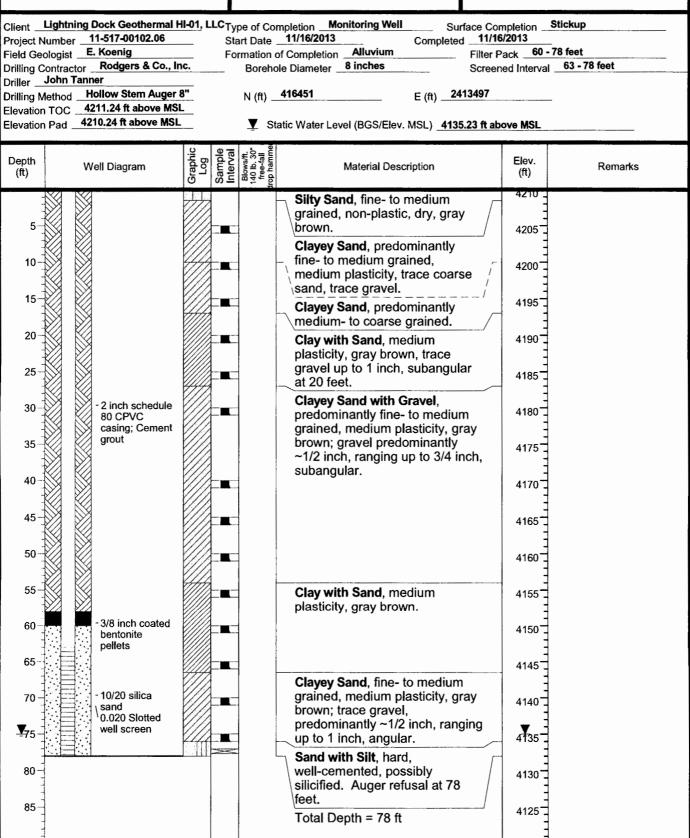


Auger Cuttings Sample



#### BOREHOLE LOG MW-5





SAMPLE TYPE LEGEND





#### **BOREHOLE LOG MW-6**



Client Lightning Dock Geothermal HI-01, LLC Type of Completion **Monitoring Well** Surface Completion Completed 11/17/2013 Stickup Project Number 11-517-00102.06 Start Date \_\_\_11/17/2013 Filter Pack 57 - 85 feet Alluvium Field Geologist E. Koenig Formation of Completion \_ Borehole Diameter 8 inches Screened Interval 60 - 85 feet Drilling Contractor Rodgers & Co., Inc. Driller John Tanner Drilling Method Hollow Stem Auger 8" N (ft) 416482 E (ft) \_\_2412309 Elevation TOC 4199.58 ft above MSL Elevation Pad 4197.90 ft above MSL ▼ Static Water Level (BGS/Elev. MSL) 4132.57 ft above MSL

| Depth<br>(ft)                                | Well Diagram   | Graphic<br>Log<br>Sample<br>Interval<br>140 lb. 30"<br>fee-fall<br>drop hamme | Material Description  | Elev.<br>(ft)  | Remarks                    |
|--|--|---|---|--|----------------------------|
| 5-<br>10-<br>15-<br>20-<br>25-<br>30-<br>35- | - 2 inch schedule<br>80 CPVC<br>casing; Cement<br>grout                            |   | Clay, windblown, medium plasticity, trace sand, dry, gray brown.  Clayey Sand, medium- to coarse grained, medium plasticity, damp to moist, gray brown.  Clay, medium plasticity, moist, brown.  Clayey Sand, fine- to medium grained, medium plasticity, moist, gray brown.  Clay with Sand, medium plasticity, moist, gray brown.  Clayey Sand, predominantly medium grained, medium plasticity, moist, gray brown. | 4198<br>4193<br>4188<br>4183<br>4178<br>4173<br>4168<br>4163 | Very moist at ~23 feet.    |
| 45   | - 3/8 inch coated bentonite pellets  - 10/20 silica sand 0.020 Slotted well screen |   | Trace fine gravel below ~60 feet, 1/4-3/8 inch, angular. Sandy horizons likely below 75 feet.   | 4153<br>4148<br>4143<br>4138<br>4138<br>4128<br>4128         | Very moist at ~68<br>feet. |
| 85-  |  |   | Total Depth = 85 ft   | 4113   |                            |

**SAMPLE TYPE LEGEND** 



**Auger Cuttings Sample** 



#### **BOREHOLE LOG INW-1**



| Client Lightning Dock Geothermal HI-01, LL |                                  | Surface Completion Stickup        |
|--|----------------------------------|-----------------------------------|
| Project Number 11-517-00102.06             | Start Date 12/3/2013             | Completed 12/3/2013               |
| Field Geologist E. Koenig                  | Formation of Completion Alluvium | Filter Pack <u>565 - 600 feet</u> |
| Drilling Contractor Rodgers & Co., Inc.    | Borehole Diameter 8 inches       | Screened Interval 570 - 590 feet  |
| Driller Art Baeza                          |                                  |                                   |
| Drilling Method Mud Rotary                 | N (ft) 417682                    | E (ft)                            |
| Elevation TOC 4199.58 ft above MSL         | , ,                              | . ,                               |
| Elevation Pad 4198.13 ft above MSL         | ▼ Static Water Level (BGS/Elev.) | MSL) 4121.22 ft above MSL         |

| Depth<br>(ft)   | Well Diagram | Graphic<br>Log<br>Sample<br>Interval<br>Blows/ft.<br>140 lb. 30"<br>free-fall | Material Description   | Elev.<br>(ft)  | Remarks                    |
|---|--------------|---|--|--|----------------------------|
| 5 - 10 - 15 - 20 - 25 - 30 - 40 - 45 - 50 - 55 - 55 - 55 - 55 - 5 |              |   | Alluvium: Clayey Sand, medium plasticity, sand predominantly coarse, mostly volcanics: ~60% Rhyolite ~20% Andesite or basalt ~20% Chert  Clay with Gravel, medium plasticity; gravel: mixed volcanics: rhyolite, andesite, and chert, some limonite staining and low grade greenish alteration.  Clayey Sand, predominantly medium grained, trace gravel: mixed volcanics, rhyolite and basalt/andesite; sand is subangular: quartz, feldspar, chert and mafics.  Clay and Clayey Sands, medium plasticity; trace gravel of mixed volcanics: rhyolite, maybe dacite and andesite, trace yellow jasper.  Clay, trace medium sand, medium plasticity, yellow gray brown. | 4193 - 4188 - 4183 - 4168 - 4168 - 4158 - 4148 - 4143 - 41 |                            |
| 60 –<br>65 –<br>70 –<br>75 –<br>80 –                              |              |   | Clayey Sand, predominantly fine grained, some medium grained horizons, medium plasticity, trace gravel, ~1/2 inch, subround, mostly dusky red and gray, rhyolitic with visible sanidine crystals.  Generally sandier and coarser with intermittent horizons of fine clayey sand.   | 4138<br>4133<br>4128<br>4128<br>4118<br>4118   | Gravelly zone at ~75 feet. |

SAMPLE TYPE LEGEND





#### BOREHOLE LOG INW-1



| Client Lightning Dock Geothermal HI-01, L | LCType of Completion Monitoring Well | Surface Completion Stickup       |
|---|--------------------------------------|----------------------------------|
| Project Number11-517-00102.06             | Start Date 12/3/2013                 | Completed 12/3/2013              |
| Field Geologist E. Koenig                 | Formation of Completion Alluvium     | Filter Pack Filter Pack          |
| Drilling Contractor Rodgers & Co., Inc.   | Borehole Diameter 8 inches           | Screened Interval 570 - 590 feet |
| Driller Art Baeza                         |                                      |                                  |
| Drilling Method Mud Rotary                | N (ft) 417682                        | E (ft)                           |
| Elevation TOC 4199.58 ft above MSL        | . ,                                  | • •                              |
| Elevation Pad 4198.13 ft above MSL        | ▼ Static Water Level (BGS/Elev.)     | MSL) 4121.22 ft above MSL        |

| Depth<br>(ft)  | Well Diagram | Graphic<br>Log<br>Sample<br>Interval<br>Blows/ft.<br>140 lb. 30"<br>ree-fall<br>drop hamal | Material Description  | Elev.<br>(ft) | Remarks |
|----------------|--------------|--|---|---------------|---------|
| 95             |              |  | Generally sandier and coarser with intermittent horizons of fine clayey sand.' Layer continued from previous page'        | 4108          |         |
| 100-           |              |  | Clay, medium plasticity, trace sand, gray brown.  | 4098          |         |
| 110            |              |  | Clayey Sand, fine- to medium grained, medium plasticity, trace  | 4088          |         |
| 115—<br>120—   |              |  | gravel ranging up to 1/2 inch, subround, mostly volcanics.  | 4083          |         |
| 125<br>130     |              |  |   | 4073          |         |
| 130-           |              |  | Sand with Silt with Gravel,<br>poorly graded, subangular,<br>medium- to coarse grained;<br>mixed volcanics including tan, | 4068 7        |         |
| 140 –<br>145 – |              |  | dusky red and gray rhyolites,<br>trace yellow jasper, basalt and<br>breccia.  | 4058          |         |
| 150-           |              | .00  | Increasing gravel with depth.  Occasional intervals of clayey sand.   | 4053 7        |         |
| 155<br>160     |              |  | Gravels with Sand, poorly graded, approximately 1/2-3/4 inch, mixed volcanics: tan and                                    | 4043          |         |
| 165            |              |  | dusky red rhyolite,<br>volcaniclastics, yellow gray<br>chert.   | 4033          |         |
| 170 -<br>175 - |              |  | Clayey Gravel with Sand   | 4028          |         |
| 175            |              |  |   | 4023          |         |

SAMPLE TYPE LEGEND



Auger Cuttings Sample



#### **BOREHOLE LOG INW-1**



| Client Lightning Dock Geothermal HI-01, LI Project Number 11-517-00102.06 Field Geologist E. Koenig Drilling Contractor Rodgers & Co., Inc. | Start Date 12/3/2013  Formation of Completion Alluvium  Borehole Diameter 8 inches | Surface Completion Stickup  Completed 12/3/2013  Filter Pack 565 - 600 feet  Screened Interval 570 - 590 feet |
|---|--|---|
| Driller Art Baeza  Drilling Method Mud Rotary  Elevation TOC 4199.58 ft above MSL  Elevation Pad 4198.13 ft above MSL                       | N (ft)417682<br>▼ Static Water Level (BGS/Elev.                                    | E (ft)  |

| Depth<br>(ft) | Well Diagram | Graphic<br>Log | Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fall<br>drop hamme | Material Description  | Elev.<br>(ft) | Remarks             |
|---------------|--------------|----------------|--------------------|---|---|---------------|---------------------|
| 185<br>       |              |                |                    |   | Sand, poorly graded, medium-<br>to coarse grained, subangular<br>highly cemented and far less<br>heterogeneous than previously<br>-mainly red-brown rhyolite. | 4018          |                     |
| 195           |              |                |                    |   | Clay with fine Sand, medium plasticity.   | 4008          |                     |
| 200           |              |                |                    |   | Sand with Gravel, poorly<br>graded, medium- to coarse<br>grained, subangular, primarily   | 3998          |                     |
| 210           |              |                |                    |   | red brown rhyolite, very hard and well cemented.  | 3993          |                     |
| 215<br>220    |              |                |                    |   |   | 3983          |                     |
| 225           |              |                |                    |   |   | 3973          |                     |
| 230           |              |                |                    | de la companie                                      | Clayey Sand with Gravel,<br>predominantly medium- to<br>coarse grained, medium  | 3968<br>3963  |                     |
| 240           |              |                |                    |   | plasticity, reddish brown. Fine-to medium grained, gray brown   | 3958          |                     |
| 245—<br>250—  |              |                |                    |   | Clay, medium plasticity,  | 3953          |                     |
| 255<br>260    |              |                |                    |   | greenish gray.  | 3943          |                     |
| 265           |              |                |                    |   |   | 3938          | Change from tricone |
| -             |              |                |                    |   |   |               | to PDC bit.         |

**SAMPLE TYPE LEGEND** 



Auger Cuttings Sample



#### **BOREHOLE LOG INW-1**



|               |               | Dock Geothermal H                                    | II-01 <u>,</u> L | LCTy               | pe of Co  |   | ompletion _   | Stickup                |
|---------------|---------------|--|------------------|--------------------|---|---|---------------|------------------------|
| Project N     |               | 1-517-00102.06                                       |                  | Sta                | art Date  | Completed   | 3/2013        | <u>-</u>               |
| Field Geo     | nogiat        | . Koenig   |                  | Fo                 | rmation   |   | Pack565       | - 600 feet             |
| Drilling C    | ontractor .   | Rodgers & Co., In                                    | IC.              |                    | Boreho  | ole Diameter 8 inches Scree                                       | ened Interva  | 570 - 590 feet         |
| Driller       | Art Baeza     |  |                  |                    |   |   |               |                        |
| Drilling M    |               | lud Rotary   |                  |                    | N (ft) _  | 417682 E (ft) 2412393   |               | _                      |
| Elevation     |               | 199.58 ft above MSI                                  | <u> </u>         |                    |   |   |               |                        |
| Elevation     | Pad41         | 98.13 ft above MSL                                   |                  |                    | ▼ St  | atic Water Level (BGS/Elev. MSL) 4121.22 ft a                     | bove MSL      |                        |
|               |               |  | ,                |                    |   |   |               |                        |
| Depth<br>(ft) | W             | 'el <b>l</b> Diagram                                 | Graphic<br>Log   | Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fall<br>frop hamme | Material Description  | Elev.<br>(ft) | Remarks                |
|               |               |  |                  |                    |   | Sand with Gravel, poorly  | 3928          | Change from tricone    |
|               |               |  |                  |                    |   | graded, medium- to coarse   | 1 1           | to PDC bit.            |
| 275 –         | $\otimes$     |  |                  |                    | 1   | grained, angular; gravel is                                       | 3923          |                        |
| _             |               |  |                  |                    |   | flattened and subround to   |               |                        |
| 280           | $\otimes$     |  |                  |                    |   | subangular, material mostly                                       |               |                        |
| 200           |               |  |                  |                    |   | volcanically derived: red brown,                                  | 3918          |                        |
| -             | $\otimes$     | <ul> <li>2 inch schedule</li> <li>80 CPVC</li> </ul> |                  |                    |   | gray and purplish gray rhyolites                                  |               |                        |
| 285 –         |               | casing; Cement                                       |                  |                    |   | with trace greenish alteration.                                   | 3913          |                        |
| -             | $\bowtie$     | grout  |                  |                    |   |   |               |                        |
| 290           |               |  |                  |                    |   | Very hard and well-cemented.'                                     |               |                        |
| 230           | $\bowtie$     |  |                  |                    |   | Layer continued from previous                                     | 3908          |                        |
| -             |               |  |                  |                    |   | page'   | 1 -           |                        |
| 295 –         | $\bowtie$     |  |                  |                    | 1   | Sand, angular, much easier to                                     | 3903          |                        |
| -             |               |  |                  |                    |   | drill through; change in lithology                                |               |                        |
| 300 -         | $\bowtie$     |  |                  |                    |   | to mostly quartz with only ~5%                                    | ]             |                        |
| 300 -         |               |  |                  |                    |   | volcanics. Some clayey  | 3898          |                        |
| 7             | $\bowtie$     |  |                  |                    | 1   | \horizons toward bottom of unit. /                                | 7             |                        |
| 305           |               |  |                  |                    |   | Clay, medium plasticity, bright                                   | 3893          |                        |
| 1             | $\bowtie$     |  |                  |                    |   | red brown, possibly weathered                                     | 0000          |                        |
|               |               |  |                  |                    |   | _ or hydrothermally altered                                       | 7             |                        |
| 310           | $\bowtie$     |  | 777777           |                    |   | rhyolite.   | 3888          |                        |
| 4             |               |  | 7777             |                    |   |   | 7 7           |                        |
| 315           | $\bowtie$     |  | 7777             |                    |   | Intermittent horizons of hard                                     | 3883          |                        |
| -             |               |  |                  |                    |   | sands.  | 3003          | Trip out and change    |
| 1             | $\bowtie$     |  |                  |                    |   | Clay, medium plasticity.  | 1             | back to tricone bit at |
| 320           |               |  |                  |                    |   | Hard sands  | 3878          | 320 feet BGS per       |
| 1             |               |  | 1///             |                    |   | Alternating Sandy and clayey                                      |               | Troy Richardson's      |
| 325           | $\bowtie$     |  | 14               |                    |   | layers.   | 3873          | instructions. Material |
| -             |               |  | 000              |                    |   |   | 3073          | on PDC bit was         |
| 200           | $\bowtie$     |  | Poo              |                    |   | Gravel, poorly graded, ranging                                    | 1             | brown clay and         |
| 330           |               |  | 60 C             | $\mathbb{H}$       |   | up to 1 inch, flattened and                                       | 3868          | purplish gray pumice.  |
| -             | $\otimes$     |  | 10°              |                    |   | subround , mostly volcanics: red<br>brown and gray rhyolites with |               |                        |
| 335           |               |  | 100              |                    |   | visible sanidine crystals, trace                                  | 3863          |                        |
| 7             | $\otimes$     |  | 000              |                    |   | quartz grains and slight trace                                    | 3003          |                        |
|               | $\mathcal{M}$ |  | 20.0             |                    | }   | grains with either greenish                                       | 1             |                        |
| 340 –         | $\otimes$     |  | 6ŏ C             |                    |   | alteration or olivine content.                                    | 3858          |                        |
| 1             |               |  | 100°             |                    |   | '   | 1             |                        |
| 345           | $\otimes$     |  | 100              | HH                 |   | Occasional clay or clayey sand                                    | 3853          |                        |
|               |               |  | 600              |                    | 1   | horizons below 335 feet.  | 3003          |                        |
| =             | %             |  | 50%              |                    |   |   |               |                        |
| 350           |               |  | يكير             |                    |   | Grading sandier with depth.                                       | 3848          |                        |
| 4             | W W           |  | 10°C             |                    | 1   | Grading Sandier with deptil.                                      |               |                        |
| 355           |               |  | 000              | Ш                  |   |   | 2042          |                        |
|               | W W           |  | 000              |                    | 1   |   | 3843          |                        |
| -             |               |  |                  |                    |   |   | _ =           |                        |

**SAMPLE TYPE LEGEND** 





#### **BOREHOLE LOG INW-1**



| Project Number<br>Field Geologist | 11-517-00102.06<br>E. Koenig<br>Rodgers & Co., In | Start Date 12/3/ Formation of Completic Borehole Diar | 2013 Com                   | Surface Completion   | - 600 feet |
|-----------------------------------|---|---|----------------------------|----------------------|------------|
| Drilling Method                   | Mud Rotary<br>4199.58 ft above MSL                | N (ft) <b>41768</b>                                   | 2 E (ft)                   | 2412393              |            |
| Elevation Pad4                    | 198.13 ft above MSL                               | Static Wa   | ater Level (BGS/Elev. MSL) | 4121.22 ft above MSL |            |
| Depth                             | Well Diagram                                      | aphic og mple erval ws/ft. Ib. 30" e-fall namme       | Material Description       | Elev.                | Remarks    |

| Depth<br>(ft) | Well Diagram | Graphic<br>Log | Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fall<br>frop hamme | Material Description  | Elev.<br>(ft) | Remarks |
|---------------|--------------|----------------|--------------------|---|---|---------------|---------|
| 465           |              |                |                    |   | Sand, poorly graded, mediumto coarse grained, mostly quartz and volcanics: brown and red brown rhyolite, trace more mafic material, slight trace limonite coated grains, greenish alteration in a few grains.  Clay with Gravel, high plasticity, gray.  Sand with very fine gravel, poorly graded, mediumto coarse grained, angular: quartz and volcanics with slight trace clay shale fragments.  Gravel, size unknown, mixed volcanics with slight trace blue gray clay shale fragments.  Sand, poorly graded, mediumto coarse grained, subangular, quartz and mixed volcanics, slight trace clay shale fragments. | 3748          |         |

SAMPLE TYPE LEGEND



Auger Cuttings Sample



#### **BOREHOLE LOG INW-1**



Client Lightning Dock Geothermal HI-01, LLC Type of Completion **Monitoring Well** Stickup Surface Completion \_ Completed 12/3/2013 Project Number \_\_\_\_11-517-00102.06 Start Date 12/3/2013 Filter Pack \_\_565 - 600 feet Alluvium Field Geologist E. Koenig Formation of Completion \_ Borehole Diameter 8 inches Screened Interval 570 - 590 feet Rodgers & Co., Inc. Drilling Contractor \_ Driller Art Baeza N (ft) 417682 E (ft) 2412393 Drilling Method Mud Rotary Elevation TOC 4199.58 ft above MSL Elevation Pad 4198.13 ft above MSL ▼ Static Water Level (BGS/Elev. MSL) 4121.22 ft above MSL

| Depth<br>(ft) | Well Diagram                | Graphic<br>Log<br>Sample<br>Interval | Blows/ft.<br>140 lb. 30"<br>free-fall<br>drop hamme | Material Description   | Elev.<br>(ft) | Remarks |
|---------------|-----------------------------|--------------------------------------|---|--|---------------|---------|
| 545           |                             |                                      |   | Sand, poorly graded, medium-<br>to coarse grained, subangular,<br>quartz and mixed volcanics,<br>slight trace clay shale | 3653          |         |
| 550           |                             |                                      |   | fragments.' Layer continued from previous page'  | 3648          |         |
| 555           |                             |                                      |   | Grading to coarse grained.   | 3643          |         |
| 560           |                             |                                      |   |  | 3638          |         |
| 565           | - 3/8 inch coated bentonite |                                      |   |  | 3633          |         |
| 570           | pellets                     |                                      |   |  | 3628          |         |
| 575           |                             |                                      |   |  | 3623          |         |
| 580           | -0.020 Slotted well screen  |                                      |   | Some gravel, round to subround,  | 3618          |         |
| 585           | 10/20 Silica<br>sand        |                                      |   | ~1/2 inch, rhyolite.   | 3613          |         |
| 590           |                             |                                      |   |  | 3608          |         |
| 595 -         | - Blank Casing              |                                      |   |  | 3603          |         |
| 600           | (Sump)                      |                                      |   | Total Depth = 600 ft   | 3598          |         |
| 605           |                             |                                      |   | •  | 3593          |         |
| 610-          |                             |                                      |   |  | 3588          |         |
| 615           |                             |                                      |   |  | 3583          |         |
| 620           |                             |                                      |   |  | 3578          |         |
| 625           |                             |                                      |   |  | 3573          |         |
|               |                             |                                      |   |  | =             |         |

**SAMPLE TYPE LEGEND** 



**Auger Cuttings Sample** 



## Summary of Production Injection Well Analytical Results Lightning Dock Geothermal HI-01, LLC - Hidaigo County, New Mexico TABLE 1

|   |                            | Well ID<br>Fluid Type | LDG 45-7<br>Single Phase      | LDG 45-7<br>Single Phase Fluid | LDG 45-7<br>Flashed Fluid | LDG 45-7<br>Single Phase Fluid | LDG 45-7<br>Total Fluid | LDG 53-7<br>Single Phase Fluid<br>1312666 | LDG 53-7<br>Single Phase Fluid<br>16082-3 | LDG 55-7<br>Single Phase Fluid | LDG 55-7<br>Flashed Fluid | LDG 55-7<br>Total Fluid | LDG 55-7<br>Flashed Fluid | LDG 55-7<br>Total Fluid | LDG 63-7<br>Single Phase Fluid   |                   |
|---|----------------------------|-----------------------|-------------------------------|--------------------------------|---------------------------|--------------------------------|-------------------------|---|---|--------------------------------|---------------------------|-------------------------|---------------------------|-------------------------|----------------------------------|-------------------|
|   | NMAC 20.6.2                | Sample ID             | 1312A59-001<br>12/19/2013     | 1/26/12                        | 1/26/12                   | LDG 45-7<br>12/8/11            | 1/26/12                 | 12/13/13                                  | 1/26/12                                   | 1312055-001                    | 14949-1<br>8/5/10         | 14949-1<br>8/5/10       | 14949-2<br>8/5/10         | 14949-2<br>8/5/10       | 1312A59-002<br>12/20/13          | WW63-7<br>8/28/12 |
|   | Standard                   | Sample Date           | 12/19/2013                    | 1/20/12                        | 1/20/12                   | 11/0/11                        | 1/26/12                 | 1413/13                                   | 2/20/12                                   | 142713                         | 8/3/10                    | 8/3/10                  | 6/5/10                    | 8/3/10                  | 12/20/13                         | 9/20/12           |
| Analyte   | Dissolved<br>Concentration |                       |                               |                                |                           |                                |                         |   |   |                                |                           |                         |                           |                         |                                  |                   |
| Arsenic (As)  | 0.1 mg/l                   |                       | 0.012                         | 0.018                          | 0.015                     | 0.0098                         | 0.014                   | ND  | 0.016                                     | 0.0074                         | 0.02                      | 0.019                   | 0.018                     | 0.017                   | 3.2                              | 0.056*            |
| Barium (Ba)   | 1.0 mg/l                   |                       | 0.065                         | 0.076                          | 0.061                     | 0.054                          | 0.05861                 | 0.038                                     | 0.042                                     | 0.094                          | 0.071                     | 0.071                   | 0.068                     | 0.05                    | 0.051                            | 0.014*            |
| Cadmium (Cd)  | 0.01 mg/l                  |                       | ND                            | NA                             | NA                        | ND                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| Chromium (Cr)   | 0.05 mg/l                  |                       | NA                            | NA                             | NA                        | ND                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | NA                               | NA                |
| Cyanide (CN)  | 0.2 mg/l                   |                       | ND                            | NA                             | NA 11.6                   | ND 10                          | NA                      | ND 1.4                                    | NA 11.6                                   | NA OF                          | NA                        | NA 10.2                 | NA O O O                  | NA NA                   | ND                               | NA 14.2           |
| Fluoride (F)  | 1.6 mg/l<br>0.05 mg/l      |                       | 14<br>ND                      | 11.1<br>NA                     | 11.6<br>NA                | 10<br>ND                       | NA NA                   | 1.4<br>ND                                 | 11.6<br>NA                                | 9.5<br>ND                      | 10.8<br>NA                | 10.3<br>NA              | 9.37<br>NA                | 8.93<br>NA              | 0.0011                           | 14.2<br>NA        |
| 7 Lead (Pb)<br>8 Total Mercury (Hg)   | 0.002 mg/l                 |                       | ND                            | NA NA                          | NA NA                     | ND                             | NA<br>NA                | ND  | NA NA                                     | ND                             | NA NA                     | NA NA                   | NA NA                     | NA NA                   | ND ND                            | NA NA             |
| Nitrate (NO <sub>3</sub> as N)  | 10.0 mg/l                  |                       | ND                            | NA NA                          | NA                        | ND                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | <0.500            |
| 0 Selenium (Se)   | 0.05 mg/l                  |                       | 0.0017                        | NA                             | NA                        | 0.0034                         | NA                      | NA  | NA  | 0.0038                         | NA                        | NA                      | NA                        | NA                      | 0.0021                           | NA                |
| 1 Silver (Ag)   | 0.05 mg/l                  |                       | ND                            | NA                             | NA                        | ND                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| 2 Uranium (U)   | 0.03 mg/l                  |                       | ND                            | NA                             | NA                        | ND                             | NA                      | ND  | NA NA                                     | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| Radioactivity: Radium (Ra 226)  | 30 pCi/L                   |                       | 6.49 ± 1.35 (0.367)           | NA                             | NA                        | NA                             | NA                      | 0.166 ± 0.380 (0.225)                     | NA NA                                     | NA NA                          | NA                        | NA                      | NA                        | NA                      | -0.220 ± 0.306 (0.775)           | NA                |
| 4 Radioactivity: Radium (Ra 228) 5 Radionuclides: Radon 222                                       | 30 pCi/L                   |                       | 0.522 ± 0.331 (0.614)<br>2560 | NA<br>NA                       | NA<br>NA                  | NA<br>NA                       | NA<br>NA                | 0.414 ± 0.460 (0.931)<br>-67.8 U          | NA<br>NA                                  | NA<br>NA                       | NA<br>NA                  | NA<br>NA                | NA<br>NA                  | NA<br>NA                | 0.0100 ± 0.365 (0.847)<br>78.6 U | NA<br>NA          |
| 6 Benzene   | None<br>1.0 ug/l           |                       | ND ND                         | NA<br>NA                       | NA<br>NA                  | NA<br>NA                       | NA<br>NA                | -67.8 U                                   | NA<br>NA                                  | 1.8                            | NA<br>NA                  | NA<br>NA                | NA<br>NA                  | NA<br>NA                | 48                               | NA<br>NA          |
| 7 Polychlorinated biphenyls (PCB's)   | 1.0 ug/l                   |                       | ND                            | NA NA                          | NA NA                     | NA NA                          | NA NA                   | ND  | NA NA                                     | ND                             | NA NA                     | NA NA                   | NA NA                     | NA NA                   | ND                               | NA                |
| 8 Toluene   | 750 ug/l                   |                       | ND                            | NA                             | NA                        | NA                             | NA                      | ND  | NA  | 3.4                            | NA                        | NA                      | NA                        | NA                      | 2                                | NA                |
| 9 Carbon Tetrachloride  | 10 ug/l                    |                       | ND                            | NA                             | NA                        | NA                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| 0 1,2-dichloroethane (EDC)  | 10 ug/l                    |                       | ND                            | NA                             | NA                        | NA                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| 1 1,1-dichloroethene (1,1-DCE)  | 5 ug/l                     |                       | ND                            | NA                             | NA                        | NA                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| 2 1,1,2,2-tetrachloroethylene (PCE)   | 20 ug/l                    |                       | ND                            | NA                             | NA                        | NA                             | NA                      | ND .                                      | NA  | ND                             | NA                        | NA                      | NA                        | NA NA                   | 370                              | NA                |
| 3 1,1,2-trichloroethylene (TCE) 4 ethylbenzene  | 100 ug/l<br>750 ug/l       |                       | ND<br>ND                      | NA<br>NA                       | NA<br>NA                  | NA<br>NA                       | NA<br>NA                | ND<br>ND                                  | NA<br>NA                                  | ND<br>ND                       | NA<br>NA                  | NA<br>NA                | NA<br>NA                  | NA<br>NA                | 1<br>ND                          | NA<br>NA          |
| total xylenes   | 620 ug/l                   |                       | ND                            | NA NA                          | NA NA                     | NA NA                          | NA NA                   | ND<br>ND                                  | NA NA                                     | ND                             | NA NA                     | NA NA                   | NA NA                     | NA.                     | ND                               | NA NA             |
| methylene chloride  | 100 ug/l                   |                       | ND                            | NA NA                          | NA                        | NA NA                          | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| 7 chloroform  | 100 ug/l                   |                       | ND                            | NA                             | NA                        | NA                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| 8 1,1-dichloroethane  | 25 ug/l                    |                       | ND                            | NA                             | NA                        | NA                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| 9 ethlene dibromide (EDB)   | 0.1 ug/l                   |                       | ND                            | NA                             | NA                        | NA                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| 0 1,1,1-trichloroethane   | 60 ug/l                    |                       | ND                            | NA                             | NA                        | . NA                           | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| 1 1,1,2-trichloroethane   | 10 ug/l                    |                       | ND<br>ND                      | NA NA                          | NA<br>NA                  | NA<br>NA                       | NA<br>NA                | ND<br>ND                                  | NA<br>NA                                  | ND<br>ND                       | NA<br>NA                  | NA<br>NA                | NA<br>NA                  | NA<br>NA                | ND<br>ND                         | NA<br>NA          |
| 2 1,1,2,2-tetrachloroethane<br>3 vinyl chloride   | 10 ug/l<br>1 ug/l          |                       | ND<br>ND                      | NA<br>NA                       | NA<br>NA                  | NA<br>NA                       | NA<br>NA                | ND<br>ND                                  | NA<br>NA                                  | ND                             | NA NA                     | NA NA                   | NA NA                     | NA NA                   | ND                               | NA NA             |
| 4 PAH's: total naphthalene + monomethylnaphthalenes   | 30 ug/l                    |                       | ND                            | NA NA                          | NA NA                     | NA NA                          | NA                      | ND  | NA NA                                     | ND                             | NA NA                     | NA                      | NA NA                     | NA                      | ND                               | NA NA             |
| 5 benzo-a-pyrene  | 0.7 ug/l                   |                       | ND                            | NA                             | NA                        | ND                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| 6 TPH 418.1   | None                       |                       | 52                            | NA                             | NA                        | NA                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | 2.8                              | NA                |
|   |                            |                       |                               |                                |                           |                                |                         | -   |   |                                | 20.2                      | 25                      | 00.0                      | 05.6                    |                                  | 70.4              |
| 1 Chloride (Cl)   | 250.0 mg/l                 |                       | 97                            | 86.9                           | 90.1                      | 86                             | 85.8<br>NA              | 33  | 79<br>NA                                  | 140<br>ND                      | 90.2<br>NA                | 86<br>NA                | 89.8<br>NA                | 85.6<br>NA              | 0.029                            | 78.1<br>0.006*    |
| Copper (Cu) Iron (Fe)   | 1.0 mg/l                   |                       | ND<br>ND                      | 0.026                          | 0.021                     | ND<br>ND                       | <0.005                  | ND<br>ND                                  | 0.04                                      | 0.4                            | ND                        | ND                      | ND                        | ND                      | 0.29                             | 3.91*             |
| Manganese (Mn)  | 0.2 mg/l                   |                       | 0.018                         | 0.027                          | 0.0082                    | ND                             | 0.0078                  | 0.067                                     | 0.002                                     | 0.13                           | 0.016                     | 0.015                   | 0.0069                    | 0.0066                  | 0.028                            | 0.183*            |
| 5 Phenols   | 0.005 mg/l                 |                       | ND                            | NA                             | NA                        | ND                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | 18                               | NA                |
| 5 Sulfate (SO <sub>4</sub> )  | 600.0 mg/l                 |                       | 540                           | 507                            | 526                       | 510                            | 501                     | 120                                       | 453                                       | 630                            | 531                       | 506                     | 526                       | 501                     | 250                              | 303               |
| 7 Total Dissolved Solids (TDS)  | 1000.0 mg/l                |                       | 1270                          | 1370                           | 1390                      | 1200                           | 1324                    | 321                                       | 1200                                      | 842                            | 1370                      | 1306                    | 1360                      | 1296                    | 800                              | 1020              |
| Zinc (Zn)   | 10.0 mg/l                  |                       | ND                            | NA                             | NA                        | ND                             | NA                      | 0.049                                     | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | 0.027                            | NA                |
| 9 pH  | between 6-9                | 4                     | 6.82                          | 6.64                           | 8.37                      | 6.7                            | NA                      | 7.53                                      | 9.51                                      | 6.89                           | 6.97                      | NA                      | 6.6                       | NA                      | 8.41                             | 9.45              |
| Aluminum (AI)   | 5.0 mg/l                   | 1                     | 0.21                          | 0.177                          | 0.175                     | ND                             | 0.167                   | ND  | 0.209                                     | 0.08                           | NA                        | NA                      | NA NA                     | NA                      | 0.04                             | NA                |
| Boron (B)   | 0.75 mg/l                  |                       | 0.46                          | 0.441                          | 0.432                     | 0.46                           | 0.411                   | 0.12                                      | 0.482                                     | 0.65                           | 0.469                     | 0.447                   | 0.467                     | NA                      | 2                                | 2.09*             |
| Cobalt (Co)   | 0.05 mg/l                  |                       | ND                            | NA                             | NA                        | ND                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | ND                               | NA                |
| Molybdenum (Mo)   | 1.0 mg/l                   |                       | 0.026                         | NA                             | NA                        | 0.03                           | NA                      | ND  | NA  | 0.046                          | NA                        | NA                      | NA                        | NA                      | 0.094                            | NA                |
| Nickel (Ni)   | 0.2 mg/l                   |                       | ND                            | NA                             | NA                        | ND                             | NA                      | ND  | NA  | ND                             | NA                        | NA                      | NA                        | NA                      | 0.049                            | NA                |
| 5 Bromide   | None                       |                       | ND                            | NA                             | NA                        | NA                             | NA                      | NA  | NA  | 0.46                           | NA                        | NA NA                   | NA NA                     | NA<br>NA                | ND<br>0.5                        | NA                |
| Lithium (Li)  | None                       |                       | 0.9                           | NA<br>NA                       | NA NA                     | NA<br>NA                       | NA<br>NA                | 0.0887                                    | NA<br>NA                                  | 0.8                            | NA<br>NA                  | NA<br>NA                | NA<br>NA                  | NA<br>NA                | 0.6                              | NA<br>NA          |
| Rubidium (Rb) Tungsten  | None<br>None               |                       | 0.25<br>ND                    | NA<br>NA                       | NA<br>NA                  | NA<br>NA                       | NA<br>NA                | 0.0127<br>ND                              | NA<br>NA                                  | 0.3<br>ND                      | NA<br>NA                  | NA NA                   | NA<br>NA                  | NA<br>NA                | ND                               | NA<br>NA          |
| Tungsten  | ivone                      | -                     | NU                            | INA                            | IVA                       | IVA                            | 14/1                    | NU  | 11/0                                      | 140                            | 1973                      |                         |                           |                         |                                  |                   |
| NOTES   |                            |                       |                               |                                |                           |                                |                         |   |   |                                |                           |                         |                           |                         |                                  |                   |
| NA = Not Analyzed   |                            |                       |                               |                                |                           |                                |                         |   |   |                                |                           |                         |                           |                         |                                  |                   |
| NA = Not Detected   |                            |                       |                               |                                |                           |                                |                         |   |   |                                |                           | -                       |                           |                         |                                  |                   |
| * Total metal not dissolved metal   | ***                        |                       |                               | -                              |                           |                                |                         |   |   |                                |                           | -                       |                           |                         |                                  |                   |
| U = Not detected at minimum detectable concentra  H = Anaylsis performed past recommended holding |                            | -                     |                               |                                | -                         |                                | -                       |   |   |                                |                           | -                       | -                         |                         |                                  |                   |
| n - Anayisis performed past recommended fiolding  | unie                       | -                     |                               |                                |                           |                                |                         |   |   |                                | -                         | -                       | -                         |                         | -                                |                   |

# Summary of Monitoring Well Analytical Results Lightning Dock Geothermal HI-01, LLC - Hidalgo County, New Mexico TABLE 2

|  | a Clarke C            | Well ID:     | MW-1                  | MW-1B                 | MW-2                                    | MW-2 Duplicate        | MW-3                        | MW-4                  | MW-S                  | MW-6                  | INW1                        | LDG 47-7                |
|--|-----------------------|--------------|-----------------------|-----------------------|---|-----------------------|-----------------------------|-----------------------|-----------------------|-----------------------|-----------------------------|-------------------------|
| JAN 3 C - 13 C                             | NMAC 20.6.2           | Sample Date: | 11/25/2013            | 12/11/2013            | 11/25/2013                              | 11/25/2013            | 11/24/2013                  | 11/24/2013            | 11/24/2013            | 11/23/2013            | 12/20/2013                  | 12/21/2013              |
|  | Std. Dissolved        |              | 4044044               | 4949559 994           | 4044044.000                             |                       | 4244044.004                 | 4244044 005           |                       | 444444                |                             | 4.04.00.00.00.4         |
| Analyte                                    | Concentration         | Lab ID:      | 1311B14-001<br>0.0055 | 1312659-001<br>0.011  | 1311B14-002<br>0.0082                   | 1311B14-003<br>0.0083 | <b>1311B14-004</b><br>0.019 | 1311B14-005<br>0.012  | 1311B14-006           | 1311B14-007           | <b>1312A59-003</b><br>0.013 | 1312840-001<br>0.42     |
| 1 Arsenic (As)                             | 1 mg/l                |              | 0.0055                | 0.011                 | 0.0082                                  | 0.0083                | 0.019                       | 0.012                 | 0.0060<br>0.041       | 0.020                 | 0.013                       | 0.42                    |
| 2 Barium (Ba)                              | 1 mg/l<br>0.01 mg/l   |              | 0.063<br>ND           | ND                    | ND                                      | 0.043<br>ND           | ND                          | ND                    | ND                    | MD                    | 0.099<br>ND                 | ND ND                   |
| 3 Cadmium (Cd) 4 Chromium (Cr)             | 0.5 mg/l              |              | ND                    | ND                    | ND                                      | ND ND                 | ND                          | ND ND                 | ND                    | ND                    | NA                          | NA NA                   |
| 5 Cyanide (CN)                             | 0.2 mg/l              |              | ND                    | ND                    | ND                                      | ND ND                 | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 6 Fluoride (F)                             | 1.6 mg/l              |              | 7.7                   | 9.3                   | 11                                      | 11                    | 12                          | 4.3                   | 1.3                   | 6.9                   | 3.9                         | 12                      |
| 7 Lead (Pb)                                | 0.05 mg/l             |              | ND                    | 0.0044                | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 8 Total Mercury (Hg)                       | 0.002 mg/l            |              | 0.00079               | 0.0016                | ND                                      | ND                    | 0.00034                     | ND                    | 0.0010                | 0.00077               | ND                          | ND                      |
| 9 Nitrate(NO3 as N)                        | 10 mg/l               |              | 2.6                   | 15                    | 3.1                                     | 3.2                   | 2.1                         | 12                    | 42                    | 42                    | 2.9                         | ND                      |
| 10 Selenium (Se)                           | 0.05 mg/l             |              | 0.0052                | NA                    | 0.0035                                  | 0.0035                | 0.0034                      | 0.033                 | 0.028                 | 0.011                 | 0.01                        | ND                      |
| 11 Silver (Ag)                             | 0.05 mg/l             |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 12 Uranium (U)                             | 0.03 mg/l             |              | 0.011                 | 0.0037                | ND                                      | ND                    | ND                          | 0.0051                | 0.014                 | 0.0012                | 0.0013                      | ND                      |
| 13 Radioactivity: Radium 266               | 30 pCi/l              |              | 0.285 ± 0.350 (0.571) | 2.00 ± 0.722 (0.566)  | 0.266 ± 0.377 (0.638)                   | 0.183 ± 0.312 (0.550) | 0.102 ± 0.375 (0.720)       | 1.32 ± 0.615 (0.664)  | 0.305 ± 0.401 (0.667) | 0.140 ± 0.305 (0.562) | 1.04 ± 0.535 (0.561)        | 0.0340 ± 0.481 (0.981)  |
| 14 Radioactivity: Radium 288               | 30 pCi/l              |              | 0.888 ± 0.456 (0.799) | 0.711 ± 0.402 (0.727) | 0.0585 ± 0.308 (0.702)                  | 0.468 ± 0.385 (0.767) | 0.156 ± 0.270 (0.590)       | 0.542 ± 0.396 (0.772) | 0.333 ± 0.452 (0.966) | 2.53 ± 0.949 (1.39)   | 0.462 ± 0.343 (0.666)       | -0.0191 ± 0.378 (0.924) |
| 15 Radionuclides: Radon 222                | None                  |              | 238                   | 676                   | 580                                     | 567                   | 781                         | 1090                  | 197                   | 507                   | 1090                        | -33.4 UH                |
| 16 Benzene                                 | 1 ug/l                |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | 23                      |
| 17 Polychlorinated biphenyls (PCB's)       | 1 ug/l                |              | NA                    | ND                    | NA                                      | NA                    | NA                          | NA NA                 | NA NA                 | NA NA                 | ND                          | ND 45                   |
| 18 Toluene                                 | 750 ug/l              |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | 45                      |
| 19 Carbon Tetrachloride                    | 10 ug/l               |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 20 1,2-dichloroethane (EDC)                | 10 ug/l               |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND ND                 | ND                    | ND                    | ND                          | ND<br>ND                |
| 21 1,1-dichloroethylene (1,1-DCE)          | 5 ug/l                |              | ND                    | ND                    | ND<br>ND                                | ND<br>ND              | ND<br>ND                    | ND<br>ND              | ND<br>ND              | ND<br>ND              | ND<br>ND                    | ND<br>ND                |
| 22 1,1,2,2,-tetrachloroethene (PCE)        | 20 ug/l               |              | ND<br>ND              | ND<br>ND              | ND<br>ND                                | ND<br>ND              | ND<br>ND                    | ND<br>ND              | ND                    | ND                    | ND                          | ND                      |
| 23 1,1,2-trichloroethylene (TCE)           | 750 ug/l              | -            | ND<br>ND              | ND<br>ND              | ND<br>ND                                | ND<br>ND              | ND<br>ND                    | ND<br>ND              | ND<br>ND              | ND                    | ND                          | 1.3                     |
| 24 ethylbenzene<br>25 Total xylenes        | 620 ug/l              |              | ND<br>ND              | ND<br>ND              | ND                                      | ND<br>ND              | ND<br>ND                    | ND ND                 | ND                    | ND                    | ND                          | 19                      |
| 26 methylene chloride                      | 100 ug/l              |              | ND                    | ND                    | ND                                      | ND ND                 | ND                          | ND ND                 | ND                    | ND                    | ND                          | ND                      |
| 27 chloroform                              | 100 ug/l              |              | 28                    | 33                    | 4.9                                     | 5.2                   | 21                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 28 1,1-dichloroethane                      | 25 ug/l               |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 29 ethlene dibromide (EDB)                 | 0.1 ug/l              |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 30 1,1,1-trichloroethane                   | 660 ug/l              |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 31 1,1,2-trichloroethane                   | 10 ug/l               |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 32 1,1,2,2-tetrachloroethane               | 10 ug/l               |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 33 vinyl chloride                          | 1 ug/l                |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 34 PAH's; total naphthalene + naphthalenes | 30 ug/l               |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND ?                    |
| 35 benzo-a-pyrene                          | 0.7 ug/l              |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 36 TPH 418.1                               | None                  |              | ND                    | 1.3                   | ND                                      | ND                    | 1.1                         | NA                    | NA                    | ND                    | 1.4                         | ND                      |
| 1 Chloride (Cl)                            | 250 mg/l              |              | 100                   | 120                   | 96                                      | 96                    | 94                          | 710                   | 230                   | 130                   | 170                         | 130                     |
| 2 Copper (Cu)                              | 1 mg/l                |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| 3 Iron (Fe)                                | 1 mg/l                |              | ND                    | 8.5                   | ND                                      | ND                    | 0.24                        | ND                    | 0.021                 | 0.39                  | 0.033                       | 0.32                    |
| 4 Manganese (Mn)                           | 0.2 mg/l              |              | 0.21                  | 0.27                  | 0.041                                   | 0.036                 | 0.18                        | 0.15                  | 0.27                  | 0.074                 | 0.019                       | 0.14                    |
| 5 Phenol                                   | 0.005 mg/l            |              | ND                    | ND                    | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | 14                      |
| 6 Sulfate                                  | 600 mg/l              |              | 670                   | 540                   | 510                                     | 510                   | 540                         | 1200                  | 930                   | 950                   | 700                         | 250                     |
| 7 Total Dissolved Solids (TDS)             | 1000 mg/l<br>10 mg/l  |              | 1780<br>ND            | 1520<br>0.015         | 1380<br>0.015                           | 1210<br>ND            | 1380<br>ND                  | 3210<br>0.048         | 2010<br>0.023         | 1880<br>0.033         | 1480<br>ND                  | 1190<br>0.022           |
| 8 Zinc (Zn)<br>9 pH                        | 6-9 pH Units          |              | 7.69                  | 7.66                  | 7.6                                     | 7.58                  | 8                           | 7.38                  | 7.62                  | 7.56                  | 8.59                        | 7.33                    |
|  |                       |              |                       |                       |   |                       |                             |                       |                       |                       |                             |                         |
| 1 Aluminum (AI)                            | 5 mg/l                |              | 0.034                 | 25                    | 0.049                                   | 0.024                 | 0.31                        | ND                    | ND                    | 0.63                  | 0.069                       | 0.05                    |
| 2 Boron (B)                                | .75 mg/l              |              | 0.7                   | 0.45                  | 0.37                                    | 0.36                  | 0.44                        | 0.22                  | 0.31                  | 0.39<br>ND            | 0.52<br>ND                  | 2.6<br>ND               |
| 3 Cobalt (Co)<br>4 Molybdenum (Mo)         | 0.05 mg/l<br>1.0 mg/l |              | ND<br>0.058           | ND<br>0.029           | ND<br>0.027                             | ND<br>0.026           | ND<br>0.065                 | ND<br>0.014           | ND<br>0.031           | 0.035                 | 0.055                       | 0.038                   |
| 5 Nickel (Ni)                              | 0.2 mg/l              |              | 0.058<br>ND           | 0.029<br>ND           | 0.027<br>ND                             | ND                    | ND                          | 0.014<br>ND           | ND                    | ND                    | ND ND                       | 0.081                   |
| 6 Bromide                                  | None                  |              | ND                    | NA NA                 | ND                                      | ND                    | ND                          | 2.2                   | 1.2                   | ND                    | 0.8                         | 0.32                    |
| 7 Lithium (Li)                             | None                  |              | 0.8                   | 0.533                 | 0.7                                     | 0.7                   | 0.5                         | 1.7                   | 0.4                   | 0.8                   | 0.6                         | 1                       |
| 8 Rubidium (Rb)                            | None                  |              | 0.2                   | 0.189                 | 0.1                                     | 0.1                   | 0.2                         | 0.4                   | 0.1                   | 0.1                   | 0.21                        | 0.24                    |
| 9 Tungsten                                 | None                  |              | ND                    | 0.0386                | ND                                      | ND                    | ND                          | ND                    | ND                    | ND                    | ND                          | ND                      |
| Notes:                                     | -                     | -            |                       |                       |   |                       |                             |                       |                       |                       |                             |                         |
| NA = not analyzed                          |                       |              |                       |                       |   |                       |                             |                       |                       |                       |                             |                         |
| ND = not detected                          |                       |              |                       |                       |   |                       |                             |                       |                       |                       |                             |                         |
| * total metal not dissolved metal          |                       |              |                       |                       | *************************************** |                       |                             |                       |                       |                       |                             |                         |