

GTHT - 1

GW Background & Compliance Report

October 2014

Chavez, Carl J, EMNRD

From: david janney <dwjanney160@gmail.com>
Sent: Monday, April 20, 2015 4:31 PM
To: Griswold, Jim, EMNRD; Chavez, Carl J, EMNRD
Subject: Alluvial Geothermal Background BTV Report
Attachments: Alluvial Geothermal Groundwater BTVs Addendum 4-20-2015.pdf

Greetings:

Please find attached the above referenced report. A bound hard copy has been sent to you via FedEx.

Please feel free to contact me with any questions you may have after reviewing the report. We would like to resolve, as soon as possible, any questions regarding the fluoride BTV for shallow alluvial geothermal water.

Sincerely,

David W. Janney, PG
Agent for Lightning Dock Geothermal HI-01, LLC

Mr. Jim Griswold
Environmental Bureau Chief
New Mexico Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, NM 87505
505-476-3465
Jim.Griswold@state.nm.us

April 20, 2015

**RE: Alluvial geothermal groundwater background concentrations at Lightning Dock
Geothermal HI-01, LLC, Animas, New Mexico**

Dear Mr. Griswold:

On behalf of Lightning Dock Geothermal HI-01, LLC (LDG), Geo-Science Solutions, LLC and Geochemical, LLC submit this document to establish alluvial geothermal groundwater background concentrations of selected compounds listed in NMAC 20.6.3103 at LDG's geothermal power plant located in Animas, New Mexico. This document is intended to be an addendum to the *Groundwater Background and Compliance Report* that was submitted to the New Mexico Oil Conservation Division (OCD) in September 2014.

The September 2014 report provided background threshold values (BTVs) for the geothermal reservoir prior to commercial power generation which began on December 20, 2013. This addendum provides BTVs with supporting calculations for selected constituents in alluvial geothermal groundwater in the vicinity of LDG's production and injection wells based on data collected prior to December 20, 2013.

BACKGROUND

LDG owns 160 acres of surface upon which are located its power plant, its geothermal production well, and two of its shallow alluvial monitoring wells. Rosette, Inc. owns the adjoining property to the east upon which are located all three of LDG's injection wells and five shallow alluvial monitoring wells in the "greenhouse area".

Geothermal water upwells into the alluvium in the greenhouse area and this area is the zone of mixing for the upwelling geothermal water and alluvial groundwater. The result is alluvial geothermal groundwater in the greenhouse area at approximately 65 feet below ground surface. The LDG monitoring wells used for the alluvial geothermal groundwater BTV calculations are shown on Figure 1.

Naturally occurring fluoride, iron, and total dissolved solids (TDS) in the produced geothermal water may exceed the State of New Mexico water quality criteria stated in NMAC 20.6.2.3103. The geothermal reservoir is essentially a confined aquifer that leaks into and mixes with the alluvial groundwater system in the greenhouse area. Since geothermal water naturally upwells into and mixes with alluvial groundwater, it is logical to expect elevated concentrations of fluoride, iron, and TDS in the mixed or alluvial geothermal groundwater. It is also logical that elevated concentrations of these constituents are spatially related to upwelling geothermal groundwater. Concentrations of these constituents are expected to change with depth due to changes in mixing and the greater influence imparted by the geothermal groundwater. Concentrations of these constituents are also expected to be lower up-gradient and significantly down-gradient of the mixing zone. Alluvial geothermal groundwater extends into Section 6, north of the greenhouse area.

ALLUVIAL GEOTHERMAL GROUNDWATER SAMPLING

Each LDG shallow alluvial geothermal groundwater monitoring well was sampled prior to December 20, 2013. All samples were collected in accordance with LDG's *Water Quality Monitoring Program Work Plan* (December 20, 2013). The samples were submitted for analysis to Hall Environmental Analytical Laboratory in Albuquerque, New Mexico. The laboratory analytical results from LDG's monitoring wells presented in Table 1, were used to develop one set of BTVs for selected constituents in alluvial geothermal groundwater.

TABLE 1
Alluvial Geothermal Groundwater Monitoring Wells

Well Name	Well Type	Total Depth	Screened Interval
MW-1	Shallow	85 feet	60-85 feet
MW-1B	Shallow	85 feet	65-85 feet
MW-2	Shallow	80 feet	55-80 feet
MW-3	Shallow	80 feet	55-80 feet
MW-4	Shallow	80 feet	55-80 feet
MW-5	Shallow	78 feet	63-78 feet
MW-6	Shallow	85 feet	60-85 feet

In addition to the wells listed in Table 1, laboratory analytical results from two other shallow alluvial wells in the greenhouse area were used in the calculation of a second set of BTVs in alluvial geothermal groundwater. Wells G3S and G2SE are shown on Figure 1 and details of these wells are included in Table 2.

TABLE 2
Other Alluvial Geothermal Wells

Well Name	Well Type	Total Depth	Screened Interval
G3S (A00036 AS7)	Shallow Burgett Greenhouse	130 feet	90-130 feet
G2SE (A00036 AS5)	Shallow Burgett Greenhouse	600 feet	440-600 feet

While the exact wells from which these samples were collected could not be confirmed, they are believed to have been collected from wells G2SE and G3S as indicated on Figure 1. Both wells were apparently sampled by flowing from a small valve or hose bib on the well head.

LABORATORY ANALYTICAL RESULTS

The laboratory analytical results for LDG's shallow alluvial geothermal groundwater monitoring wells presented in Table 3 provide a baseline for alluvial geothermal groundwater quality in the project area prior to December 20, 2013. A summary of selected constituents from these alluvial geothermal groundwater wells is presented in Table 4 along with the State MCLs.

TABLE 4
Summary of Selected Constituents in Alluvial Geothermal Monitoring Wells

Constituent	Number of Observations	Minimum (mg/L)	Maximum (mg/L)	State MCL (mg/L)
Iron (Fe)	7	<0.02	8.5	1.0
Fluoride (F)	7	1.3	12	1.6
Sulfate	7	510	1200	600
TDS	7	1210	3210	1000

Well G3S was sampled by OCD in 1986 and 1993. Both samples were analyzed by the New Mexico State Scientific Laboratory with a duplicate of the 1993 sample analyzed by Westech Laboratories, Inc. of Phoenix, Arizona. The fluoride concentration detected in the 1986 sample was 12.5 mg/L and the fluoride concentration detected in the 1993 sample was 15.46 mg/L. Well G2SE was sampled by Raser Technologies, Inc. in 2008 and analyzed by TraceAnalysis, Inc. of Lubbock, Texas. The fluoride concentration detected in the 2008 LCD Hot sample was 9.95 mg/L. A summary of selected constituents from these other alluvial geothermal groundwater wells is presented in Table 5 along with the State MCLs. The laboratory analytical sheets for the samples in Table 3 were submitted with the 2014 report and the laboratory analytical sheets for the samples in Table 5 are included in Attachment C.

TABLE 5
Summary of Selected Constituents in Other Alluvial Geothermal Wells

Constituent	Number of Observations	Minimum (mg/L)	Maximum (mg/L)	State MCL (mg/L)
Iron	1	<0.01	<0.01	1.0
Fluoride	3	9.95	15.46	1.6
Sulfate	3	476	675	600
TDS	3	1110	1480	1000

Alluvial geothermal groundwater monitoring well analytical results indicate that TDS is higher than in the deep geothermal reservoir. Alluvial geothermal groundwater monitoring well analytical results also indicate that sulfate exceeds State water quality criteria, however, analytical results indicate that naturally occurring sulfate is higher than in the deep geothermal reservoir. Most iron analyses in the alluvial geothermal groundwater are non-detect. One shallow well (MW-1B) exceeded NMAC 20.6.3103 criteria for iron with an anomalously high value of 8.5 mg/L; far higher than the produced or injected geothermal water. The anomalous value of 8.5 mg/L does not appear to be representative of water quality at this location or in the alluvial geothermal water. Relying on the majority of non-detects for iron, and the concentration of iron in produced geothermal water being below NMAC 20.6.2 standards of 1.0 mg/L, a BTW for iron is unnecessary.

BACKGROUND THRESHOLD VALUES

Since the exceedances of certain regulated constituents in groundwater at LDG are natural in origin, a BTV based on background concentrations is required. The objective of the BTV calculation is to establish an upper percentile limit concentration for each constituent of concern in the Lightning Dock geothermal system. The September 2014 report established BTVs for the geothermal production and injection water and this addendum establishes BTVs for the alluvial geothermal groundwater in the vicinity of the injection wells or greenhouse area.

The expected BTV for dissolved compounds in the Lightning Dock geothermal system can be determined using existing chemical analytical results and EPA-approved procedures. The statistical procedure to calculate BTVs is well documented by the EPA (ProUCL Users Guide, Chapter 1). The appropriate standard for comparison is the 95% Upper Percentile Limit for a Single Observation (UPL95). What is calculated is the value greater than 95% of all expected values if you collected a single sample of alluvial geothermal groundwater in the vicinity of the greenhouse area. There is a 5% probability ($\alpha = 0.05$) that a single sample would have a value higher than the UPL95.

The alluvial geothermal groundwater sample set collected by LDG in December 2013 contains a total of seven samples and one duplicate sample. ProUCL guidance suggests that at least 10 samples are needed to statistically determine a BTV. An insufficient number of samples of alluvial geothermal groundwater was collected by LDG in December 2013. The inclusion of additional historic data from the greenhouse area, however, provides a sufficient number of samples to calculate BTVs for alluvial geothermal groundwater in the vicinity of the injection wells or greenhouse area. The EPA-approved software ProUCL 5.0 was used to calculate the BTVs presented herein. Dr. Gregory Miller of Geochemical, LLC input the data, ran the program, and provided the output results with comments to Geo-Science Solutions, LLC. The data is broken into two groups, monitoring wells (MW's) and monitoring wells combined with three samples from two alluvial geothermally-influenced wells (All). Both groups are carried through the analysis. The raw dataset for this effort is presented in Table 6.

TABLE 6
Summary of Selected Constituents for Alluvial Geothermal Wells

MW F (mg/L)	MW TDS (mg/L)	All F (mg/L)	All TDS (mg/L)	MW Sulfate (mg/L)	All Sulfate (mg/L)
7.7	1780	12.5	1195	670	585
9.3	1520	15.46	1480	540	675
11	1380	9.95	1110	510	476
12	1380	7.7	1780	540	670
4.3	3210	9.3	1520	1200	540
1.3	2010	11	1380	930	510
6.9	1880	12	1380	950	540
		4.3	3210		1200
		1.3	2010		930
		6.9	1880		950

Prior to calculating BTVs, Dixon's tests for outliers were conducted. No outliers for the fluoride or sulfate data were detected. The TDS value of 3210 mg/L was identified as an outlier at the 90% and 95% confidence interval and was removed from the data set. Dixon's test was rerun on the reduced dataset and outliers were not detected. This final reduced dataset is presented in Table 7.

TABLE 7
Summary of Reduced Data for Alluvial Geothermal Wells

MW F (mg/L)	MW TDS (mg/L)	All F (mg/L)	All TDS (mg/L)	MW Sulfate (mg/L)	All Sulfate (mg/L)
7.7	1780	12.5	1195	670	585
9.3	1520	15.46	1480	540	675
11	1380	9.95	1110	510	476
12	1380	7.7	1780	540	670
4.3	2010	9.3	1520	1200	540
1.3	1880	11	1380	930	510
6.9		12	1380	950	540
		4.3	2010		1200
		1.3	1880		930
		6.9			950

Distribution testing is necessary to select the proper statistical test for the data. The reduced dataset of Table 7 was tested for its goodness-of-fit to probability distributions (normal, gamma, and lognormal). All of the reduced datasets were normally distributed at the 95% confidence interval, indicating that use of the 95% Upper Prediction Limit (t-statistic) is the appropriate measure of the BTv for fluoride and TDS. Summary statistics for the reduced dataset are presented in Table 8.

TABLE 8
Summary of Reduced Data Statistics for Alluvial Geothermal Wells

Constituent	Number of Observations	Minimum (mg/L)	Maximum (mg/L)	Mean (mg/L)	SD (mg/L)	SEM (mg/L)	CV (mg/L)
MW F	7	1.3	12	7.5	3.76	1.421	0.501
MW TDS	6	1380	2010	1658	269	109.8	0.162
MW Sulfate	7	510	1200	762.9	266.4	100.7	0.349
All F	10	1.3	15.46	9.041	4.156	1.314	0.46
All TDS	9	1110	2010	1526	306.5	102.2	0.201
All Sulfate	10	476	1200	707.6	239.7	75.8	0.339

Notes: SD = standard deviation, SEM = standard error of the mean, CV = coefficient of variation

The BTVs for the two groups (MW's and All) concentrations of fluoride, sulfate, and TDS are presented in Table 9. The ProUCL output sheets are included in Attachment D.

TABLE 9
BTVs for Selected Constituents in Alluvial Geothermal Groundwater

Constituent	MWs Only (mg/L)	All wells (mg/L)
Fluoride	15.31	17.03
TDS	2244	2127
Sulfate	1316	1168

CONCLUSIONS

The Lightning Dock geothermal system is dynamic and its flow and chemical characteristics may change over time. Factors effecting fluoride, TDS, and sulfate concentrations in alluvial geothermal groundwater include: upwelling flow from the deep geothermal reservoir, sealing of and development of new upward flow paths by mineral precipitation, snow and rain that recharge the shallow groundwater system, and shallow groundwater use in the basin.

It is unlikely that fluoride concentrations in alluvial geothermal groundwater would ever exceed the maximum fluoride concentration of 15.46 mg/L detected in the greenhouse area. It is possible that the alluvial geothermal groundwater BTVs established herein could be exceeded, however any exceedance is expected to be less than two standard deviations for the "All F" data presented in Table 8. A Fluoride BTV of 17.03 is the most practical approach for this constituent since it utilizes all of the analytical data for alluvial geothermal groundwater samples collected from wells in the greenhouse area.

Thank you very much for your assistance in the development of this important energy project. Should you have questions regarding this document or the ProUCL output, please do not hesitate to contact me by email at dwjanney160@gmail.com or by phone at 505. 508.9187.

Respectfully submitted,



David W. Janney, PG
Principal
Geo-Science Solutions, LLC
Agent for Lightning Dock Geothermal HI-01, LLC

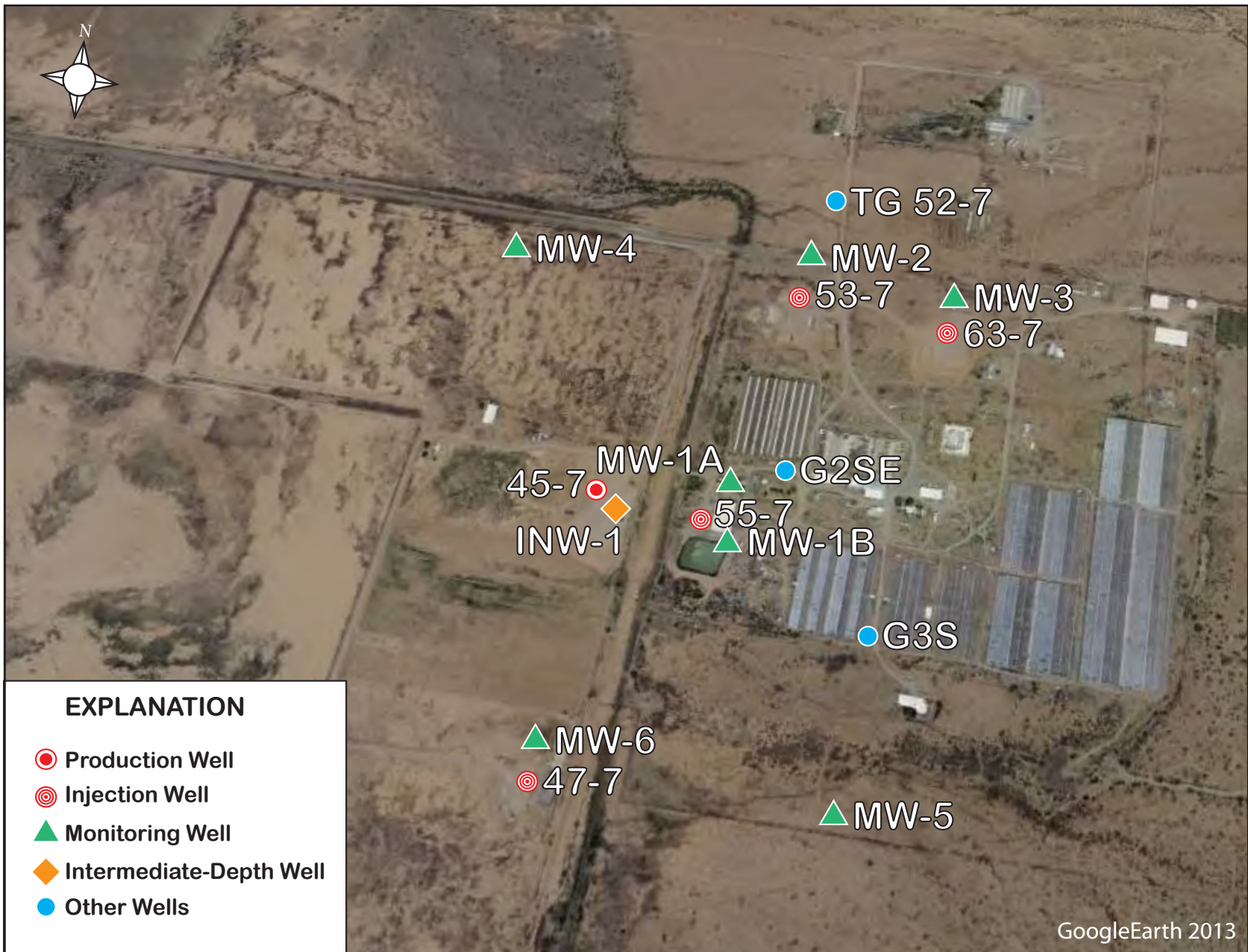
Cc: Carl Chavez – NMOCD
Nick Goodman – Lightning Dock Geothermal HI-01, LLC
Michelle Henrie – Lightning Dock Geothermal HI-01, LLC

Attachments

- A: Figure 1
- B: Table 3
- C: Laboratory Analytical Sheets
- D: ProUCL 5.0 Output Files

ATTACHMENT A

FIGURE 1



EXPLANATION

- Production Well
- ⊙ Injection Well
- ▲ Monitoring Well
- ◆ Intermediate-Depth Well
- Other Wells

GoogleEarth 2013

Geo-Science Solutions, LLC PO Box 3100 Corrales, NM 87048		Lightning Dock Geothermal HI-01, LLC 18 Greenhouse Drive Animas, NM 88020		 Cyro Lightning Dock geothermal	
PROJECT:		DWN BY:	KP	DATUM:	DATE: April 2015
Lightning Dock Geothermal HI-01, LLC		CHK'D BY:	DJ	REV. NO.:	CONTRACT NO.:
TITLE:		PROJECTION:	SCALE:	FIGURE NO.:	1
WELL LOCATIONS			1" ≈ 700'		

ATTACHMENT B

TABLE 3

TABLE 3
Summary of Alluvial Geothermal Groundwater Analytical Results
Lightning Dock Geothermal HI-01, LLC
Animas, New Mexico

		Well ID:	Burgett Geothermal Well	Burgett Produced	LCD Hot	MW-1	MW-1B	MW-2	MW-2 Duplicate	MW-3	MW-4	MW-5	MW-6
	NMAC 20.6.2 Std. Dissolved Concentration	Sample Date:	1/28/1986 ¹	2/2/1993 ²	3/12/2008 ³	11/25/2013	12/11/2013	11/25/2013	11/25/2013	11/24/2013	11/24/2013	11/24/2013	11/23/2013
Analyte	Lab ID:	WC562/HM279											
1 Arsenic (As)	1 mg/l		0.011	< 0.05	< 0.005	0.0055	0.011	0.0082	0.0083	0.019	0.012	0.0060	0.020
2 Barium (Ba)	1 mg/l		NA	< 0.1	0.059	0.063	0.14	0.044	0.043	0.06	0.059	0.041	0.047
3 Cadmium (Cd)	0.01 mg/l		NA	< 0.1	< 0.001	< 0.002	< 0.002	ND	ND	ND	ND	ND	MD
4 Chromium (Cr)	0.5 mg/l		NA	< 0.1	< 0.001	< 0.006	< 0.006	ND	ND	ND	ND	ND	ND
5 Cyanide (CN)	0.2 mg/l		NA	< 0.01	< 0.001	< 0.001	< 0.001	ND	ND	ND	ND	ND	ND
6 Fluoride (F)	1.6 mg/l		12.5	15.46	9.95	7.7	9.3	11	11	12	4.3	1.3	6.9
7 Lead (Pb)	0.05 mg/l		NA	< 0.1	< 0.005	< 0.001	0.0044	ND	ND	ND	ND	ND	ND
8 Total Mercury (Hg)	0.002 mg/l		NA	0.004	< 0.0002	0.00079	0.0016	ND	ND	0.00034	ND	0.0010	0.00077
9 Nitrate(NO3 as N)	10 mg/l		NA	NA	4.2	2.6	15	3.1	3.2	2.1	12	42	42
10 Selenium (Se)	0.05 mg/l		< 0.005	< 0.05	0.046	0.0052	NA	0.0035	0.0035	0.0034	0.033	0.028	0.011
11 Silver (Ag)	0.05 mg/l		NA	< 0.1	< 0.005	< 0.005	< 0.005	ND	ND	ND	ND	ND	ND
12 Uranium (U)	0.03 mg/l		NA	NA	NA	0.011	0.0037	ND	ND	ND	0.0051	0.014	0.0012
13 Radioactivity: Radium 226	30 pCi/l		NA	NA	NA	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)
14 Radioactivity: Radium 228	30 pCi/l		NA	NA	NA	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)
15 Radionuclides: Radon 222	None		NA	NA	NA	238	676	580	567	781	1090	197	507
16 Benzene	1 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
17 Polychlorinated biphenyls (PCB's)	1 ug/l		NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA
18 Toluene	750 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
19 Carbon Tetrachloride	10 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
20 1,2-dichloroethane (EDC)	10 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
21 1,1-dichloroethylene (1,1-DCE)	5 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
22 1,1,2,2-tetrachloroethane (PCE)	20 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
23 1,1,2-trichloroethylene (TCE)	100 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
24 ethylbenzene	750 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
25 Total xylenes	620 ug/l		NA	NA	< 1	< 3	< 3	ND	ND	ND	ND	ND	ND
26 methylene chloride	100 ug/l		NA	NA	< 5	< 6	< 6	ND	ND	ND	ND	ND	ND
27 chloroform	100 ug/l		NA	NA	< 1	28	33	4.9	5.2	21	ND	ND	ND
28 1,1-dichloroethane	25 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
29 ethane dibromide (EDB)	0.1 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
30 1,1,1-trichloroethane	660 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
31 1,1,2-trichloroethane	10 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
32 1,1,2,2-tetrachloroethane	10 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
33 vinyl chloride	1 ug/l		NA	NA	< 1	< 2	< 2	ND	ND	ND	ND	ND	ND
34 PAH's; total naphthalene	30 ug/l		NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
35 benzo-a-pyrene	0.7 ug/l		NA	NA	NA	< 10	< 10	ND	ND	ND	ND	ND	ND
36 TPH 418.1	None		NA	NA	NA	< 1	1.3	ND	ND	1.1	NA	NA	ND
1 Chloride (Cl)	250 mg/l		94.3	110	77	100	120	96	96	94	710	230	130
2 Copper (Cu)	1 mg/l		NA	< 0.1	< 0.005	< 0.006	< 0.006	ND	ND	ND	ND	ND	ND
3 Iron (Fe)	1 mg/l		NA	< 0.1	0.138	< 0.02	8.5	< 0.02	< 0.02	0.24	< 0.02	0.021	0.39
4 Manganese (Mn)	0.2 mg/l		NA	< 0.05	0.012	0.21	0.27	0.041	0.036	0.18	0.15	0.27	0.074
5 Phenol	0.005 mg/l		NA	NA	0.139	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
6 Sulfate	600 mg/l		585	675	476	670	540	510	510	540	1200	930	950
7 Total Dissolved Solids (TDS)	1000 mg/l		1195	1480	1110	1780	1520	1380	1210	1380	3210	2010	1880
8 Zinc (Zn)	10 mg/l		NA	< 0.1	< 0.007	< 0.01	0.015	0.015	ND	ND	0.048	0.023	0.033
9 pH	6-9 pH Units				7.91	7.69	7.66	7.6	7.58	8	7.38	7.62	7.56
1 Aluminum (Al)	5 mg/l		NA	< 0.1	< 0.05	0.034	25	0.049	0.024	0.31	ND	ND	0.63
2 Boron (B)	0.75 mg/l		NA	< 0.05	0.369	0.7	0.45	0.37	0.36	0.44	0.22	0.31	0.39
3 Cobalt (Co)	0.05 mg/l		NA	< 0.05	NA	< 0.008	< 0.008	ND	ND	ND	ND	ND	ND
4 Molybdenum (Mo)	1.0 mg/l		NA	< 0.1	< 0.1	0.058	0.029	0.027	0.026	0.065	0.014	0.031	0.035
5 Nickel (Ni)	0.2 mg/l		NA	< 0.1	< 0.005	< 0.01	< 0.01	ND	ND	ND	ND	ND	ND
6 Bromide	None		NA	NA	NA	< 0.006	NA	ND	ND	ND	2.2	1.2	ND
7 Lithium (Li)	None		NA	NA	NA	0.8	0.533	0.7	0.7	0.5	1.7	0.4	0.8
8 Rubidium (Rb)	None		NA	NA	NA	0.2	0.189	0.1	0.1	0.2	0.4	0.1	0.1
9 Tungsten	None		NA	NA	NA	< 0.006	0.0386	ND	ND	ND	ND	ND	ND
Notes:													
NA = not analyzed													
ND = not detected													
* total metal not dissolved metal													

Notes:

- 1 Sample collected by OCD and analyzed by NM State Health and Environment Dept. Lab
- 2 Sample collected by OCD and analyzed by NM State Health and Environment Dept. Lab and Westech Lab, metals are **Total**
- 3 Samples collected by Razer and analyzed by Trace Analysis, metals are **Total**

ATTACHMENT C
LABORATORY ANALYTICAL SHEETS



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87108 — (505) 841-2555

PK

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	2/10/86	LAB NO.	HM 279	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	1/28/86	SITE INFORMATION	Sample location: BURGESS GEOTHERMAL WELL		
Collection TIME	0900	Collection site description	7 T255 R4W BYPASS VALVE AT WELLHEAD		
Collected by — Person/Agency	BAILEY/JOHNSON - OCO				

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box
Santa Fe, NM 87501

Attn: David Boyer

2088 APR 28 1986

U.S. CONSERVATION DIVISION
SANTA FE

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level: STATIC W.L. 65' DEPTH TO WATER 90'	Discharge: 300 gpm	Sample type:
pH (00400): 8.1	Conductivity (Uncorrected): 2900 μ mho	Water Temp. (00010): 48 °C	Conductivity at 25°C (00094): μ mho	
Field comments: PUMPED FOR 10 HRS/ DAY TO HEAT GREENHOUSES. REPORTED TO BE 240°F AT WELL HEAD. T.D. 250'				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☒ A: 2 ml H ₂ SO ₄ /L added HNO ₃
☐ NA: No acid added ☐ Other-specify:			

ANALYTICAL RESULTS from SAMPLES

NA, NA, EA, HNO ₃	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☒ Other: ICAP SCAN			☐ Sodium (00930)	mg/l	
☒ Other: Se	0.005	3/14/86	☐ Potassium (00935)	mg/l	
☐ Other: As	0.011	4/7/86	☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		
NF, A-H ₂ SO ₄			F, A-H ₂ SO ₄		
☐ Nitrate-N + Nitrate-N total (00630)	mg/l		☐ Nitrate-N + Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00810)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Laboratory remarks			Analyst: Date Reported: 4/18/86 Reviewed by: Jim Bailey		



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

FN

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	2/10/86	LAB NO.	WC 562	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	1/28/86	SITE INFORMATION	Sample location		
Collection TIME	0900		BURGETT GEOTHERMAL WELL		
Collected by — Person/Agency		Collection site description			
BAILEY/JOHNSON - OCO		7 T255 R19W BYPASS VALVE AT WELLHEAD			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/
well code

Owner

DALE BURGETT

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	STATIC W.L. 65' DEPTH TO WATER 90'	Discharge	300 gpm	Sample type	
pH (00400)	8.1	Conductivity (Uncorrected)	2900 μ mho	Water Temp. (00010)	48 °C	Conductivity at 25°C (00094)	μ mho
Field comments							
PUMPED FOR 10 HRS/ DAY TO HEAT GREENHOUSES. REPORTED TO BE 240° F AT WELL HEAD. T.D. 250'							

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added ☐ Other-specify:				

ANALYTICAL RESULTS from SAMPLES

NR NA	Units	Date analyzed	F, NA	Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	μ mho		☒ Calcium (00915)	17.6 mg/l	2/10
☐ Total non-filterable residue (suspended) (00630)	mg/l		☒ Magnesium (00925)	6.34 mg/l	"
☐ Other:			☒ Sodium (00930)	322.3 mg/l	"
☐ Other:			☒ Potassium (00935)	19.9 mg/l	"
☐ Other:			☒ Bicarbonate (00440)	101.7 mg/l	2/13
			☒ Chloride (00940)	94.3 mg/l	2/13
			☒ Sulfate (00945)	58.5 mg/l	2/13
			☒ Total filterable residue (dissolved) (70300)	119.5 mg/l	3/13
			☒ Other: CO ₂	0.0	2/13
			☒ F	12.5	2/17
NF, A-H ₂ SO ₄			F, A-H ₂ SO ₄		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Laboratory remarks			Analyst	Date Reported	Reviewed by
				3/24/86	C. J. [Signature]

STATE OF NEW MEXICO

DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

WATER CHEMISTRY SECTION [505]-841-2555

March 15, 1993

Request
ID No. 022251**ANALYTICAL REPORT**
SLD Accession No. WC-93-0269Distribution☐ User 70320
☒ Submitter 260
☒ SLD Files

To: K. Brown
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Water Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, Nonpres/No sample submitted to this laboratory on February 4, 1993

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 2-Feb-93	By: Bro ...	Produced Water
At: 10:30 hrs.	In/Near: Animas	Burgett Greenhouse, Animas

ANALYTICAL RESULTS

Analysis	Value	D. Lmt.	Units
calcium	22.00		mg/L
magnesium	< 1.00		mg/L
potassium	24.00		mg/L
ortho phosphate	404.00		mg/L
bicarbonate	89.90		mg/L
carbonate	13.30		mg/L
chloride	110.00		mg/L
fluoride	15.46		mg/L
sulfate	675.00		mg/L
total diss resid	1480.00		mg/L

Reviewed By: B.P.
Bryan S. Patterson 03/15/93
Analyst, Water Chemistry Section

STATE OF NEW MEXICO

DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

AIR & HEAVY METALS SECTION [505]-841-2553

May 3, 1993

Request
ID No. 022252**ANALYTICAL REPORT**
SLD Accession No. IC-93-0134Distribution☐ User 70320
☒ Submitter 260
☒ SLD Files

To: Kathy Brown
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Air & Heavy Metals Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water sample submitted to this laboratory on February 4, 1993

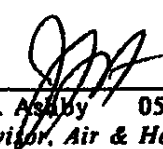
DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 2-Feb-93	By: Bro ...	Produced Water
At: 10:30 hrs.	In/Near: Animas	Budget Greenhouse, Animas

ANALYTICAL RESULTS in mg/L

Analysis	Value	Analysis	Value	Analysis	Value
Aluminum	< 0.10	Cobalt	< 0.05	Nickel	< 0.10
Barium	< 0.10	Copper	< 0.10	Silicon	1.80
Beryllium	< 0.10	Iron	< 0.10	Silver	< 0.10
Boron	0.50	Lead	< 0.10	Strontium	0.50
Cadmium	< 0.10	Magnesium	0.20	Tin	< 0.10
Calcium	20.00	Manganese	< 0.05	Vanadium	< 0.10
Chromium	< 0.10	Molybdenum	< 0.10	Zinc	< 0.10

Reviewed By:


Jim F. Ashby 05/04/93
Supervisor, Air & Heavy Metals Section



**Westtech
Laboratories
Inc.**

The Quality People
Since 1995

5737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT N.M. OIL CONSERVATION DIVISION
ATTN: KATHY BROWN
P.O. BOX 2088
SANTA FE, NM 87504

SAMPLE NO. : 9303066
INVOICE NO.: 22130408
REPORT DATE: 02-19-93
REVIEWED BY: *AK*
PAGE : 1 OF 1

CLIENT SAMPLE ID : 9302021030
SAMPLE TYPE: WATER
SAMPLED BY: K. BROWN/C. EUSTICE
SUBMITTED BY: K. BROWN
SAMPLE SOURCE: BURGETT PRODUCED WATER

AUTHORIZED BY : K. BROWN
CLIENT P.O. : --
SAMPLE DATE ...: 02-02-93
SUBMITTAL DATE : 02-08-93
EXTRACTION DATE: --

Cation / Anion Balance

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Calcium	19.	mg/L	0.05	02-18-93
Total Magnesium	0.41	mg/L	0.10	02-18-93
Total Potassium	23.	mg/L	1.0	02-17-93
Total Sodium	330.	mg/L	0.05	02-18-93
Carbonate	61.	mg/L	2.0	02-11-93
Bicarbonate	24.	mg/L	2.0	02-11-93

(1) Copy to Client

M. G. Smith
Managing Director



**Westech
Laboratories
Inc.**

The Quality People
Since 1955

5737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT N.M. OIL CONSERVATION DIVISION
ATTN: KATHY BROWN
P.O. BOX 2088
SANTA FE, NM 87504

SAMPLE NO. : 9303066
INVOICE NO.: 22130408
REPORT DATE: 02-19-93
REVIEWED BY: *AKH*
PAGE : 1 OF 1

CLIENT SAMPLE ID : 9302021030
SAMPLE TYPE: WATER
SAMPLED BY: K. BROWN/C. EUSTICE
SUBMITTED BY: K. BROWN
SAMPLE SOURCE: BURGETT PRODUCED WATER

AUTHORIZED BY : K. BROWN
CLIENT P.O. : --
SAMPLE DATE ...: 02-02-93
SUBMITTAL DATE : 02-08-93
EXTRACTION DATE: --

Inorganic Chemistry - Total Metals

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Arsenic	<0.05	mg/L	0.05	02-15-93
Total Barium	0.08	mg/L	0.05	02-15-93
Total Cadmium	<0.05	mg/L	0.05	02-15-93
Total Chromium	<0.05	mg/L	0.05	02-15-93
Total Lead	<0.05	mg/L	0.05	02-15-93
Total Mercury	0.004	mg/L	0.001	02-17-93
Total Selenium	<0.05	mg/L	0.05	02-15-93
Total Silver	<0.05	mg/L	0.05	02-15-93

(1) Copy to Client

M. Grubel
Managing Director

Summary Report

Jim Rosser
Raser Technologies
5152 North Edgewood Dr.
Suite 375
Provo, UT, 84604

Report Date: March 18, 2008

Work Order: 8031235



Project Location: Animas, New Mexico
Project Name: Cold Water/Hot Water
Project Number: Lighting Dock

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
153439	LDC Cold Water	water	2008-03-12	07:54	2008-03-12
153440	LDC Hot Water	water	2008-03-12	08:23	2008-03-12

Sample - Field Code	TPH DRO	TPH GRO	TX1005	
	DRO (mg/L)	GRO (mg/L)	C6-C12 (mg/L)	>C12-C28 (mg/L)
153439 - LDC Cold Water	<5.00	<0.500	<5.00	<5.00
153440 - LDC Hot Water	<5.00	<0.500	<5.00	<5.00

Sample: 153439 - LDC Cold Water

Param	Flag	Result	Units	RL
Total Silver		<0.00500	mg/L	0.00500
Total Aluminum		<0.0500	mg/L	0.0500
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1.00
Bicarbonate Alkalinity		126	mg/L as CaCo3	5.00
Total Alkalinity		126	mg/L as CaCo3	5.00
Amenable Cyanide		<0.0100	mg/L	0.0100
Ammonia-N		1.48	mg/L	1.00
Total Arsenic		<0.00500	mg/L	0.00500
Total Boron		0.0590	mg/L	0.00500
Total Barium		0.0240	mg/L	0.00100
Total Beryllium		<0.00200	mg/L	0.00200
Total Calcium		42.8	mg/L	0.500
Total Cadmium		<0.00100	mg/L	0.00100
Chloride		20.4	mg/L	2.00
Chlorine		<0.0400	mg/L	0.0400
Free Chlorine		<0.0400	mg/L	0.0400
Chemical Oxygen Demand		<50.0	mg/L	50.0
Specific Conductance		550	uMHOS/cm	0.00
Total Chromium		<0.00100	mg/L	0.00100
Total Copper		0.0150	mg/L	0.00500

continued ...

sample 153439 continued ...

Param	Flag	Result	Units	RL
Total Iron		0.0130	mg/L	0.0100
Fluoride		1.04	mg/L	0.200
Free Cyanide		<0.0100	mg/L	0.0100
Total Mercury		<0.000200	mg/L	0.000200
Total Potassium		2.11	mg/L	0.500
Total Magnesium		3.81	mg/L	0.500
Total Manganese		<0.00250	mg/L	0.00250
Total Molybdenum		<0.0100	mg/L	0.0100
Total Sodium		68.0	mg/L	0.00
Total Nickel		<0.00500	mg/L	0.00500
Nitrite-N		<0.100	mg/L	0.100
Nitrate-N		1.19	mg/L	0.100
Total Lead		<0.00500	mg/L	0.00500
pH		7.48	s.u.	0.00
Phenolics		0.260	mg/L	0.130
PO4-P		<0.500	mg/L	0.500
Total Antimony		<0.0200	mg/L	0.0200
Total Selenium		<0.0100	mg/L	0.0100
Total Silica		34.7	mg/L	0.0500
Sulfate		94.8	mg/L	1.00
Sulfide		<0.100	mg/L	0.100
Total Dissolved Solids		358	mg/L	5.00
Total Kjeldahl Nitrogen - N		<6.00	mg/L	6.00
Total Thallium		<0.0200	mg/L	0.0200
Total Organic Carbon		<1.00	mg/L	1.00
Total Cyanide		<0.0150	mg/L	0.0150
Total Suspended Solids		<10.0	mg/L	10.0
Turbidity (Nephelometric)		0.0800	NTU	0.00
Bromochloromethane		<1.00	µg/L	1.00
Dichlorodifluoromethane		<1.00	µg/L	1.00
Chloromethane (methyl chloride)		<1.00	µg/L	1.00
Vinyl Chloride		<1.00	µg/L	1.00
Bromomethane (methyl bromide)		<5.00	µg/L	5.00
Chloroethane		<1.00	µg/L	1.00
Trichlorofluoromethane		<1.00	µg/L	1.00
Acetone		<10.0	µg/L	10.0
Iodomethane (methyl iodide)		<5.00	µg/L	5.00
Carbon Disulfide		<1.00	µg/L	1.00
Acrylonitrile		<1.00	µg/L	1.00
2-Butanone (MEK)		<5.00	µg/L	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	5.00
2-Hexanone		<5.00	µg/L	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10.0
1,1-Dichloroethene		<1.00	µg/L	1.00
Methylene chloride		<5.00	µg/L	5.00
MTBE		<1.00	µg/L	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1.00
1,1-Dichloroethane		<1.00	µg/L	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1.00
2,2-Dichloropropane		<1.00	µg/L	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1.00
Chloroform		<1.00	µg/L	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1.00

continued ...

sample 153439 continued ...

Param	Flag	Result	Units	RL
1,1-Dichloropropene		<1.00	µg/L	1.00
Benzene		<1.00	µg/L	1.00
Carbon Tetrachloride		<1.00	µg/L	1.00
1,2-Dichloropropane		<1.00	µg/L	1.00
Trichloroethene (TCE)		<1.00	µg/L	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1.00
Bromodichloromethane		<1.00	µg/L	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1.00
Toluene		<1.00	µg/L	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1.00
1,3-Dichloropropane		<1.00	µg/L	1.00
Dibromochloromethane		<1.00	µg/L	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1.00
Tetrachloroethene (PCE)		<1.00	µg/L	1.00
Chlorobenzene		<1.00	µg/L	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1.00
Ethylbenzene		<1.00	µg/L	1.00
m,p-Xylene		<1.00	µg/L	1.00
Bromoform		<1.00	µg/L	1.00
Styrene		<1.00	µg/L	1.00
o-Xylene		<1.00	µg/L	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1.00
2-Chlorotoluene		<1.00	µg/L	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1.00
Isopropylbenzene		<1.00	µg/L	1.00
Bromobenzene		<1.00	µg/L	1.00
n-Propylbenzene		<1.00	µg/L	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1.00
tert-Butylbenzene		<1.00	µg/L	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1.00
sec-Butylbenzene		<1.00	µg/L	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1.00
p-Isopropyltoluene		<1.00	µg/L	1.00
4-Chlorotoluene		<1.00	µg/L	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1.00
n-Butylbenzene		<1.00	µg/L	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	5.00
1,2,4-Trichlorobenzene		<5.00	µg/L	5.00
Naphthalene		<5.00	µg/L	5.00
Hexachlorobutadiene		<5.00	µg/L	5.00
Total Zinc		0.0490	mg/L	0.00700

Sample: 153440 - LDC Hot Water

Param	Flag	Result	Units	RL
Total Silver		<0.00500	mg/L	0.00500
Total Aluminum		<0.0500	mg/L	0.0500
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1.00

continued ...

sample 153440 continued ...

Param	Flag	Result	Units	RL
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1.00
Bicarbonate Alkalinity		94.0	mg/L as CaCo3	5.00
Total Alkalinity		94.0	mg/L as CaCo3	5.00
Amenable Cyanide		<0.0100	mg/L	0.0100
Ammonia-N		1.01	mg/L	1.00
Total Arsenic		<0.00500	mg/L	0.00500
Total Boron		0.369	mg/L	0.00500
Total Barium		0.0590	mg/L	0.00100
Total Beryllium		<0.00200	mg/L	0.00200
Total Calcium		38.6	mg/L	0.500
Total Cadmium		<0.00100	mg/L	0.00100
Chloride		77.0	mg/L	2.00
Chlorine		<0.0400	mg/L	0.0400
Free Chlorine		<0.0400	mg/L	0.0400
Chemical Oxygen Demand		<50.0	mg/L	50.0
Specific Conductance		1600	uMHOS/cm	0.00
Total Chromium		<0.00100	mg/L	0.00100
Total Copper		<0.00500	mg/L	0.00500
Total Iron		0.138	mg/L	0.0100
Fluoride		9.95	mg/L	0.200
Free Cyanide		<0.0100	mg/L	0.0100
Total Mercury		<0.000200	mg/L	0.000200
Total Potassium		3.00	mg/L	0.500
Total Magnesium		25.3	mg/L	0.500
Total Manganese		0.0120	mg/L	0.00250
Total Molybdenum		<0.0100	mg/L	0.0100
Total Sodium		254	mg/L	0.00
Total Nickel		<0.00500	mg/L	0.00500
Nitrite-N		<0.100	mg/L	0.100
Nitrate-N		4.25	mg/L	0.100
Total Lead		<0.00500	mg/L	0.00500
pH		7.91	s.u.	0.00
Phenolics		0.139	mg/L	0.130
PO4-P		<0.500	mg/L	0.500
Total Antimony		<0.0200	mg/L	0.0200
Total Selenium		0.0460	mg/L	0.0100
Total Silica		113	mg/L	0.0500
Sulfate		476	mg/L	1.00
Sulfide		<0.100	mg/L	0.100
Total Dissolved Solids		1110	mg/L	5.00
Total Kjeldahl Nitrogen - N		<6.00	mg/L	6.00
Total Thallium		<0.0200	mg/L	0.0200
Total Organic Carbon		<1.00	mg/L	1.00
Total Cyanide		<0.0150	mg/L	0.0150
Total Suspended Solids		<10.0	mg/L	10.0
Turbidity (Nephelometric)		0.350	NTU	0.00
Bromochloromethane		<1.00	µg/L	1.00
Dichlorodifluoromethane		<1.00	µg/L	1.00
Chloromethane (methyl chloride)		<1.00	µg/L	1.00
Vinyl Chloride		<1.00	µg/L	1.00
Bromomethane (methyl bromide)		<5.00	µg/L	5.00
Chloroethane		<1.00	µg/L	1.00
Trichlorofluoromethane		<1.00	µg/L	1.00

continued ...

sample 153440 continued ...

Param	Flag	Result	Units	RL
Acetone		<10.0	µg/L	10.0
Iodomethane (methyl iodide)		<5.00	µg/L	5.00
Carbon Disulfide		<1.00	µg/L	1.00
Acrylonitrile		<1.00	µg/L	1.00
2-Butanone (MEK)		<5.00	µg/L	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	5.00
2-Hexanone		<5.00	µg/L	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10.0
1,1-Dichloroethene		<1.00	µg/L	1.00
Methylene chloride		<5.00	µg/L	5.00
MTBE		<1.00	µg/L	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1.00
1,1-Dichloroethane		<1.00	µg/L	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1.00
2,2-Dichloropropane		<1.00	µg/L	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1.00
Chloroform		<1.00	µg/L	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1.00
1,1-Dichloropropene		<1.00	µg/L	1.00
Benzene		<1.00	µg/L	1.00
Carbon Tetrachloride		<1.00	µg/L	1.00
1,2-Dichloropropane		<1.00	µg/L	1.00
Trichloroethene (TCE)		<1.00	µg/L	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1.00
Bromodichloromethane		<1.00	µg/L	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1.00
Toluene		<1.00	µg/L	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1.00
1,3-Dichloropropane		<1.00	µg/L	1.00
Dibromochloromethane		<1.00	µg/L	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1.00
Tetrachloroethene (PCE)		<1.00	µg/L	1.00
Chlorobenzene		<1.00	µg/L	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1.00
Ethylbenzene		<1.00	µg/L	1.00
m,p-Xylene		<1.00	µg/L	1.00
Bromoform		<1.00	µg/L	1.00
Styrene		<1.00	µg/L	1.00
o-Xylene		<1.00	µg/L	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1.00
2-Chlorotoluene		<1.00	µg/L	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1.00
Isopropylbenzene		<1.00	µg/L	1.00
Bromobenzene		<1.00	µg/L	1.00
n-Propylbenzene		<1.00	µg/L	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1.00
tert-Butylbenzene		<1.00	µg/L	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1.00
sec-Butylbenzene		<1.00	µg/L	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1.00

continued ...

sample 153440 continued ...

Param	Flag	Result	Units	RL
p-Isopropyltoluene		<1.00	µg/L	1.00
4-Chlorotoluene		<1.00	µg/L	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1.00
n-Butylbenzene		<1.00	µg/L	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	5.00
1,2,4-Trichlorobenzene		<5.00	µg/L	5.00
Naphthalene		<5.00	µg/L	5.00
Hexachlorobutadiene		<5.00	µg/L	5.00
Total Zinc		<0.00700	mg/L	0.00700

ATTACHMENT D
PROUCL 5.0 OUTPUT FILES

MW F (mg/L)	MW TDS (mg/L)	All F (mg/L)	All TDS (mg/L)	MW Sulfate (mg/L)	All Sulfate (mg/L)
7.7	1780	12.5	1195	670	585
9.3	1520	15.46	1480	540	675
11	1380	9.95	1110	510	476
12	1380	7.7	1780	540	670
4.3	3210	9.3	1520	1200	540
1.3	2010	11	1380	930	510
6.9	1880	12	1380	950	540
		4.3	3210		1200
		1.3	2010		930
		6.9	1880		950

	A	B	C	D	E	F	G
1	MW F (mg	MW TDS (	All F (mg/L	All TDS (m	MW Sulfat	All Sulfate (mg/L)	
2	7.7	1780	12.5	1195	670	585	
3	9.3	1520	15.46	1480	540	675	
4	11	1380	9.95	1110	510	476	
5	12	1380	7.7	1780	540	670	
6	4.3	2010	9.3	1520	1200	540	
7	1.3	1880	11	1380	930	510	
8	6.9		12	1380	950	540	
9			4.3	2010		1200	
10			1.3	1880		930	
11			6.9			950	

	A	B	C	D	E	F	G	H	I	J	K	L
1					Outlier Tests for Selected Uncensored Variables							
2	User Selected Options											
3	Date/Time of Computation			3/18/2015 3:07:01 PM								
4	From File			ProUCL_IN.xls								
5	Full Precision			OFF								
6												
7												
8	Dixon's Outlier Test for MW F (mg/L)											
9												
10	Number of Observations = 7											
11	10% critical value: 0.434											
12	5% critical value: 0.507											
13	1% critical value: 0.637											
14												
15	1. Observation Value 12 is a Potential Outlier (Upper)											
16												
17	Test Statistic: 0.093											
18												
19	For 10% significance level, 12 is not an outlier.											
20	For 5% significance level, 12 is not an outlier.											
21	For 1% significance level, 12 is not an outlier.											
22												
23	2. Observation Value 1.3 is a Potential Outlier (Lower)											
24												
25	Test Statistic: 0.280											
26												
27	For 10% significance level, 1.3 is not an outlier.											
28	For 5% significance level, 1.3 is not an outlier.											
29	For 1% significance level, 1.3 is not an outlier.											
30												
31												
32	Dixon's Outlier Test for MW TDS (mg/L)											
33												
34	Number of Observations = 7											
35	10% critical value: 0.434											
36	5% critical value: 0.507											
37	1% critical value: 0.637											
38												
39	1. Observation Value 3210 is a Potential Outlier (Upper)											
40												
41	Test Statistic: 0.656											
42												
43	For 10% significance level, 3210 is an outlier.											
44	For 5% significance level, 3210 is an outlier.											
45	For 1% significance level, 3210 is an outlier.											
46												
47	2. Observation Value 1380 is a Potential Outlier (Lower)											
48												
49	Test Statistic: 0.000											
50												
51	For 10% significance level, 1380 is not an outlier.											
52	For 5% significance level, 1380 is not an outlier.											
53	For 1% significance level, 1380 is not an outlier.											
54												

	A	B	C	D	E	F	G	H	I	J	K	L
1					Outlier Tests for Selected Uncensored Variables							
2	User Selected Options											
3	Date/Time of Computation			3/18/2015 3:09:39 PM								
4				From File	ProUCL_IN.xls							
5				Full Precision	OFF							
6												
7												
8	Dixon's Outlier Test for MW F (mg/L)											
9												
10	Number of Observations = 7											
11	10% critical value: 0.434											
12	5% critical value: 0.507											
13	1% critical value: 0.637											
14												
15	1. Observation Value 12 is a Potential Outlier (Upper)											
16												
17	Test Statistic: 0.093											
18												
19	For 10% significance level, 12 is not an outlier.											
20	For 5% significance level, 12 is not an outlier.											
21	For 1% significance level, 12 is not an outlier.											
22												
23	2. Observation Value 1.3 is a Potential Outlier (Lower)											
24												
25	Test Statistic: 0.280											
26												
27	For 10% significance level, 1.3 is not an outlier.											
28	For 5% significance level, 1.3 is not an outlier.											
29	For 1% significance level, 1.3 is not an outlier.											
30												
31												
32	Dixon's Outlier Test for MW TDS (mg/L)											
33												
34	Number of Observations = 6											
35	10% critical value: 0.482											
36	5% critical value: 0.56											
37	1% critical value: 0.698											
38												
39	1. Observation Value 2010 is a Potential Outlier (Upper)											
40												
41	Test Statistic: 0.206											
42												
43	For 10% significance level, 2010 is not an outlier.											
44	For 5% significance level, 2010 is not an outlier.											
45	For 1% significance level, 2010 is not an outlier.											
46												
47	2. Observation Value 1380 is a Potential Outlier (Lower)											
48												
49	Test Statistic: 0.000											
50												
51	For 10% significance level, 1380 is not an outlier.											
52	For 5% significance level, 1380 is not an outlier.											
53	For 1% significance level, 1380 is not an outlier.											
54												

	A	B	C	D	E	F	G	H	I	J	K	L
55												
56	Dixon's Outlier Test for All F (mg/L)											
57												
58	Number of Observations = 10											
59	10% critical value: 0.409											
60	5% critical value: 0.477											
61	1% critical value: 0.597											
62												
63	1. Observation Value 15.46 is a Potential Outlier (Low)											
64												
65	Test Statistic: 0.265											
66												
67	For 10% significance level, 15.46 is not an outlier.											
68	For 5% significance level, 15.46 is not an outlier.											
69	For 1% significance level, 15.46 is not an outlier.											
70												
71	2. Observation Value 1.3 is a Potential Outlier (Low)											
72												
73	Test Statistic: 0.268											
74												
75	For 10% significance level, 1.3 is not an outlier.											
76	For 5% significance level, 1.3 is not an outlier.											
77	For 1% significance level, 1.3 is not an outlier.											
78												
79												
80	Dixon's Outlier Test for All TDS (mg/L)											
81												
82	Number of Observations = 9											
83	10% critical value: 0.441											
84	5% critical value: 0.512											
85	1% critical value: 0.635											
86												
87	1. Observation Value 2010 is a Potential Outlier (Low)											
88												
89	Test Statistic: 0.160											
90												
91	For 10% significance level, 2010 is not an outlier.											
92	For 5% significance level, 2010 is not an outlier.											
93	For 1% significance level, 2010 is not an outlier.											
94												
95	2. Observation Value 1110 is a Potential Outlier (Low)											
96												
97	Test Statistic: 0.110											
98												
99	For 10% significance level, 1110 is not an outlier.											
100	For 5% significance level, 1110 is not an outlier.											
101	For 1% significance level, 1110 is not an outlier.											
102												
103												
104	Dixon's Outlier Test for MW Sulfate (mg/L)											
105												
106	Number of Observations = 7											
107	10% critical value: 0.434											
108	5% critical value: 0.507											

	A	B	C	D	E	F	G	H	I	J	K	L
109	1% critical value: 0.637											
110												
111	1. Observation Value 1200 is a Potential Outlier (Upper Tail)											
112												
113	Test Statistic: 0.362											
114												
115	For 10% significance level, 1200 is not an outlier.											
116	For 5% significance level, 1200 is not an outlier.											
117	For 1% significance level, 1200 is not an outlier.											
118												
119	2. Observation Value 510 is a Potential Outlier (Lower Tail)											
120												
121	Test Statistic: 0.043											
122												
123	For 10% significance level, 510 is not an outlier.											
124	For 5% significance level, 510 is not an outlier.											
125	For 1% significance level, 510 is not an outlier.											
126												
127												
128	Dixon's Outlier Test for All Sulfate (mg/L)											
129												
130	Number of Observations = 10											
131	10% critical value: 0.409											
132	5% critical value: 0.477											
133	1% critical value: 0.597											
134												
135	1. Observation Value 1200 is a Potential Outlier (Upper Tail)											
136												
137	Test Statistic: 0.362											
138												
139	For 10% significance level, 1200 is not an outlier.											
140	For 5% significance level, 1200 is not an outlier.											
141	For 1% significance level, 1200 is not an outlier.											
142												
143	2. Observation Value 476 is a Potential Outlier (Lower Tail)											
144												
145	Test Statistic: 0.072											
146												
147	For 10% significance level, 476 is not an outlier.											
148	For 5% significance level, 476 is not an outlier.											
149	For 1% significance level, 476 is not an outlier.											
150												

	A	B	C	D	E	F	G	H	I	J	K	L
55												
56	Dixon's Outlier Test for All F (mg/L)											
57												
58	Number of Observations = 10											
59	10% critical value: 0.409											
60	5% critical value: 0.477											
61	1% critical value: 0.597											
62												
63	1. Observation Value 15.46 is a Potential Outlier (Low)											
64												
65	Test Statistic: 0.265											
66												
67	For 10% significance level, 15.46 is not an outlier.											
68	For 5% significance level, 15.46 is not an outlier.											
69	For 1% significance level, 15.46 is not an outlier.											
70												
71	2. Observation Value 1.3 is a Potential Outlier (Low)											
72												
73	Test Statistic: 0.268											
74												
75	For 10% significance level, 1.3 is not an outlier.											
76	For 5% significance level, 1.3 is not an outlier.											
77	For 1% significance level, 1.3 is not an outlier.											
78												
79												
80	Dixon's Outlier Test for All TDS (mg/L)											
81												
82	Number of Observations = 10											
83	10% critical value: 0.409											
84	5% critical value: 0.477											
85	1% critical value: 0.597											
86												
87	1. Observation Value 3210 is a Potential Outlier (Low)											
88												
89	Test Statistic: 0.596											
90												
91	For 10% significance level, 3210 is an outlier.											
92	For 5% significance level, 3210 is an outlier.											
93	For 1% significance level, 3210 is not an outlier.											
94												
95	2. Observation Value 1110 is a Potential Outlier (Low)											
96												
97	Test Statistic: 0.094											
98												
99	For 10% significance level, 1110 is not an outlier.											
100	For 5% significance level, 1110 is not an outlier.											
101	For 1% significance level, 1110 is not an outlier.											
102												
103												
104	Dixon's Outlier Test for MW Sulfate (mg/L)											
105												
106	Number of Observations = 7											
107	10% critical value: 0.434											
108	5% critical value: 0.507											

	A	B	C	D	E	F	G	H	I	J	K	L
109	1% critical value: 0.637											
110												
111	1. Observation Value 1200 is a Potential Outlier (Upper Tail)											
112												
113	Test Statistic: 0.362											
114												
115	For 10% significance level, 1200 is not an outlier.											
116	For 5% significance level, 1200 is not an outlier.											
117	For 1% significance level, 1200 is not an outlier.											
118												
119	2. Observation Value 510 is a Potential Outlier (Lower Tail)											
120												
121	Test Statistic: 0.043											
122												
123	For 10% significance level, 510 is not an outlier.											
124	For 5% significance level, 510 is not an outlier.											
125	For 1% significance level, 510 is not an outlier.											
126												
127												
128	Dixon's Outlier Test for All Sulfate (mg/L)											
129												
130	Number of Observations = 10											
131	10% critical value: 0.409											
132	5% critical value: 0.477											
133	1% critical value: 0.597											
134												
135	1. Observation Value 1200 is a Potential Outlier (Upper Tail)											
136												
137	Test Statistic: 0.362											
138												
139	For 10% significance level, 1200 is not an outlier.											
140	For 5% significance level, 1200 is not an outlier.											
141	For 1% significance level, 1200 is not an outlier.											
142												
143	2. Observation Value 476 is a Potential Outlier (Lower Tail)											
144												
145	Test Statistic: 0.072											
146												
147	For 10% significance level, 476 is not an outlier.											
148	For 5% significance level, 476 is not an outlier.											
149	For 1% significance level, 476 is not an outlier.											
150												

	A	B	C	D	E	F	G	H	I	J	K	L	M	
1				General Statistics on Uncensored Full Data										
2	Date/Time of Computation			3/18/2015 3:10:46 PM										
3	User Selected Options													
4	From File			ProUCL_IN.xls										
5	Full Precision			OFF										
6														
7	From File: ProUCL_IN.xls													
8														
9	General Statistics for Uncensored Data Sets													
10														
11	Variable	NumObs	# Missing	Minimum	Maximum	Mean	SD	SEM	MAD/0.674	Skewness	Kurtosis	CV		
12	MW F (mg/L)	7	0	1.3	12	7.5	3.76	1.421	4.893	-0.577	-0.372	0.501		
13	MW TDS (mg/L)	6	0	1380	2010	1658	269	109.8	370.6	0.161	-2.197	0.162		
14	All F (mg/L)	10	0	1.3	15.46	9.041	4.156	1.314	3.781	-0.469	0.0899	0.46		
15	All TDS (mg/L)	9	0	1110	2010	1526	306.5	102.2	422.5	0.331	-1.002	0.201		
16	MW Sulfate (mg/L)	7	0	510	1200	762.9	266.4	100.7	237.2	0.687	-0.99	0.349		
17	All Sulfate (mg/L)	10	0	476	1200	707.6	239.7	75.8	152	1.141	0.349	0.339		
18														
19	Percentiles for Uncensored Data Sets													
20														
21	Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile		
22	MW F (mg/L)	7	0	3.1	4.82	5.6	7.7	10.15	10.66	11.4	11.7	11.94		
23	MW TDS (mg/L)	6	0	1380	1380	1415	1650	1855	1880	1945	1978	2004		
24	All F (mg/L)	10	0	4	6.38	7.1	9.625	11.75	12.1	12.8	14.13	15.19		
25	All TDS (mg/L)	9	0	1178	1306	1380	1480	1780	1820	1906	1958	2000		
26	MW Sulfate (mg/L)	7	0	528	540	540	670	940	946	1050	1125	1185		
27	All Sulfate (mg/L)	10	0	506.6	534	540	627.5	866.3	934	975	1088	1178		

	A	B	C	D	E	F	G	H	I	J	K	L
1				Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects								
2	User Selected Options											
3	Date/Time of Computation			3/18/2015 3:12:53 PM								
4	From File			ProUCL_IN.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			0.95								
7												
8												
9	MW F (mg/L)											
10												
11	Raw Statistics											
12	Number of Valid Observations				7							
13	Number of Distinct Observations				7							
14	Minimum				1.3							
15	Maximum				12							
16	Mean of Raw Data				7.5							
17	Standard Deviation of Raw Data				3.76							
18	Khat				2.853							
19	Theta hat				2.629							
20	Kstar				1.725							
21	Theta star				4.347							
22	Mean of Log Transformed Data				1.83							
23	Standard Deviation of Log Transformed Data				0.77							
24												
25	Normal GOF Test Results											
26												
27	Correlation Coefficient R				0.985							
28	Shapiro Wilk Test Statistic				0.963							
29	Shapiro Wilk Critical (0.05) Value				0.803							
30	Approximate Shapiro Wilk P Value				0.899							
31	Lilliefors Test Statistic				0.151							
32	Lilliefors Critical (0.05) Value				0.335							
33	Data appear Normal at (0.05) Significance Level											
34												
35	Gamma GOF Test Results											
36												
37	Correlation Coefficient R				0.915							
38	A-D Test Statistic				0.434							
39	A-D Critical (0.05) Value				0.713							
40	K-S Test Statistic				0.239							
41	K-S Critical(0.05) Value				0.314							
42	Data appear Gamma Distributed at (0.05) Significance Level											
43												
44	Lognormal GOF Test Results											
45												
46	Correlation Coefficient R				0.901							
47	Shapiro Wilk Test Statistic				0.823							
48	Shapiro Wilk Critical (0.05) Value				0.803							
49	Approximate Shapiro Wilk P Value				0.0553							
50	Lilliefors Test Statistic				0.267							
51	Lilliefors Critical (0.05) Value				0.335							
52	Data appear Lognormal at (0.05) Significance Level											
53												
54	MW TDS (mg/L)											

	A	B	C	D	E	F	G	H	I	J	K	L
55												
56	Raw Statistics											
57	Number of Valid Observations					6						
58	Number of Distinct Observations					5						
59	Minimum					1380						
60	Maximum					2010						
61	Mean of Raw Data					1658						
62	Standard Deviation of Raw Data					269						
63	Khat					45.63						
64	Theta hat					36.34						
65	Kstar					22.93						
66	Theta star					72.33						
67	Mean of Log Transformed Data					7.403						
68	Standard Deviation of Log Transformed Data					0.163						
69												
70	Normal GOF Test Results											
71												
72	Correlation Coefficient R					0.959						
73	Shapiro Wilk Test Statistic					0.893						
74	Shapiro Wilk Critical (0.05) Value					0.788						
75	Approximate Shapiro Wilk P Value					N/A						
76	Lilliefors Test Statistic					0.196						
77	Lilliefors Critical (0.05) Value					0.362						
78	Data appear Normal at (0.05) Significance Level											
79												
80	Gamma GOF Test Results											
81												
82	Correlation Coefficient R					0.96						
83	A-D Test Statistic					0.406						
84	A-D Critical (0.05) Value					0.697						
85	K-S Test Statistic					0.209						
86	K-S Critical(0.05) Value					0.332						
87	Data appear Gamma Distributed at (0.05) Significance Level											
88												
89	Lognormal GOF Test Results											
90												
91	Correlation Coefficient R					0.957						
92	Shapiro Wilk Test Statistic					0.887						
93	Shapiro Wilk Critical (0.05) Value					0.788						
94	Approximate Shapiro Wilk P Value					N/A						
95	Lilliefors Test Statistic					0.193						
96	Lilliefors Critical (0.05) Value					0.362						
97	Data appear Lognormal at (0.05) Significance Level											
98												
99	All F (mg/L)											
100												
101	Raw Statistics											
102	Number of Valid Observations					10						
103	Number of Distinct Observations					10						
104	Minimum					1.3						
105	Maximum					15.46						
106	Mean of Raw Data					9.041						
107	Standard Deviation of Raw Data					4.156						
108	Khat					3.188						

	A	B	C	D	E	F	G	H	I	J	K	L
109	Theta hat					2.836						
110	Kstar					2.298						
111	Theta star					3.934						
112	Mean of Log Transformed Data					2.037						
113	Standard Deviation of Log Transformed Data					0.72						
114												
115	Normal GOF Test Results											
116												
117	Correlation Coefficient R					0.989						
118	Shapiro Wilk Test Statistic					0.981						
119	Shapiro Wilk Critical (0.05) Value					0.842						
120	Approximate Shapiro Wilk P Value					0.954						
121	Lilliefors Test Statistic					0.125						
122	Lilliefors Critical (0.05) Value					0.28						
123	Data appear Normal at (0.05) Significance Level											
124												
125	Gamma GOF Test Results											
126												
127	Correlation Coefficient R					0.936						
128	A-D Test Statistic					0.533						
129	A-D Critical (0.05) Value					0.732						
130	K-S Test Statistic					0.194						
131	K-S Critical(0.05) Value					0.268						
132	Data appear Gamma Distributed at (0.05) Significance Level											
133												
134	Lognormal GOF Test Results											
135												
136	Correlation Coefficient R					0.887						
137	Shapiro Wilk Test Statistic					0.805						
138	Shapiro Wilk Critical (0.05) Value					0.842						
139	Approximate Shapiro Wilk P Value					0.0119						
140	Lilliefors Test Statistic					0.242						
141	Lilliefors Critical (0.05) Value					0.28						
142	Data appear Approximate_Lognormal at (0.05) Significance Level											
143												
144	All TDS (mg/L)											
145												
146	Raw Statistics											
147	Number of Valid Observations					9						
148	Number of Distinct Observations					8						
149	Minimum					1110						
150	Maximum					2010						
151	Mean of Raw Data					1526						
152	Standard Deviation of Raw Data					306.5						
153	Khat					28.11						
154	Theta hat					54.3						
155	Kstar					18.81						
156	Theta star					81.13						
157	Mean of Log Transformed Data					7.313						
158	Standard Deviation of Log Transformed Data					0.201						
159												
160	Normal GOF Test Results											
161												
162	Correlation Coefficient R					0.981						

	A	B	C	D	E	F	G	H	I	J	K	L
163	Shapiro Wilk Test Statistic					0.949						
164	Shapiro Wilk Critical (0.05) Value					0.829						
165	Approximate Shapiro Wilk P Value					0.789						
166	Lilliefors Test Statistic					0.175						
167	Lilliefors Critical (0.05) Value					0.295						
168	Data appear Normal at (0.05) Significance Level											
169												
170	Gamma GOF Test Results											
171												
172	Correlation Coefficient R					0.983						
173	A-D Test Statistic					0.252						
174	A-D Critical (0.05) Value					0.721						
175	K-S Test Statistic					0.15						
176	K-S Critical(0.05) Value					0.279						
177	Data appear Gamma Distributed at (0.05) Significance Level											
178												
179	Lognormal GOF Test Results											
180												
181	Correlation Coefficient R					0.986						
182	Shapiro Wilk Test Statistic					0.959						
183	Shapiro Wilk Critical (0.05) Value					0.829						
184	Approximate Shapiro Wilk P Value					0.884						
185	Lilliefors Test Statistic					0.139						
186	Lilliefors Critical (0.05) Value					0.295						
187	Data appear Lognormal at (0.05) Significance Level											
188												
189	MW Sulfate (mg/L)											
190												
191	Raw Statistics											
192	Number of Valid Observations					7						
193	Number of Distinct Observations					6						
194	Minimum					510						
195	Maximum					1200						
196	Mean of Raw Data					762.9						
197	Standard Deviation of Raw Data					266.4						
198	Khat					10.08						
199	Theta hat					75.68						
200	Kstar					5.855						
201	Theta star					130.3						
202	Mean of Log Transformed Data					6.587						
203	Standard Deviation of Log Transformed Data					0.34						
204												
205	Normal GOF Test Results											
206												
207	Correlation Coefficient R					0.941						
208	Shapiro Wilk Test Statistic					0.871						
209	Shapiro Wilk Critical (0.05) Value					0.803						
210	Approximate Shapiro Wilk P Value					0.259						
211	Lilliefors Test Statistic					0.227						
212	Lilliefors Critical (0.05) Value					0.335						
213	Data appear Normal at (0.05) Significance Level											
214												
215	Gamma GOF Test Results											
216												

	A	B	C	D	E	F	G	H	I	J	K	L
217	Correlation Coefficient R					0.963						
218	A-D Test Statistic					0.495						
219	A-D Critical (0.05) Value					0.708						
220	K-S Test Statistic					0.252						
221	K-S Critical(0.05) Value					0.312						
222	Data appear Gamma Distributed at (0.05) Significance Level											
223												
224	Lognormal GOF Test Results											
225												
226	Correlation Coefficient R					0.949						
227	Shapiro Wilk Test Statistic					0.88						
228	Shapiro Wilk Critical (0.05) Value					0.803						
229	Approximate Shapiro Wilk P Value					0.345						
230	Lilliefors Test Statistic					0.236						
231	Lilliefors Critical (0.05) Value					0.335						
232	Data appear Lognormal at (0.05) Significance Level											
233												
234	All Sulfate (mg/L)											
235												
236	Raw Statistics											
237	Number of Valid Observations					10						
238	Number of Distinct Observations					9						
239	Minimum					476						
240	Maximum					1200						
241	Mean of Raw Data					707.6						
242	Standard Deviation of Raw Data					239.7						
243	Khat					11.02						
244	Theta hat					64.2						
245	Kstar					7.782						
246	Theta star					90.93						
247	Mean of Log Transformed Data					6.516						
248	Standard Deviation of Log Transformed Data					0.311						
249												
250	Normal GOF Test Results											
251												
252	Correlation Coefficient R					0.925						
253	Shapiro Wilk Test Statistic					0.852						
254	Shapiro Wilk Critical (0.05) Value					0.842						
255	Approximate Shapiro Wilk P Value					0.0651						
256	Lilliefors Test Statistic					0.254						
257	Lilliefors Critical (0.05) Value					0.28						
258	Data appear Normal at (0.05) Significance Level											
259												
260	Gamma GOF Test Results											
261												
262	Correlation Coefficient R					0.959						
263	A-D Test Statistic					0.578						
264	A-D Critical (0.05) Value					0.725						
265	K-S Test Statistic					0.222						
266	K-S Critical(0.05) Value					0.267						
267	Data appear Gamma Distributed at (0.05) Significance Level											
268												
269	Lognormal GOF Test Results											
270												

	A	B	C	D	E	F	G	H	I	J	K	L
271	Correlation Coefficient R					0.953						
272	Shapiro Wilk Test Statistic					0.898						
273	Shapiro Wilk Critical (0.05) Value					0.842						
274	Approximate Shapiro Wilk P Value					0.244						
275	Lilliefors Test Statistic					0.201						
276	Lilliefors Critical (0.05) Value					0.28						
277	Data appear Lognormal at (0.05) Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Uncensored Full Data Sets								
2	User Selected Options											
3	Date/Time of Computation			3/18/2015 3:13:56 PM								
4	From File			C:\Users\Arsenic\Desktop\Lightning Dock 2015\ProUCL_IN.xlsx								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	New or Future K Observations			1								
9	mber of Bootstrap Operations			2000								
10												
11	MW F (mg/L)											
12												
13	General Statistics											
14	Total Number of Observations					7	Number of Distinct Observations					7
15	Minimum					1.3	First Quartile					5.6
16	Second Largest					11	Median					7.7
17	Maximum					12	Third Quartile					10.15
18	Mean					7.5	SD					3.76
19	Coefficient of Variation					0.501	Skewness					-0.577
20	Mean of logged Data					1.83	SD of logged Data					0.77
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)					3.399	d2max (for USL)					1.938
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic					0.963	Shapiro Wilk GOF Test					
27	5% Shapiro Wilk Critical Value					0.803	Data appear Normal at 5% Significance Level					
28	Lilliefors Test Statistic					0.151	Lilliefors GOF Test					
29	5% Lilliefors Critical Value					0.335	Data appear Normal at 5% Significance Level					
30	Data appear Normal at 5% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with 95% Coverage					20.28	90% Percentile (z)					12.32
34	95% UPL (t)					15.31	95% Percentile (z)					13.68
35	95% USL					14.79	99% Percentile (z)					16.25
36												
37	Gamma GOF Test											
38	A-D Test Statistic					0.434	Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value					0.713	ected data appear Gamma Distributed at 5% Significance Lev					
40	K-S Test Statistic					0.239	Kolmogrov-Smirnoff Gamma GOF Test					
41	5% K-S Critical Value					0.314	ected data appear Gamma Distributed at 5% Significance Lev					
42	Detected data appear Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)					2.853	k star (bias corrected MLE)					1.725
46	Theta hat (MLE)					2.629	Theta star (bias corrected MLE)					4.347
47	nu hat (MLE)					39.94	nu star (bias corrected)					24.15
48	MLE Mean (bias corrected)					7.5	MLE Sd (bias corrected)					5.71
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL					20.77	90% Percentile					15.11
52	95% Hawkins Wixley (HW) Approx. Gamma UPL					22.32	95% Percentile					18.65
53	95% WH Approx. Gamma UTL with 95% Coverage					35.82	99% Percentile					26.59
54	95% HW Approx. Gamma UTL with 95% Coverage					41.38						

	A	B	C	D	E	F	G	H	I	J	K	L						
55	95% WH USL					19.49	95% HW USL					20.79						
56																		
57	Lognormal GOF Test																	
58	Shapiro Wilk Test Statistic					0.823	Shapiro Wilk Lognormal GOF Test											
59	5% Shapiro Wilk Critical Value					0.803	Data appear Lognormal at 5% Significance Level											
60	Lilliefors Test Statistic					0.267	Lilliefors Lognormal GOF Test											
61	5% Lilliefors Critical Value					0.335	Data appear Lognormal at 5% Significance Level											
62	Data appear Lognormal at 5% Significance Level																	
63																		
64	Background Statistics assuming Lognormal Distribution																	
65	95% UTL with 95% Coverage					85.48	90% Percentile (z)					16.72						
66	95% UPL (t)					30.88	95% Percentile (z)					22.13						
67	95% USL					27.74	99% Percentile (z)					37.41						
68																		
69	Nonparametric Distribution Free Background Statistics																	
70	Data appear Normal at 5% Significance Level																	
71																		
72	Nonparametric Upper Limits for Background Threshold Values																	
73	Order of Statistic, r					7	95% UTL with 95% Coverage					12						
74	Approximate f					0.368	Confidence Coefficient (CC) achieved by UTL					0.302						
75	95% Percentile Bootstrap UTL with 95% Coverage					12	95% BCA Bootstrap UTL with 95% Coverage					12						
76	95% UPL					12	90% Percentile					11.4						
77	90% Chebyshev UPL					19.56	95% Percentile					11.7						
78	95% Chebyshev UPL					25.02	99% Percentile					11.94						
79	95% USL					12	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations. The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.											
80																		
81	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background																	
82	data set free of outliers and consists of observations collected from clean unimpacted locations.																	
83	The use of USL tends to provide a balance between false positives and false negatives provided the data																	
84	represents a background data set and when many onsite observations need to be compared with the BTV.																	
85																		
86	MW TDS (mg/L)																	
87																		
88	General Statistics																	
89	Total Number of Observations					6	Number of Distinct Observations					5						
90	Minimum					1380	First Quartile					1415						
91	Second Largest					1880	Median					1650						
92	Maximum					2010	Third Quartile					1855						
93	Mean					1658	SD					269						
94	Coefficient of Variation					0.162	Skewness					0.161						
95	Mean of logged Data					7.403	SD of logged Data					0.163						
96																		
97	Critical Values for Background Threshold Values (BTVs)																	
98	Tolerance Factor K (For UTL)					3.708	d2max (for USL)					1.822						
99																		
100	Normal GOF Test																	
101	Shapiro Wilk Test Statistic					0.893	Shapiro Wilk GOF Test											
102	5% Shapiro Wilk Critical Value					0.788	Data appear Normal at 5% Significance Level											
103	Lilliefors Test Statistic					0.196	Lilliefors GOF Test											
104	5% Lilliefors Critical Value					0.362	Data appear Normal at 5% Significance Level											
105	Data appear Normal at 5% Significance Level																	
106																		
107	Background Statistics Assuming Normal Distribution																	
108	95% UTL with 95% Coverage					2656	90% Percentile (z)					2003						

	A	B	C	D	E	F	G	H	I	J	K	L
109	95% UPL (t)				2244	95% Percentile (z)				2101		
110	95% USL				2148	99% Percentile (z)				2284		
111												
112	Gamma GOF Test											
113	A-D Test Statistic				0.406	Anderson-Darling Gamma GOF Test						
114	5% A-D Critical Value				0.697	Detected data appear Gamma Distributed at 5% Significance Level						
115	K-S Test Statistic				0.209	Kolmogrov-Smirnoff Gamma GOF Test						
116	5% K-S Critical Value				0.332	Detected data appear Gamma Distributed at 5% Significance Level						
117	Detected data appear Gamma Distributed at 5% Significance Level											
118												
119	Gamma Statistics											
120	k hat (MLE)				45.63	k star (bias corrected MLE)				22.93		
121	Theta hat (MLE)				36.34	Theta star (bias corrected MLE)				72.33		
122	nu hat (MLE)				547.6	nu star (bias corrected)				275.1		
123	MLE Mean (bias corrected)				1658	MLE Sd (bias corrected)				346.3		
124												
125	Background Statistics Assuming Gamma Distribution											
126	95% Wilson Hilferty (WH) Approx. Gamma UPL				2300	90% Percentile				2115		
127	95% Hawkins Wixley (HW) Approx. Gamma UPL				2309	95% Percentile				2266		
128	95% WH Approx. Gamma UTL with 95% Coverage				2852	99% Percentile				2568		
129	95% HW Approx. Gamma UTL with 95% Coverage				2884							
130	95% WH USL				2184	95% HW USL				2189		
131												
132	Lognormal GOF Test											
133	Shapiro Wilk Test Statistic				0.887	Shapiro Wilk Lognormal GOF Test						
134	5% Shapiro Wilk Critical Value				0.788	Data appear Lognormal at 5% Significance Level						
135	Lilliefors Test Statistic				0.193	Lilliefors Lognormal GOF Test						
136	5% Lilliefors Critical Value				0.362	Data appear Lognormal at 5% Significance Level						
137	Data appear Lognormal at 5% Significance Level											
138												
139	Background Statistics assuming Lognormal Distribution											
140	95% UTL with 95% Coverage				2997	90% Percentile (z)				2020		
141	95% UPL (t)				2336	95% Percentile (z)				2143		
142	95% USL				2206	99% Percentile (z)				2394		
143												
144	Nonparametric Distribution Free Background Statistics											
145	Data appear Normal at 5% Significance Level											
146												
147	Nonparametric Upper Limits for Background Threshold Values											
148	Order of Statistic, r				6	95% UTL with 95% Coverage				2010		
149	Approximate f				0.316	Confidence Coefficient (CC) achieved by UTL				0.265		
150	95% Percentile Bootstrap UTL with 95% Coverage				2010	95% BCA Bootstrap UTL with 95% Coverage				2010		
151	95% UPL				2010	90% Percentile				1945		
152	90% Chebyshev UPL				2530	95% Percentile				1978		
153	95% Chebyshev UPL				2925	99% Percentile				2004		
154	95% USL				2010							
155												
156	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
157	data set free of outliers and consists of observations collected from clean unimpacted locations.											
158	The use of USL tends to provide a balance between false positives and false negatives provided the data											
159	represents a background data set and when many onsite observations need to be compared with the BTV.											
160												
161	All F (mg/L)											
162												

	A	B	C	D	E	F	G	H	I	J	K	L
163	General Statistics											
164	Total Number of Observations					10	Number of Distinct Observations					10
165	Minimum					1.3	First Quartile					7.1
166	Second Largest					12.5	Median					9.625
167	Maximum					15.46	Third Quartile					11.75
168	Mean					9.041	SD					4.156
169	Coefficient of Variation					0.46	Skewness					-0.469
170	Mean of logged Data					2.037	SD of logged Data					0.72
171												
172	Critical Values for Background Threshold Values (BTVs)											
173	Tolerance Factor K (For UTL)					2.911	d2max (for USL)					2.176
174												
175	Normal GOF Test											
176	Shapiro Wilk Test Statistic					0.981	Shapiro Wilk GOF Test					
177	5% Shapiro Wilk Critical Value					0.842	Data appear Normal at 5% Significance Level					
178	Lilliefors Test Statistic					0.125	Lilliefors GOF Test					
179	5% Lilliefors Critical Value					0.28	Data appear Normal at 5% Significance Level					
180	Data appear Normal at 5% Significance Level											
181												
182	Background Statistics Assuming Normal Distribution											
183	95% UTL with		95% Coverage		21.14	90% Percentile (z)					14.37	
184			95% UPL (t)		17.03	95% Percentile (z)					15.88	
185			95% USL		18.08	99% Percentile (z)					18.71	
186												
187	Gamma GOF Test											
188	A-D Test Statistic					0.533	Anderson-Darling Gamma GOF Test					
189	5% A-D Critical Value					0.732	Detected data appear Gamma Distributed at 5% Significance Level					
190	K-S Test Statistic					0.194	Kolmogrov-Smirnoff Gamma GOF Test					
191	5% K-S Critical Value					0.268	Detected data appear Gamma Distributed at 5% Significance Level					
192	Detected data appear Gamma Distributed at 5% Significance Level											
193												
194	Gamma Statistics											
195	k hat (MLE)					3.188	k star (bias corrected MLE)					2.298
196	Theta hat (MLE)					2.836	Theta star (bias corrected MLE)					3.934
197	nu hat (MLE)					63.76	nu star (bias corrected)					45.97
198	MLE Mean (bias corrected)					9.041	MLE Sd (bias corrected)					5.964
199												
200	Background Statistics Assuming Gamma Distribution											
201	95% Wilson Hilferty (WH) Approx. Gamma UPL					21.91	90% Percentile					17.02
202	95% Hawkins Wixley (HW) Approx. Gamma UPL					23.28	95% Percentile					20.54
203	95% WH Approx. Gamma UTL with		95% Coverage		32.75	99% Percentile					28.26	
204	95% HW Approx. Gamma UTL with		95% Coverage		36.55							
205			95% WH USL		24.41	95% HW USL					26.26	
206												
207	Lognormal GOF Test											
208	Shapiro Wilk Test Statistic					0.805	Shapiro Wilk Lognormal GOF Test					
209	5% Shapiro Wilk Critical Value					0.842	Data Not Lognormal at 5% Significance Level					
210	Lilliefors Test Statistic					0.242	Lilliefors Lognormal GOF Test					
211	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
212	Data appear Approximate Lognormal at 5% Significance Level											
213												
214	Background Statistics assuming Lognormal Distribution											
215	95% UTL with		95% Coverage		62.29	90% Percentile (z)					19.28	
216			95% UPL (t)		30.58	95% Percentile (z)					25.04	

	A	B	C	D	E	F	G	H	I	J	K	L
217	95% USL				36.71	99% Percentile (z)						40.9
218												
219	Nonparametric Distribution Free Background Statistics											
220	Data appear Normal at 5% Significance Level											
221												
222	Nonparametric Upper Limits for Background Threshold Values											
223	Order of Statistic, r				10	95% UTL with 95% Coverage						15.46
224	Approximate f				0.526	Confidence Coefficient (CC) achieved by UTL						0.401
225	95% Percentile Bootstrap UTL with 95% Coverage				15.46	95% BCA Bootstrap UTL with 95% Coverage						15.46
226	95% UPL				15.46	90% Percentile						12.8
227	90% Chebyshev UPL				22.12	95% Percentile						14.13
228	95% Chebyshev UPL				28.04	99% Percentile						15.19
229	95% USL				15.46							
230												
231	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
232	data set free of outliers and consists of observations collected from clean unimpacted locations.											
233	The use of USL tends to provide a balance between false positives and false negatives provided the data											
234	represents a background data set and when many onsite observations need to be compared with the BTV.											
235												
236	All TDS (mg/L)											
237												
238	General Statistics											
239	Total Number of Observations				9	Number of Distinct Observations						8
240	Minimum				1110	First Quartile						1380
241	Second Largest				1880	Median						1480
242	Maximum				2010	Third Quartile						1780
243	Mean				1526	SD						306.5
244	Coefficient of Variation				0.201	Skewness						0.331
245	Mean of logged Data				7.313	SD of logged Data						0.201
246												
247	Critical Values for Background Threshold Values (BTVs)											
248	Tolerance Factor K (For UTL)				3.031	d2max (for USL)						2.11
249												
250	Normal GOF Test											
251	Shapiro Wilk Test Statistic				0.949	Shapiro Wilk GOF Test						
252	5% Shapiro Wilk Critical Value				0.829	Data appear Normal at 5% Significance Level						
253	Lilliefors Test Statistic				0.175	Lilliefors GOF Test						
254	5% Lilliefors Critical Value				0.295	Data appear Normal at 5% Significance Level						
255	Data appear Normal at 5% Significance Level											
256												
257	Background Statistics Assuming Normal Distribution											
258	95% UTL with 95% Coverage				2455	90% Percentile (z)						1919
259	95% UPL (t)				2127	95% Percentile (z)						2030
260	95% USL				2173	99% Percentile (z)						2239
261												
262	Gamma GOF Test											
263	A-D Test Statistic				0.252	Anderson-Darling Gamma GOF Test						
264	5% A-D Critical Value				0.721	Detected data appear Gamma Distributed at 5% Significance Level						
265	K-S Test Statistic				0.15	Kolmogrov-Smirnoff Gamma GOF Test						
266	5% K-S Critical Value				0.279	Detected data appear Gamma Distributed at 5% Significance Level						
267	Detected data appear Gamma Distributed at 5% Significance Level											
268												
269	Gamma Statistics											
270	k hat (MLE)				28.11	k star (bias corrected MLE)						18.81

	A	B	C	D	E	F	G	H	I	J	K	L
271	Theta hat (MLE)					54.3	Theta star (bias corrected MLE)					81.13
272	nu hat (MLE)					505.9	nu star (bias corrected)					338.6
273	MLE Mean (bias corrected)					1526	MLE Sd (bias corrected)					351.9
274												
275	Background Statistics Assuming Gamma Distribution											
276	95% Wilson Hilferty (WH) Approx. Gamma UPL					2183	90% Percentile					1991
277	95% Hawkins Wixley (HW) Approx. Gamma UPL					2192	95% Percentile					2147
278	95% WH Approx. Gamma UTL with 95% Coverage					2626	99% Percentile					2462
279	95% HW Approx. Gamma UTL with 95% Coverage					2654						
280	95% WH USL					2242	95% HW USL					2253
281												
282	Lognormal GOF Test											
283	Shapiro Wilk Test Statistic					0.959	Shapiro Wilk Lognormal GOF Test					
284	5% Shapiro Wilk Critical Value					0.829	Data appear Lognormal at 5% Significance Level					
285	Lilliefors Test Statistic					0.139	Lilliefors Lognormal GOF Test					
286	5% Lilliefors Critical Value					0.295	Data appear Lognormal at 5% Significance Level					
287	Data appear Lognormal at 5% Significance Level											
288												
289	Background Statistics assuming Lognormal Distribution											
290	95% UTL with 95% Coverage					2755	90% Percentile (z)					1939
291	95% UPL (t)					2222	95% Percentile (z)					2086
292	95% USL					2290	99% Percentile (z)					2392
293												
294	Nonparametric Distribution Free Background Statistics											
295	Data appear Normal at 5% Significance Level											
296												
297	Nonparametric Upper Limits for Background Threshold Values											
298	Order of Statistic, r					9	95% UTL with 95% Coverage					2010
299	Approximate f					0.474	Confidence Coefficient (CC) achieved by UTL					0.37
300	95% Percentile Bootstrap UTL with 95% Coverage					2010	95% BCA Bootstrap UTL with 95% Coverage					2010
301	95% UPL					2010	90% Percentile					1906
302	90% Chebyshev UPL					2495	95% Percentile					1958
303	95% Chebyshev UPL					2934	99% Percentile					2000
304	95% USL					2010						
305												
306	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background											
307	data set free of outliers and consists of observations collected from clean unimpacted locations.											
308	The use of USL tends to provide a balance between false positives and false negatives provided the data											
309	represents a background data set and when many onsite observations need to be compared with the BTV.											
310												
311	MW Sulfate (mg/L)											
312												
313	General Statistics											
314	Total Number of Observations					7	Number of Distinct Observations					6
315	Minimum					510	First Quartile					540
316	Second Largest					950	Median					670
317	Maximum					1200	Third Quartile					940
318	Mean					762.9	SD					266.4
319	Coefficient of Variation					0.349	Skewness					0.687
320	Mean of logged Data					6.587	SD of logged Data					0.34
321												
322	Critical Values for Background Threshold Values (BTVs)											
323	Tolerance Factor K (For UTL)					3.399	d2max (for USL)					1.938
324												

	A	B	C	D	E	F	G	H	I	J	K	L
325	Normal GOF Test											
326	Shapiro Wilk Test Statistic					0.871	Shapiro Wilk GOF Test					
327	5% Shapiro Wilk Critical Value					0.803	Data appear Normal at 5% Significance Level					
328	Lilliefors Test Statistic					0.227	Lilliefors GOF Test					
329	5% Lilliefors Critical Value					0.335	Data appear Normal at 5% Significance Level					
330	Data appear Normal at 5% Significance Level											
331												
332	Background Statistics Assuming Normal Distribution											
333	95% UTL with 95% Coverage				1668	90% Percentile (z)					1104	
334	95% UPL (t)				1316	95% Percentile (z)					1201	
335	95% USL				1279	99% Percentile (z)					1383	
336												
337	Gamma GOF Test											
338	A-D Test Statistic					0.495	Anderson-Darling Gamma GOF Test					
339	5% A-D Critical Value					0.708	Detected data appear Gamma Distributed at 5% Significance Level					
340	K-S Test Statistic					0.252	Kolmogrov-Smirnoff Gamma GOF Test					
341	5% K-S Critical Value					0.312	Detected data appear Gamma Distributed at 5% Significance Level					
342	Detected data appear Gamma Distributed at 5% Significance Level											
343												
344	Gamma Statistics											
345	k hat (MLE)				10.08	k star (bias corrected MLE)					5.855	
346	Theta hat (MLE)				75.68	Theta star (bias corrected MLE)					130.3	
347	nu hat (MLE)				141.1	nu star (bias corrected)					81.98	
348	MLE Mean (bias corrected)				762.9	MLE Sd (bias corrected)					315.3	
349												
350	Background Statistics Assuming Gamma Distribution											
351	95% Wilson Hilferty (WH) Approx. Gamma UPL				1401	90% Percentile					1184	
352	95% Hawkins Wixley (HW) Approx. Gamma UPL				1416	95% Percentile					1344	
353	95% WH Approx. Gamma UTL with 95% Coverage				1982	99% Percentile					1680	
354	95% HW Approx. Gamma UTL with 95% Coverage				2045							
355	95% WH USL				1348	95% HW USL					1359	
356												
357	Lognormal GOF Test											
358	Shapiro Wilk Test Statistic					0.88	Shapiro Wilk Lognormal GOF Test					
359	5% Shapiro Wilk Critical Value					0.803	Data appear Lognormal at 5% Significance Level					
360	Lilliefors Test Statistic					0.236	Lilliefors Lognormal GOF Test					
361	5% Lilliefors Critical Value					0.335	Data appear Lognormal at 5% Significance Level					
362	Data appear Lognormal at 5% Significance Level											
363												
364	Background Statistics assuming Lognormal Distribution											
365	95% UTL with 95% Coverage				2302	90% Percentile (z)					1121	
366	95% UPL (t)				1469	95% Percentile (z)					1268	
367	95% USL				1401	99% Percentile (z)					1599	
368												
369	Nonparametric Distribution Free Background Statistics											
370	Data appear Normal at 5% Significance Level											
371												
372	Nonparametric Upper Limits for Background Threshold Values											
373	Order of Statistic, r				7	95% UTL with 95% Coverage					1200	
374	Approximate f				0.368	Confidence Coefficient (CC) achieved by UTL					0.302	
375	95% Percentile Bootstrap UTL with 95% Coverage				1200	95% BCA Bootstrap UTL with 95% Coverage					1200	
376	95% UPL				1200	90% Percentile					1050	
377	90% Chebyshev UPL				1617	95% Percentile					1125	
378	95% Chebyshev UPL				2004	99% Percentile					1185	

	A	B	C	D	E	F	G	H	I	J	K	L	
379	95% USL					1200							
380													
381	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background												
382	data set free of outliers and consists of observations collected from clean unimpacted locations.												
383	The use of USL tends to provide a balance between false positives and false negatives provided the data												
384	represents a background data set and when many onsite observations need to be compared with the BTV.												
385													
386	All Sulfate (mg/L)												
387													
388	General Statistics												
389	Total Number of Observations					10	Number of Distinct Observations					9	
390	Minimum					476	First Quartile					540	
391	Second Largest					950	Median					627.5	
392	Maximum					1200	Third Quartile					866.3	
393	Mean					707.6	SD					239.7	
394	Coefficient of Variation					0.339	Skewness					1.141	
395	Mean of logged Data					6.516	SD of logged Data					0.311	
396													
397	Critical Values for Background Threshold Values (BTVs)												
398	Tolerance Factor K (For UTL)					2.911	d2max (for USL)					2.176	
399													
400	Normal GOF Test												
401	Shapiro Wilk Test Statistic					0.852	Shapiro Wilk GOF Test						
402	5% Shapiro Wilk Critical Value					0.842	Data appear Normal at 5% Significance Level						
403	Lilliefors Test Statistic					0.254	Lilliefors GOF Test						
404	5% Lilliefors Critical Value					0.28	Data appear Normal at 5% Significance Level						
405	Data appear Normal at 5% Significance Level												
406													
407	Background Statistics Assuming Normal Distribution												
408	95% UTL with		95% Coverage		1405	90% Percentile (z)					1015		
409			95% UPL (t)		1168	95% Percentile (z)					1102		
410			95% USL		1229	99% Percentile (z)					1265		
411													
412	Gamma GOF Test												
413	A-D Test Statistic					0.578	Anderson-Darling Gamma GOF Test						
414	5% A-D Critical Value					0.725	Detected data appear Gamma Distributed at 5% Significance Level						
415	K-S Test Statistic					0.222	Kolmogrov-Smirnoff Gamma GOF Test						
416	5% K-S Critical Value					0.267	Detected data appear Gamma Distributed at 5% Significance Level						
417	Detected data appear Gamma Distributed at 5% Significance Level												
418													
419	Gamma Statistics												
420	k hat (MLE)					11.02	k star (bias corrected MLE)					7.782	
421	Theta hat (MLE)					64.2	Theta star (bias corrected MLE)					90.93	
422	nu hat (MLE)					220.4	nu star (bias corrected)					155.6	
423	MLE Mean (bias corrected)					707.6	MLE Sd (bias corrected)					253.7	
424													
425	Background Statistics Assuming Gamma Distribution												
426	95% Wilson Hilferty (WH) Approx. Gamma UPL					1202	90% Percentile					1046	
427	95% Hawkins Wixley (HW) Approx. Gamma UPL					1208	95% Percentile					1170	
428	95% WH Approx. Gamma UTL with		95% Coverage		1547	99% Percentile					1427		
429	95% HW Approx. Gamma UTL with		95% Coverage		1573								
430	95% WH USL					1285	95% HW USL					1295	
431													
432	Lognormal GOF Test												

	A	B	C	D	E	F	G	H	I	J	K	L	
433	Shapiro Wilk Test Statistic					0.898	Shapiro Wilk Lognormal GOF Test						
434	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level						
435	Lilliefors Test Statistic					0.201	Lilliefors Lognormal GOF Test						
436	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level						
437	Data appear Lognormal at 5% Significance Level												
438													
439	Background Statistics assuming Lognormal Distribution												
440	95% UTL with 95% Coverage					1672	90% Percentile (z)					1007	
441	95% UPL (t)					1229	95% Percentile (z)					1127	
442	95% USL					1330	99% Percentile (z)					1394	
443													
444	Nonparametric Distribution Free Background Statistics												
445	Data appear Normal at 5% Significance Level												
446													
447	Nonparametric Upper Limits for Background Threshold Values												
448	Order of Statistic, r					10	95% UTL with 95% Coverage					1200	
449	Approximate f					0.526	Confidence Coefficient (CC) achieved by UTL					0.401	
450	95% Percentile Bootstrap UTL with 95% Coverage					1200	95% BCA Bootstrap UTL with 95% Coverage					1200	
451	95% UPL					1200	90% Percentile					975	
452	90% Chebyshev UPL					1462	95% Percentile					1088	
453	95% Chebyshev UPL					1803	99% Percentile					1178	
454	95% USL					1200							
455													
456	Note: The use of USL to estimate a BTV is recommended only when the data set represents a background												
457	data set free of outliers and consists of observations collected from clean unimpacted locations.												
458	The use of USL tends to provide a balance between false positives and false negatives provided the data												
459	represents a background data set and when many onsite observations need to be compared with the BTV.												
460													

**GROUNDWATER BACKGROUND AND COMPLIANCE REPORT
FOR THE DALE BURGETT GEOTHERMAL POWER PLANT
HIDALGO COUNTY, NEW MEXICO**

Owned and Operated by

**LIGHTNING DOCK GEOTHERMAL HI-01, LLC
HIDALGO COUNTY, NEW MEXICO**

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LIST OF ACRONYMS

ACL	Alternate Concentration Limits
BTV	Background Threshold Values
LDG	Lightning Dock Geothermal HI-01, LLC
MCL	Maximum Concentration Limit
mg/L	Milligrams per liter
OCD	New Mexico Oil Conservation Division
ppm	parts per million
TDS	Total Dissolved Solids
TG	Temperature Gradient

1.0 INTRODUCTION

Lightning Dock Geothermal HI-01, LLC (LDG), a wholly owned subsidiary of Cymq Energy, has prepared this report to provide background water quality and discharge permit compliance data for the Lightning Dock Geothermal Project (the "LDG Project" or "Project") located in Hidalgo County, New Mexico. The LDG Project is located on private surface with Federal Geothermal leases NM-34790 and NM-108801 which encompass approximately 3,140 acres. This report is required by the New Mexico Oil Conservation Division (OCD) to satisfy the requirements of the Lightning Dock Geothermal No.1 (HI-01) Discharge Permit GTHT-001, dated July 1, 2009.

The objectives of this document are to provide background threshold values (BTVs) for selected elements prior to commercial power generation which began on December 20, 2013 and to provide water quality, groundwater flow direction, and hydraulic gradient data reflecting the first six months of power plant operation. This document meets the requirements of Sections 20.B.ii and 20.B.v of Discharge Permit GTHT-001. The LDG Project is not using a water-cooling tower to cool its working fluid as anticipated in Discharge Permit GTHT-001; therefore, this report excludes cooling tower-blow-down samples.

1.1 Site Location and Description

The LDG Project is located in Section 7, Township 25 South, Range 19 West of Hidalgo County, New Mexico. The LDG Project is located along the east side of the Animas Valley approximately 13 miles north of Animas, New Mexico, and approximately 18 miles southwest of Lordsburg, New Mexico. LDG owns 160 acres of surface upon which its power plant, some of its geothermal wells, and some of its monitoring wells are located. Rosette, Inc. owns the adjoining property to the east upon which three of LDG's geothermal wells and some monitoring wells are located ("greenhouse area"). The LDG Project location is depicted in Figure 1 and the wells used for the background concentration calculations are shown on Figure 2.

1.2 Background

The Lightning Dock geothermal system is a blind system with no surface manifestations. It was discovered in 1948. Since 1948 a number of investigators have conducted geochemical sampling of fluids, electrical and gravity geophysical surveys, temperature gradient drilling, shallow production well drilling of the resource for direct-use heating for green-housing and aquaculture, and deep geothermal exploratory drilling.

Naturally occurring arsenic, boron, fluoride, sulfate, total dissolved solids (TDS) and pH in the geothermal system may exceed State of New Mexico water quality criteria stated at NMAC 20.6.2.3103. Multiple isolated fresh water aquifers do not exist in the LDG Project area, all waters contain less than 10,000 parts per million (ppm) TDS.

The highest concentrations of fluoride are, therefore, expected to be spatially related to the upwelling geothermal system and will change with depth due to changes in mixing and the greater influence imparted by the geothermal system. These concentrations are expected to be lower up gradient of the greenhouse area and at a significant distance down gradient of the greenhouse area. Higher concentrations of fluoride than detected in the alluvial monitoring well network are reported in shallow alluvial wells (Elston et al. 1983). TDS and sulfate

concentrations are generally higher in the alluvial groundwater throughout the Animas Valley (Elston et al. 1983).

2.0 SCOPE OF REPORT

LDG's Discharge Permit GTHT-001 required LDG to collect and analyze groundwater samples from its production, injection, and groundwater monitoring wells. This report was intended to be submitted to OCD by the end of June 2014 but was delayed at OCD's request in order to include additional laboratory analytical results for samples collected from wells LDG 47-7 and LDG 63-7 in September 2014.

LDG's water quality monitoring program describes the protocol for the collection and analysis of these samples. The LDG wells used to develop the background threshold values (BTVs) for selected constituents in the geothermal system are presented in Tables 1 and 2.

In addition to the wells indicated in Tables 1 and 2, other wells with laboratory analytical reports were used in the calculation of BTVs for the geothermal system. This includes temperature gradient well TG-52-7 located approximately 1,600 feet northeast of LDG 55-7. Details of this well are included in Table 3.

TABLE 1
Production and Injection Wells

Well Name	Well Type	Total Depth	Liner Interval
LDG 45-7	Production	2,900 Feet	1,689-2,900 Feet
LDG 53-7	Injection	4,491 Feet	1,500-4,441 Feet
LDG 55-7	Injection	2,349 Feet	1,030-1,649 Feet
LDG 63-7	Injection	3,400 Feet	1,500-3,400 Feet

TABLE 2
Groundwater Monitoring Wells

Well Name	Well Type	Total Depth	Screened Interval
MW-1	Shallow	80 Feet	60-80 Feet
MW-1B	Shallow	80 Feet	60-80 Feet
MW-2	Shallow	80 Feet	60-80 Feet
MW-3	Shallow	80 Feet	60-80 Feet
MW-4	Shallow	80 Feet	60-80 Feet
MW-5	Shallow	80 Feet	60-80 Feet
MW-6	Shallow	80 Feet	60-80 Feet
INW-1	Intermediate	600 Feet	580-600 Feet
LDG 47-7	Deep	3,623 Feet	Cased to 1,589 and open hole to TD

TABLE 3
Other Wells

Well Name	Well Type	Total Depth	Casing Details
TG 52-7	Thermal Gradient	2,900 Feet	Cased to 2,220 and open hole to TD

3.0 METHODS

This section describes the methods used to collect and analyze the groundwater samples. It also describes the methods utilized to calculate BTVs.

3.1 Production, Injection, and Monitoring Wells

Production, injection, and monitoring wells were all sampled prior to start-up of the geothermal power plant. At least three casing volumes were removed from the production well with the production pump prior to sampling. The injection wells were sampled with a low-flow bladder pump or a Kuster flow-through sampling device. Deep monitoring well LDG 47-7 was also sampled using the Kuster flow-through sampling device. The remaining monitoring wells were sampled with a disposable bailer. All samples from these wells were collected in accordance with LDG's *Water Quality Monitoring Program Work Plan* (December 20, 2013). These samples were submitted for analysis to Hall Environmental Analytical Laboratory (HEAL) in Albuquerque, New Mexico.

3.2 Other Wells

Laboratory analytical results from temperature gradient well TG 52-7 were used in the BTV analysis of the geothermal water. Well TG-52-7 was sampled by Roy Cunniff in 2003 using airlifting and the sample was analyzed by the New Mexico State Air, Water, and Soil Testing Laboratory at New Mexico State University. The laboratory analytical sheets for this sample are included in Appendix A. This laboratory has subsequently closed and no other information about this sample was available.

3.3 Background Threshold Value Calculations

The geothermal water at LDG has been shown to naturally exceed several State of New Mexico water quality criteria as published in NMAC 20.6.2.3103. Because the exceedances are natural in origin, a BTV based on background concentrations is allowed.

The objective of the BTV calculation is to establish an upper percentile limit concentration for each constituent of concern in the Lightning Dock geothermal system for the formation of production and injection. Due to the nature of the Lightning Dock geothermal system, this threshold limit may be exceeded; however, any exceedance is expected to be less than three times the BTVs developed herein and would likely be no more than 20 percent greater than these BTVs.

The expected BTV for dissolved compounds in the Lightning Dock geothermal system can be determined using existing chemical analytical results and EPA-approved procedures. The statistical procedure to calculate BTVs is well documented by the EPA (ProUCL Users Guide, Chapter 1). The appropriate standard for comparison is the 95% Upper Percentile Limit for a Single Observation (UPL95). What is calculated is the value greater than 95% of all expected values if you took a single sample of Lightning Dock geothermal fluid before injection. There is a 5% probability ($\alpha = 0.05$) that a single sample would have a value higher than the UPL95. The EPA-approved software ProUCL 5.0 was used to calculate the BTVs presented herein.

4.0 RESULTS

This section presents the laboratory analytical results for shallow groundwater and geothermal system water, describes the results of the BTVs derived by ProUCL, and provides a description of shallow alluvial groundwater flow direction and gradient. Where the BTV exceeds the NMAC 20.6.2.3103 water quality criteria the BTV is used as the criteria. This switch from the lower water quality criteria to the BTV is commonly referred to as an alternative concentration limit (ACL).

4.1 Laboratory Analytical Results

A summary of laboratory analytical results for the geothermal system wells for samples collected prior to the startup of geothermal power plant operations are presented in Table 4; a summary of laboratory analytical results for the geothermal system wells for samples collected after the startup of the geothermal power plant are presented in Table 5; and a summary of laboratory analytical results for the shallow groundwater monitoring wells collected prior to the startup of geothermal power plant operations are presented in Table 6. A summary of selected constituents in the geothermal production well LDG 45-7 and spent geothermal water prior to injection into LDG 55-7 is presented in Table 7 so that they may be compared for potential changes due to the heat extraction process in the power plant. The laboratory analytical sheets for compliance samples collected in 2013 were submitted to OCD in LDG's *Annual Geothermal Well Report* dated January 31, 2014 and are excluded from this report.

TABLE 7
Selected Constituents in LDG 45-7 and Spent Geothermal Water

Well Name	Constituent	Number of Observations	Minimum (mg/L)	Maximum (mg/L)	State MCL (mg/L)
LDG 45-7	Arsenic	7	0.0031	0.015	1.0
	Boron	7	0.14	0.51	0.75
	Fluoride	7	3.6	13	1.6
	Sulfate	7	140	540	600
	TDS	7	378	1310	1000
LDG 55-7	Arsenic	7	0.011	0.015	1.0
	Boron	7	0.44	0.49	0.75
	Fluoride	7	12	14	1.6
	Sulfate	7	500	530	600
	TDS	7	1280	1320	1000

Note: All samples collected after December 20, 2013

The low concentration of 1,1,2,2 tetrachloroethylene detected in well LDG 63-7 and the low concentrations of phenols detected in wells LDG 47-7 and LDG 63-7 in the samples collected in December 2013 and the low concentrations of total phenolics detected in the samples collected from wells LDG 47-7 and LDG 63-7 in September 2014 are related to the Welaco sampling tool used to collect the samples. Welaco indicated to LDG that diesel fuel or solvents were commonly used to wash sampling tools and that the sampling tool was not steam cleaned prior to use at LDG.

The laboratory analytical results presented in Table 6 provide a baseline for shallow groundwater quality in the project area prior to commercial power generation. A summary of selected constituents in the shallow groundwater prior to commercial power generation is presented in Table 8 along with the State MCLs. The shallow alluvial groundwater sample set contains a total of seven samples and one duplicate sample. ProUCL guidance suggests that at least 10 samples are needed to statistically determine a BTV. In lieu of an insufficient number of samples of shallow groundwater for BTV calculations using ProUCL, the BTVs for the constituents of concern in the shallow alluvial groundwater are preliminarily set to the maximum detected value as shown in Table 8. The use of additional historic data from the greenhouse would provide a sufficient number of samples to calculate BTVs for the shallow alluvial groundwater.

TABLE 8
Summary of Selected Constituents in Shallow Monitoring Wells

Constituent	Number of Observations	Minimum (mg/L)	Maximum (mg/L)	State MCL (mg/L)
Arsenic	7	0.0055	0.019	1.0
Boron	7	0.22	0.7	0.75
Fluoride	7	1.3	12	1.6
Sulfate	7	510	1200	600
TDS	7	1210	3210	1000

Laboratory analytical sheets for results in Table 5 that were collected prior to December 2013 and were not submitted to OCD as part of the 2013 annual geothermal well report are included in Appendix A. The laboratory analytical sheets for the samples collected from the geothermal system after December 2013 are included in Appendix B.

4.2 Background Threshold Values

BTV calculations were conducted using EPA guidance documents and software. This process includes the following steps:

- Group groundwater sampling data by the formation of interest.
- Examine the data for outliers and adjust the data set if appropriate.
- Determine summary statistics (i.e. maximum, median).
- Determine the best distribution fitting the data for calculation of a BTV (e.g. Normal, Lognormal, or Nonparametric).

The results of the UPL95 analysis for geothermal samples, and sampling to date for the alluvial monitoring wells are in Table 9. LDG believes that it is appropriate to use the BTVs presented herein to establish ACLs in the geothermal system for the production and operation of the power plant.

Naturally occurring arsenic, boron, fluoride, sulfate, TDS, and pH in the geothermal system exceed State of New Mexico water quality criteria as published in NMAC 20.6.2.3103. The BTVs derived by Pro UCL for these naturally occurring constituents are presented in Table 9 along with the State MCLs. The complete set of ProUCL output is included in Appendix C.

TABLE 9
Summary of ProUCL Alternate Concentration Limits

Constituent	Number of Observations	Minimum (mg/L)	Maximum (mg/L)	BTV (mg/L)	State MCL (mg/L)	ACL (mg/L)
Arsenic	14	0.0074	0.42	0.42	0.1	0.42
Boron	14	0.12	2.6	2.6	0.75	2.6
Fluoride	15	1.4	17	15.43 ¹	1.6	17
Sulfate	16	120	630	630	600	630
TDS	16	321	1572	1572	1000	1572

Note: 1 Normal distribution including outliers

4.3 Groundwater Flow Direction and Hydraulic Gradient

The water-level contour map for the shallow monitoring wells presented in Figure 3 is based on measurements in mid-December of 2013, just prior to the beginning of commercial geothermal power production. These measurements suggest that the water table takes the form of a low ridge sloping from east-northeast to west-southwest across the project area. Presumably the water-table ridge, which may simply be the western part of a water-table mound that would be evident if data were available for locations east of the project area, is the expression of natural upward groundwater flow from the geothermal system into the shallow aquifer.

Monthly pumping and injection amounts for January through June, shown as Figure 4, increased from 119 acre-feet in January to 138 acre-feet in March, then declined in April and were significantly less in May because pumping was suspended during the installation of a new submersible pump in well 45-7 between May 12 and 18. Pumping and injection in June were nearly at the levels of February and March. The water table generally rose after commercial power production began. The orientation of the crest of the water-table ridge appears to have shifted slightly from east-northeast toward the northeast between the pre-operation condition and the June 19, 2014 measurements (Figures 5 through 11), and the difference in elevation across the ridge became somewhat greater as indicated by the water-level change maps (Figures 12 through 17). These maps show that between the pre-operation condition in mid-December 2013, and the configuration of the water table on June 19, 2014, the water table rose by 4 to 6 feet along the crest of the ridge between wells MW-1A and MW-3, but considerably less in the outlying wells MW-4, MW-5 and MW-6. The hydraulic gradients for these time periods are presented in Table 10.

TABLE 10
Hydraulic Gradients December 2013 through June 2014

Date	Gradient	Flow Direction Ranges
December 9-11, 2013	0.005	South to West-Northwest
December 28, 2013	0.005	South to West-Northwest
January 27, 2014	0.005	South to West-Northwest
February 22, 2014	0.004	South to West-Northwest
March 17, 2014	0.004	South to West-Northwest
April 17, 2014	0.005	South to West-Northwest
May 11, 2014	0.005	South to West-Northwest
June 19, 2014	0.005	South to West-Northwest

Water-level hydrographs of the shallow monitoring wells (Figures 18 and 19) show that the rate of water-level rise was nearly uniform over time in the wells farthest from the principal injection well (MW-4 and MW-5), but that the rate of rise appears to have become less after the January measurements in the closer monitoring wells MW-1A, MW-1B, MW-2, and MW-4 even though the February and March injection amounts were greater than the January amount. A decline was seen in all of the shallow monitor wells during and after the non-pumping period in mid-May. The rates of rise between late January and early May for the more distant wells, MW-4 and MW-5, are about 2.2 and 1.6 feet per year, respectively and for the wells closer to the injection well ranged up to about 5.7 feet per year. The record is probably too short to assess whether these rates would now be linear for an extended period, or are actually continuing to decrease. None of these changes have been compared with water-level measurements in shallow wells outside the project area to assess the extent to which they are related to causes other than the geothermal operation, such as seasonal irrigation.

The hydrograph for the intermediate-depth monitoring well, well INW-1 (Figure 18) shows that the water level rose at about the same rate as in the nearby water-table well MW-1A until about the end of January 2014, then declined abruptly and now appears to be declining such that by April 17 the level was nearly 3 feet below the position on December 28. The water level in well INW-1 declined by a little more than 5 feet during the non-pumping period in mid-May, then rose again and appeared to follow the earlier trend after pumping began again.

Water levels in injection wells 53-7 and 63-7, which have received only very small amounts of water, declined during January (Figure 20). The record for well 53-7 shows a decline of roughly 10 feet between the pre-operation measurement in mid-December 2013 and measurements in late January. The water level in well 63-7 declined somewhat less than 2 feet during the second half of January. No measurements were recorded for these wells between mid-December 2013 and June because the wells were on injection. A number of measurements in each well during June showed erratic variation, both above and below the January measurements, over a range of around 30 feet.

5.0 CONCLUSIONS

Fluoride in groundwater at the LDG project is spatially related to natural upward flow from the geothermal system. Based on the single pre-commercial power generation sample from each of the shallow monitoring wells it is not appropriate to apply a statistical analysis using ProUCL or any other method without consideration of all samples collected from shallow groundwater.

It would be appropriate to calculate BTVs for each monitoring well if at least 10 samples had been collected from each well prior to commercial power generation. Any calculations or conclusions drawn about water quality must incorporate the entire body of laboratory analytical results available from reputable sources, with or without laboratory quality assurance/quality control backup.

Groundwater samples were collected by previous investigators from two shallow alluvial wells in the greenhouse area. While the exact wells from which these samples were collected could not be confirmed, they are believed to have been collected from wells G2SE and G3S as indicated on Figure 2. Well G2SE is believed to be 440 feet deep and well G3S is believed to be 250 feet deep.

Both wells were apparently sampled by flowing from a hose bib on the well head. G2SE was sampled by Raser Technologies, Inc. in 2008 and analyzed by TraceAnalysis, Inc. of Lubbock, Texas. Well G3S was sampled by OCD in 1986 and analyzed by the New Mexico State Scientific Laboratory with a duplicate sample analyzed by Westech Laboratories, Inc. of Phoenix, Arizona. The fluoride concentration detected in G2SE was 9.95 ppm and the fluoride concentration detected in well G3S was 15.46 ppm. This further illustrates the variability and high fluoride concentrations in shallow groundwater with respect to spatial relationship to upwelling geothermal water. The laboratory analytical sheets for these samples are also included in Appendix A.

Based on the laboratory analytical data for wells LDG 45-7 and LDG 55-7 presented in Table 5, the extraction of geothermal water has not caused changes to the quality of the geothermal water. The analytical results for the samples collected from LDG 45-7 on 1/7/2014 and 1/28/2014 appear to indicate that the samples were contaminated by de-ionized water during the equipment decontamination process. The analytical results for the sample collected on 2/25/2014 appear to indicate that the sample was largely de-ionized water from the equipment decontamination process.

Based on the comparison of laboratory analytical data in wells LDG 45-7 and LDG 55-7 presented in Table 7, the extraction of heat from the geothermal water by the geothermal power plant causes no changes to the quality of the spent geothermal water.

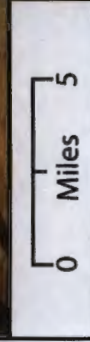
Going forward, it is most appropriate to sample the shallow monitoring wells for the constituents of concern that are higher in the geothermal system and use the concentrations reported in the samples collected prior to commercial power production as the baseline for comparison.

6.0 REFERENCES

Elston, E., Deal, E., Logsdon, M., Geology and geothermal waters of Lightning Dock region, Animas Valley and Pyramid Mountains, Hidalgo County, New Mexico, 1983, New Mexico Bureau of Mines and Mineral Resources, Circular 177.

EPA ProUCL, Version 5.0, September 2013

FIGURES



GoogleEarth 2013

amec		Cyrc Lightning Dock geothermal	
PROJECT: AMEC Environmental & Infrastructure 8519 Jefferson, NE Albuquerque, NM 87113		DWN BY: KP	DATE: JUNE 2014
TITLE: Lightning Dock Geothermal HI-01, LLC		CHKD BY: DJ	CONTRACT NO.: 11517000102
PROJECT LOCATION		PROJECTION: SCALE: 1" = 5 miles	FIGURE NO.: 1



△ MW-4

○ TG 52-7

△ MW-2

○ 53-7

△ MW-3

○ 63-7

△ MW-1A

○ 45-7

◇ INW-1

○ 55-7

△ MW-1B

○ G2SE

○ G3S

△ MW-6

○ 47-7

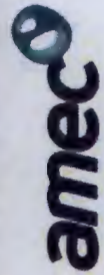
△ MW-5

GoogleEarth 2013

EXPLANATION

- Production Well
- Injection Well
- △ Monitoring Well
- ◇ Intermediate-Depth Well
- Other Wells

AMEC Environmental & Infrastructure
8519 Jefferson, NE
Albuquerque, NM 87113



Cyrq
Lightning Dock
geothermal

PROJECT:	DWN BY:	DATUM:	DATE:
Lightning Dock Geothermal HI-01, LLC	KP	KP	JUNE 2014
TITLE:	CHK'D BY:	REV. NO.:	CONTRACT NO.:
WELL LOCATIONS	DJ		11517000102
	PROJECTION:	SCALE:	FIGURE NO.:
		1" = 700'	2



Figure 3. Water-level elevation levels shown in shallow monitoring wells (MW- wells) for December 09, 10, and 11, 2013, Cyrq Energy Lightning Dock Geothermal project. Contour values in feet.

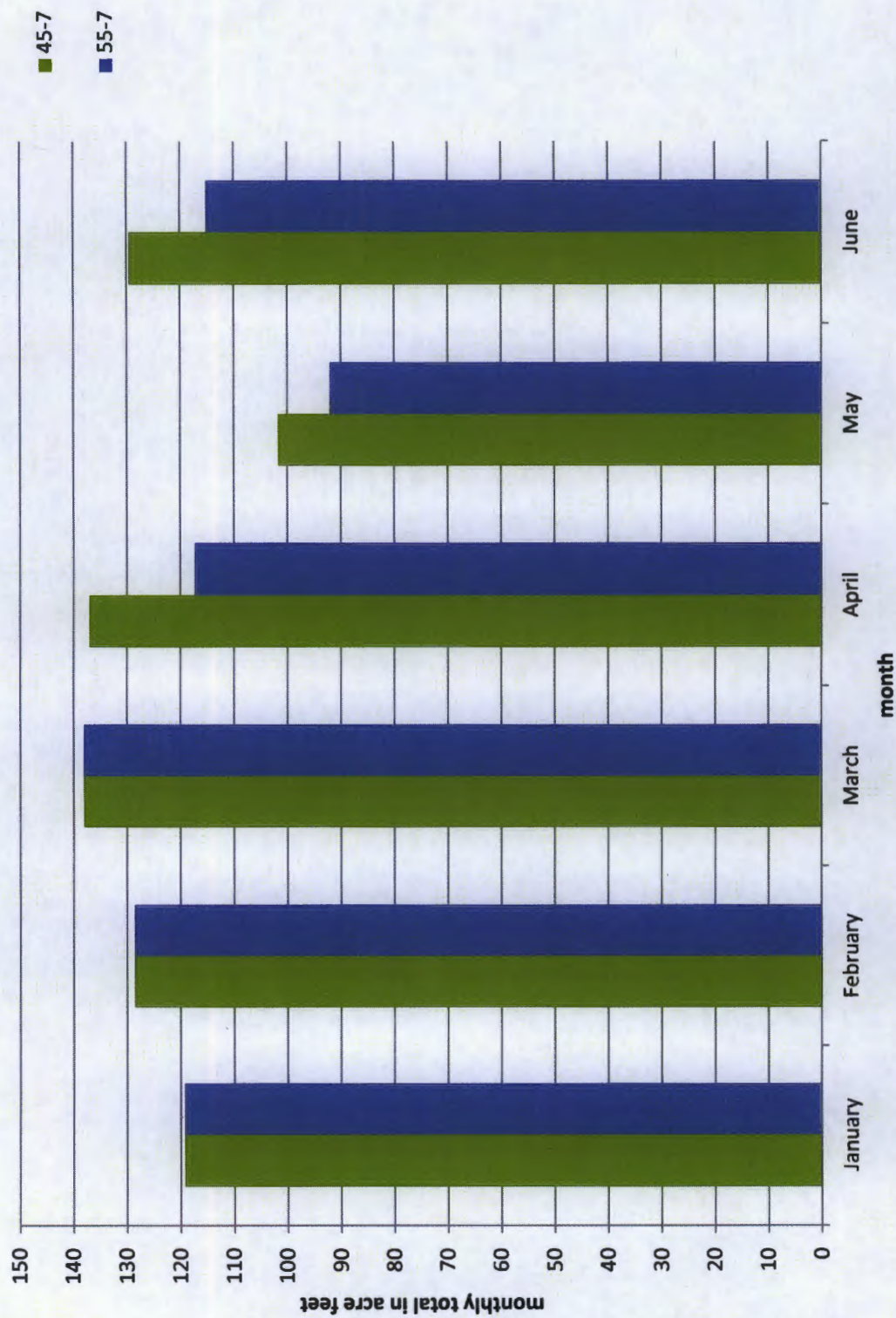


Figure 4. Graph showing pumping from Well 45-7 and injection into Well 55-7 by month, January through June 2014.

For 1% significance level, 120 is not an outlier.

Dixon's Outlier Test for TDS

Number of Observations = 16

10% critical value: 0.454

5% critical value: 0.507

1% critical value: 0.595

1. Observation Value 1572 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.277

For 10% significance level, 1572 is not an outlier.

For 5% significance level, 1572 is not an outlier.

For 1% significance level, 1572 is not an outlier.

2. Observation Value 321 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.497

For 10% significance level, 321 is an outlier.

For 5% significance level, 321 is not an outlier.

For 1% significance level, 321 is not an outlier.

Dixon's Outlier Test for pH

Number of Observations = 13

10% critical value: 0.467

5% critical value: 0.521

1% critical value: 0.615

1. Observation Value 9.51 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.087

For 10% significance level, 9.51 is not an outlier.

For 5% significance level, 9.51 is not an outlier.

For 1% significance level, 9.51 is not an outlier.

2. Observation Value 6.6 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.035

For 10% significance level, 6.6 is not an outlier.

For 5% significance level, 6.6 is not an outlier.

For 1% significance level, 6.6 is not an outlier.

Dixon's Outlier Test for Zinc

Number of Observations = 4

10% critical value: 0.679

5% critical value: 0.765

1% critical value: 0.889

1. Observation Value 0.3 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.903

For 10% significance level, 0.3 is an outlier.

For 5% significance level, 0.3 is an outlier.

For 1% significance level, 0.3 is an outlier.

2. Observation Value 0.022 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.018

For 10% significance level, 0.022 is not an outlier.

For 5% significance level, 0.022 is not an outlier.

For 1% significance level, 0.022 is not an outlier.



Figure 5. Water-level elevation levels shown in shallow monitoring wells (MW- wells) for December 28, 2013, Cyrq Energy Lightning Dock Geothermal project. Contour values in feet.



Explanation

- water-level elevation contour, ft
- ➔ flow direction
- 45-7 production well
- ◆ 47-7 deep monitoring well
- injection well
- ▲ INW-1 intermediate monitoring well
- monitor well

Figure 6. Water-level elevation levels shown in shallow monitoring wells (MW- wells) for January 27, 2014, Cyrq Energy Lightning Dock Geothermal project. Contour values in feet.



Figure 7. Water-level elevation levels shown in shallow monitoring wells (MW- wells) for February 22, 2014, Cyrq Energy Lightning Dock Geothermal project. Contour values in feet.



Figure 8. Water-level elevation levels shown in shallow monitoring wells (MW- wells) for March 17, 2014, Cyrq Energy Lightning Dock Geothermal project. Contour values in feet.



Explanation

- water-level elevation contour, ft
- ➔ flow direction
- 45-7 production well
- ◆ 47-7 deep monitoring well
- injection well
- ▲ INW-1 intermediate monitoring well
- monitor well

Figure 9. Water-level elevation levels shown in shallow monitoring wells (MW- wells) for April 17, 2014, Cyrq Energy Lightning Dock Geothermal project. Contour values in feet.



Explanation

- water-level elevation contour, ft
- flow direction
- 45-7 production well
- ◆ 47-7 deep monitoring well
- injection well
- ▲ INW-1 intermediate monitoring well
- monitor well

Figure 10. Water-level elevation levels shown in shallow monitoring wells (MW- wells) for May 11, 2014, Cyrq Energy Lightning Dock Geothermal project. Contour values in feet.



Explanation

- water-level elevation contour, ft
- ➔ flow direction
- 45-7 production well
- ◆ 47-7 deep monitoring well
- injection well
- ▲ INW-1 intermediate monitoring well
- monitor well

Figure 11. Water-level elevation levels shown in shallow monitoring wells (MW- wells) for June 19, 2014, Cyrq Energy Lightning Dock Geothermal project. Contour values in feet.



Figure 12. Water-level elevation change in shallow monitoring wells (MW- wells) between December 09, 10, and 11, 2013 (prior to beginning of geothermal operations) and January 27, 2014, Cyrrq Energy Lightning Dock Geothermal project. Contour values in feet. Positive value indicates water-level rise.



Figure 13. Water-level elevation change in shallow monitoring wells (MW- wells) between December 09, 10, and 11, 2013 (prior to beginning of geothermal operations) and February 22, 2014, Cyrq Energy Lightning Dock Geothermal project. Contour values in feet. Positive value indicates water-level rise.



Figure 14. Water-level elevation change in shallow monitoring wells (MW- wells) between December 09, 10, and 11, 2013 (prior to beginning of geothermal operations) and March 17, 2014, Cyrg Energy Lightning Dock Geothermal project. Contour values in feet. Positive value indicates water-level rise.

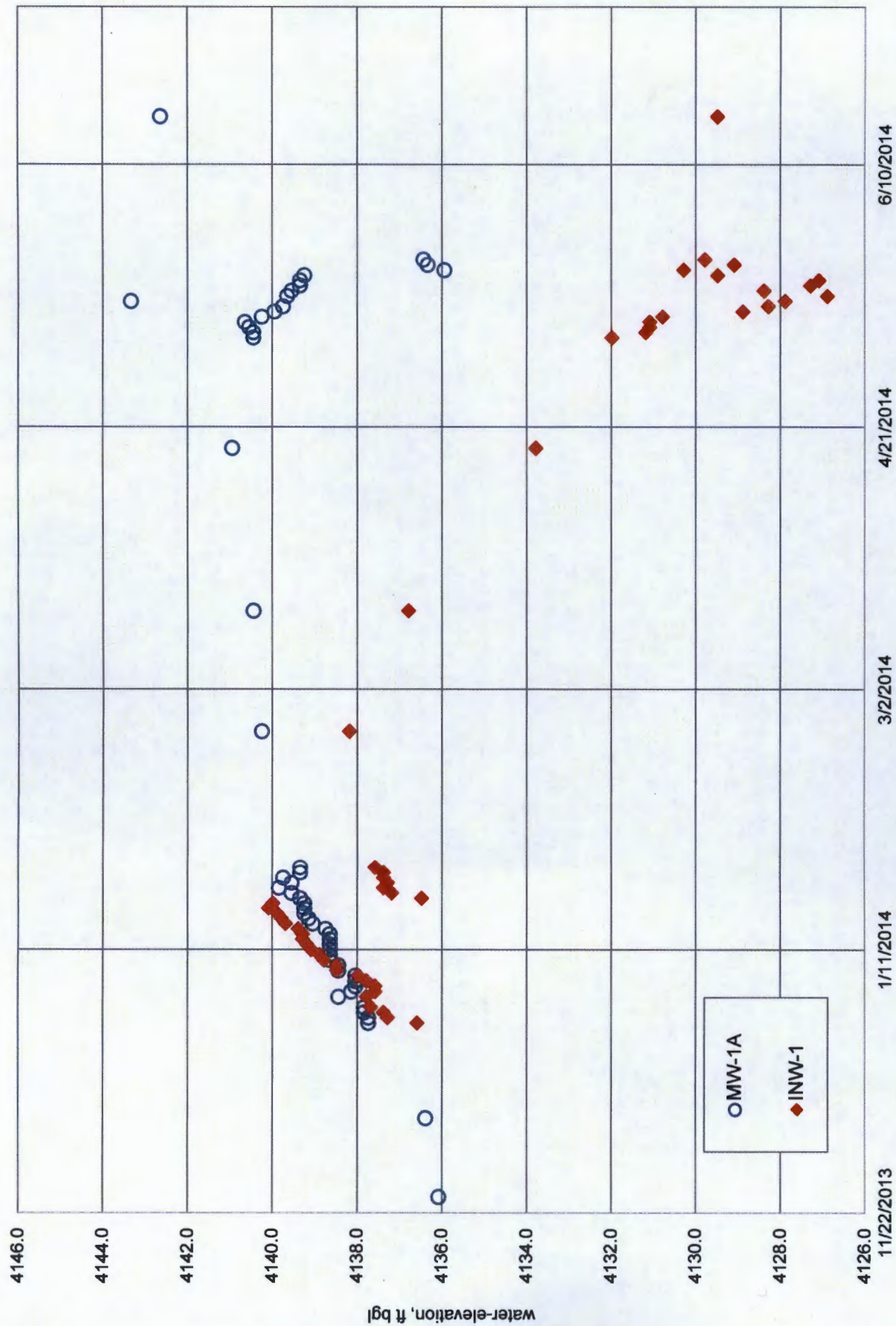


Figure 15. Water-level elevation change in shallow monitoring wells (MW- wells) between December 09, 10, and 11, 2013 (prior to beginning of geothermal operations) and April 17, 2014, Cyrq Energy Lightning Dock Geothermal project. Contour values in feet. Positive value indicates water-level rise.





Figure 17. Water-level elevation change in shallow monitoring wells (MW- wells) between December 09, 10, and 11, 2013 (prior to beginning of geothermal operations) and June 19, 2014, Cyrq Energy Lightning Dock Geothermal project. Contour values in feet. Positive value indicates water-level rise.



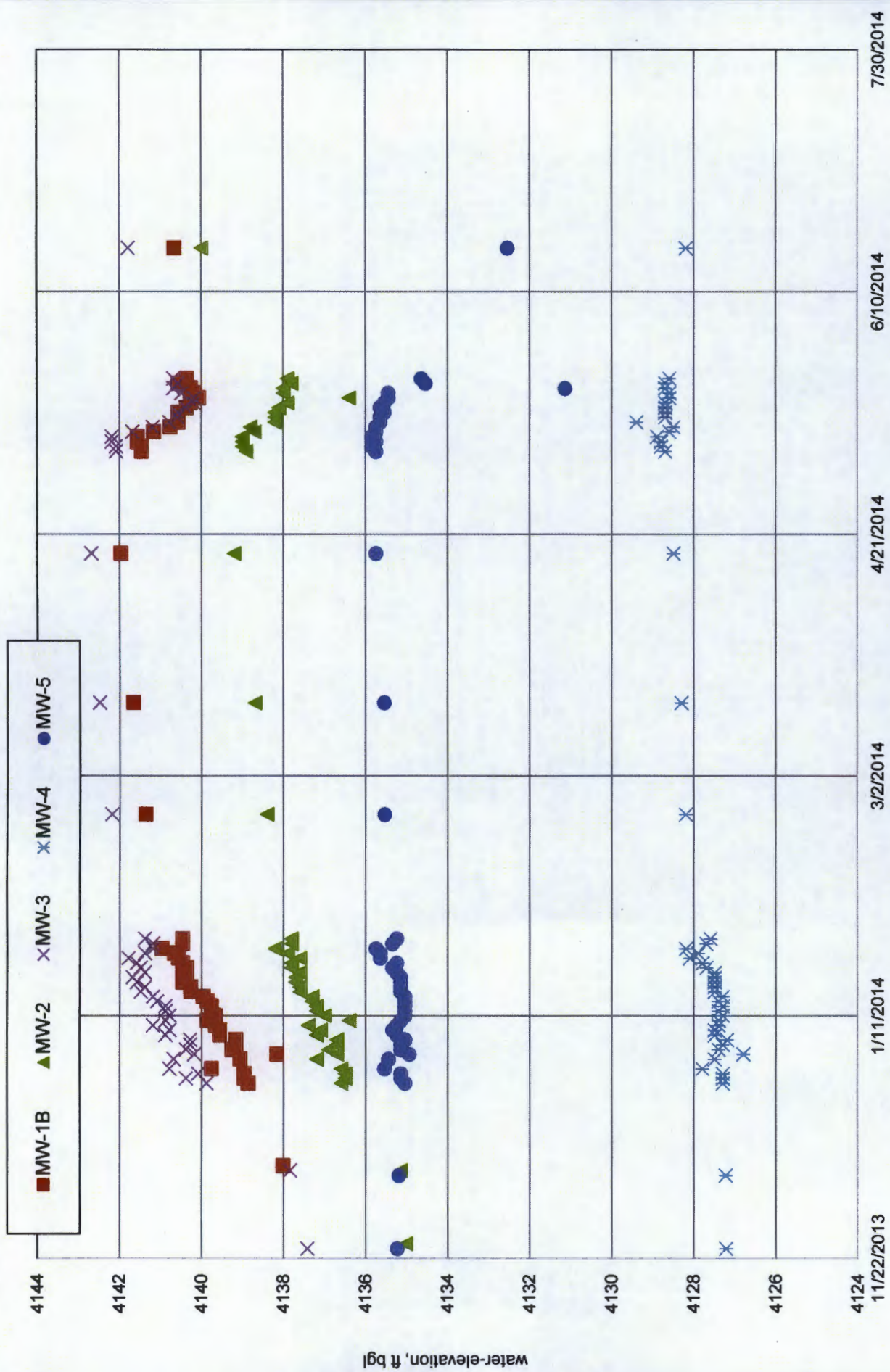


Figure 19. Hydrographs showing water-level elevation in shallow monitoring wells MW-1B, MW-2, MW-3, MW-4, and MW-5, November 24, 2013 to June 19, 2014.

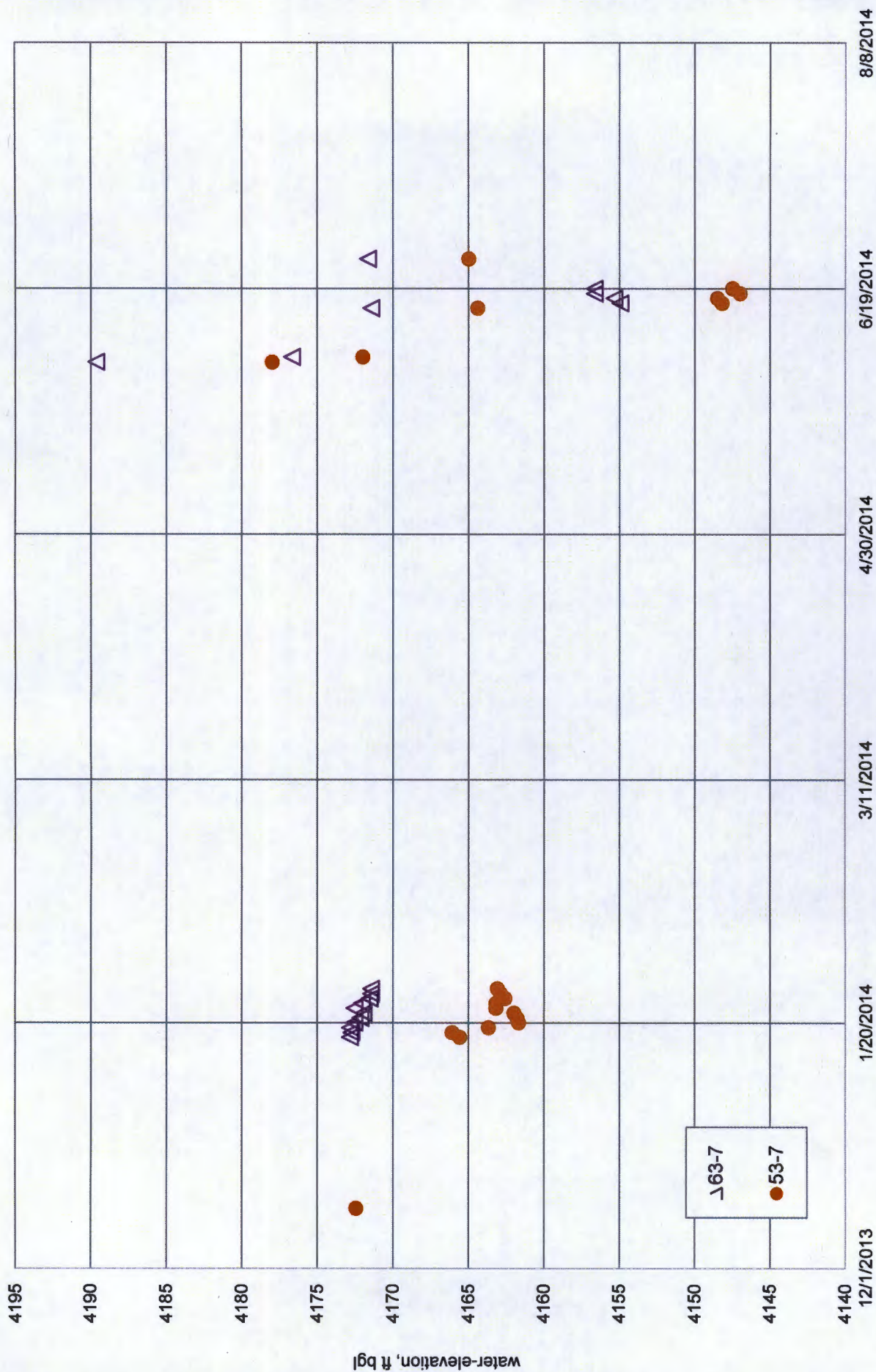


Figure 20. Hydrographs showing water-level elevation in wells 53-7 and 63-7, December 13, 2013 to June 25, 2014.

TABLES

Summary of Geothermal Aquifer Analytical Results for 2014
Lightning Dock Geothermal HL-01, LLC - Hidalgo County, New Mexico
TABLE 5

Well ID Fluid Type	LDG 45-7 Single Phase	LDG 45-7 Single Phase (1120 day)	LDG 45-7 Single Phase (90 day)	LDG 45-7 Single Phase (60 day)	LDG 45-7 Single Phase (30 day)	LDG 45-7 Single Phase (15 day)	LDG 47-7 Single Phase	LDG 55-7 Phase	LDG 55-7 Single Phase (120 Day)	LDG 55-7 Phase	LDG 55-7 Single Phase (90 Day)	LDG 55-7 Single Phase (60 day)	LDG 55-7 Single Phase (30 day)	LDG 55-7 Single Phase (15 day)	LDG 63-7 Single Phase
Sample ID	1405C00-001	1404946-1404946-001	1403801	1402936	1401835-1401835-001	1401335	1409866	1405C00-001	1404947	1405C00-003	14703803	1402938	1401A82	1401342	1409872
Sample Date	6/26/2014	4/23/2014	3/22/2014	2/25/2014	1/28/2014	1/7/2014	9/22/2014	6/26/2014	4/23/2014	5/28/2014	3/22/2014	2/25/2014	1/27/14	1/7/14	9/22/2014
Analyte															
NMAC 20.6.2 Standard Concentration	Arsenic (As)	0.013	0.013	0.012	ND	0.004	NA	0.013	0.013	0.015	0.012	0.013	0.013	0.011	NA
	Barium (Ba)	0.064	0.06	0.066	ND	0.022	NA	0.065	0.059	0.061	0.062	0.065	0.065	0.063	NA
	Cadmium (Cd)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	Chromium (Cr)	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	NA	ND	NA
	Cyanide (CN)	ND	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND	ND	NA
	Fluoride (F)	12	12	13	ND	3.9	NA	12	12	12	12	12	12	14	NA
	Lead (Pb)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	Total Mercury (Hg)	ND	ND	ND	0.00046	0.00033	NA	ND	0.0005	ND	ND	ND	ND	ND	NA
	Nitrate (NO ₃ as N)	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA
	Selenium (Se)	0.0014	0.0010	NA	ND	ND	NA	0.0027	0.0011	0.0021	NA	0.0018	0.0014	0.0014	NA
	Silver (Ag)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	Uranium (U)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	Radioactivity: Radium (Ra 226)	5.14 ± 1.13 (0.782)	4.33 ± 1.41 (0.991)	6.22 ± 1.62 (0.770)	0.224 ± 0.270 (0.412)	1.95 ± 0.862 (0.757)	NA	5.15 ± 1.06 (0.577)	5.14 ± 1.32 (0.968)	4.34 ± 1.22 (0.650)	4.17 ± 1.22 (0.954)	4.18 ± 1.17 (0.892)	3.58 ± 1.04 (0.766)	6.94 ± 1.66 (0.708)	NA
	Radioactivity: Radium (Ra 228)	0.293 ± 0.365 (0.785)	0.441 ± 0.432 (0.893)	0.410 ± 0.419 (0.866)	0.369 ± 0.263 (0.507)	0.264 ± 0.349 (0.737)	NA	0.781 ± 0.409 (0.790)	0.185 ± 0.355 (0.782)	0.615 ± 0.382 (0.711)	0.647	(0.791)	0.448 ± 0.252 (0.450)	0.467 ± 0.349 (0.680)	NA
None	Radionuclides: Radon 222	2765 ± 155 (112)	2840	2540	3490	6830	NA	2313 ± 144 (112)	2480	876 ± 181 (97.1)	2100	2230	1830	2480	NA
	Benzene	ND	ND	ND	ND	8.0	15	ND	ND	ND	ND	ND	ND	ND	ND
	Polychlorinated biphenyls (PCB's)	ND	ND	ND	ND	2.5	19	ND	ND	ND	ND	ND	ND	ND	ND
	Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1,2-dichloroethane (EDC)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1,1-dichloroethane (1,1-DCE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1,1,2,2-tetrachloroethylene (PCE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1,1,2-trichloroethylene (TCE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	total xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	750 ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	methylene chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
None	chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	100 ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1,1-dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	25 ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	ethylene dibromide (EDB)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1,1,1-trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10 ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1,1,2,2-tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10 ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1 ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	PAH's: total naphthalene +	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	monomethylnaphthalenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
None	benzo-a-pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0.7 ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	TPH 418.1	1.3	1.2	1.9	2.7	9	NA	ND	4.4	5.7	6	1.6	15.0	3	NA
	Chloride (Cl)	79	83	89	ND	25	NA	81	84	85	84	93	81	81	NA
	250.0 mg/l	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	Copper (Cu)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	1.0 mg/l	0.041	0.023	0.032	0.04	0.032	NA	0.085	0.072	0.12	0.074	0.13	0.17	0.22	NA
	Iron (Fe)	0.02	0.026	0.025	ND	0.012	NA	0.023	0.025	0.027	0.026	0.029	0.026	0.029	NA
	Manganese (Mn)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	Phenols	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	27
	0.005 mg/l	490	520	540	ND	140	NA	510	530	530	520	520	510	500	NA
	Sulfate (SO ₄)	1300	1300	1310	ND	386	NA	1300	1300	1280	1310	1320	1310	1310	NA
None	Total Dissolved Solids (TDS)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	1000.0 mg/l	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	Zinc (Zn)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	10.0 mg/l	6.8	7	7.01	4.62	5.67	NA	6.99	6.96	6.95	7	6.72	7.00	6.77	NA
	pH														
	Aluminum (Al)	0.21	0.22	0.23	ND	0.076	NA	0.23	0.23	0.22	0.23	0.23	0.24	0.22	NA
	5.0 mg/l	0.47	0.44	0.51	ND	0.18	NA	0.44	0.44	0.45	0.48	0.47	0.49	0.45	NA
	Boron (B)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	0.75 mg/l	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	Cobalt (Co)	0.028	0.027	0.031	ND	ND	NA	0.026	0.024	0.026	0.028	0.028	0.031	0.028	NA
	1.0 mg/l	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	Nickel (Ni)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
None	Bromide	0.30	0.27	0.27	ND	NA	NA	0.27	NA	0.26	0.26	NA	NA	0.29	NA
	0.2 mg/l	0.653	0.672	0.661	ND	0.259	NA	0.663	0.678	0.669	0.661	0.717	0.747	0.721	NA
	Lithium (Li)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	None	0.355	0.366	0.346	ND	0.123	NA	0.35	0.346	0.365	0.354	0.361	0.356	0.356	NA
	Rubidium (Rb)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA
	0.005 mg/l	0.0867	0.0785	0.0813	ND	0.0438	NA	0.0823	0.0791	0.102	0.081	0.0792	0.0831	0.0799	NA
	Tungsten														
	0.07 mg/l														
	NOTES														
	NA = Not Analyzed														
	ND = Not Detected														
	* Total metal not dissolved metal														
	U = Not detected at minimum detectable concentration														
	H = Analysis performed past recommended holding time														

		Well ID: Lab ID:	MW-1 1311B14-001	MW-1B 1312B59-001	MW-2 1311B14-002	MW-2 Duplicate 1311B14-003	MW-3 1311B14-004	MW-4 1311B14-005	MW-5 1311B14-006	MW-6 1311B14-007
Analyte	Std. Dissolved Concentration	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
1 Arsenic (As)	1 mg/l		0.0055	0.011	0.0082	0.0083	0.019	0.012	0.0060	0.020
2 Barium (Ba)	1 mg/l		0.063	0.14	0.044	0.043	0.06	0.059	0.041	0.047
3 Cadmium (Cd)	0.01 mg/l		ND	ND	ND	ND	ND	ND	ND	MD
4 Chromium (Cr)	0.5 mg/l		ND	ND	ND	ND	ND	ND	ND	ND
5 Cyanide (CN)	0.2 mg/l		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
7 Lead (Pb)	0.05 mg/l		ND	0.0044	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
9 Nitrate(NO3 as N)	10 mg/l		2.6	15	3.1	3.2	2.1	12	42	42
10 Selenium (Se)	0.05 mg/l		0.0052	NA	0.0035	0.0035	0.0034	0.033	0.028	0.011
11 Silver (Ag)	0.05 mg/l		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
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)
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)
15 Radionuclides: Radon 222	None		238	676	580	567	781	1090	197	507
16 Benzene	1 ug/l		ND	ND	ND	ND	ND	ND	ND	ND
17 Polychlorinated biphenyls (PCB's)	1 ug/l		NA	ND	NA	NA	NA	NA	NA	NA
18 Toluene	750 ug/l		ND	ND	ND	ND	ND	ND	ND	ND
19 Carbon Tetrachloride	10 ug/l		ND	ND	ND	ND	ND	ND	ND	ND
20 1,2-dichloroethane (EDC)	10 ug/l		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
22 1,1,2,2-tetrachloroethene (PCE)	20 ug/l		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
24 ethylbenzene	750 ug/l		ND	ND	ND	ND	ND	ND	ND	ND
25 Total xylenes	620 ug/l		ND	ND	ND	ND	ND	ND	ND	ND
26 methylene chloride	100 ug/l		ND	ND	ND	ND	ND	ND	ND	ND
27 chloroform	100 ug/l		28	33	4.9	5.2	21	ND	ND	ND
28 1,1-dichloroethane	25 ug/l		ND	ND	ND	ND	ND	ND	ND	ND
29 ethlene dibromide (EDB)	0.1 ug/l		ND	ND	ND	ND	ND	ND	ND	ND
30 1,1,1-trichloroethane	660 ug/l		ND	ND	ND	ND	ND	ND	ND	ND
31 1,1,2-trichloroethane	10 ug/l		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
33 vinyl chloride	1 ug/l		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
35 benzo-a-pyrene	0.7 ug/l		ND	ND	ND	ND	ND	ND	ND	ND
36 TPH 418.1	None		ND	1.3	ND	ND	1.1	NA	NA	ND
1 Chloride (Cl)	250 mg/l		100	120	96	96	94	710	230	130
2 Copper (Cu)	1 mg/l		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
4 Manganese (Mn)	0.2 mg/l		0.21	0.27	0.041	0.036	0.18	0.15	0.27	0.074
5 Phenol	0.005 mg/l		ND	ND	ND	ND	ND	ND	ND	ND
6 Sulfate	600 mg/l		670	540	510	510	540	1200	930	950
7 Total Dissolved Solids (TDS)	1000 mg/l		1780	1520	1380	1210	1380	3210	2010	1880
8 Zinc (Zn)	10 mg/l		ND	0.015	0.015	ND	ND	0.048	0.023	0.033
9 pH	6-9 pH Units		7.69	7.66	7.6	7.58	8	7.38	7.62	7.56
1 Aluminum (Al)	5 mg/l		0.034	25	0.049	0.024	0.31	ND	ND	0.63
2 Boron (B)	.75 mg/l		0.7	0.45	0.37	0.36	0.44	0.22	0.31	0.39
3 Cobalt (Co)	0.05 mg/l		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
5 Nickel (Ni)	0.2 mg/l		ND	ND	ND	ND	ND	ND	ND	ND
6 Bromide	None		ND	NA	ND	ND	ND	2.2	1.2	ND
7 Lithium (Li)	None		0.8	0.533	0.7	0.7	0.5	1.7	0.4	0.8
8 Rubidium (Rb)	None		0.2	0.189	0.1	0.1	0.2	0.4	0.1	0.1
9 Tungsten	None		ND	0.0386	ND	ND	ND	ND	ND	ND
Notes:										
NA = not analyzed										
ND = not detected										
* total metal not dissolved metal										

Appendix A

Laboratory Analytical Sheets for Other Wells

Soil Water and Air Testing Lab
New Mexico State University
BOX 30003
Las Cruces, NM 88003
(505) 646-4422

Page 1 of 2
 Report # 031222/246

Date: 12/22/03

ANALYTICAL REPORT

To: Lightning Dock Geothermal, In 523-7908

Attn: Roy A. Cunniff

224 W. Greening Ave.

Las Cruces, NM 88005

Purchase Order #

Below are the results for submitted sample(s).

(MDL=Method detection limit)

Sample I.D. AB53998

Sample Description: Animas NM Well TG 52-7 DST

Sample collection date: 11/05/03

Sample collection time: 15:00

Submittal date: 11/07/03

Submittal time: 15:18

WSS# Request ID No.

Collector: ROY CUNNIFF

Sample Purpose:

Sampling Information:

Element	Method	Result	Units	MDL	Date of Analysis	Analyst
pH of water	150.1	9.26			11/11/03	LJO
Electrical Conductivity	2510B	2310	micromhos/cm	1	11/11/03	LJO
Total Dissolved Solids	160.2	1572	mg/L	1	11/11/03	BJH
Magnesium (for SAR)	200.7	0.04	meq/L	0.01	11/21/03	BJH
Calcium (for SAR)	200.7	0.51	meq/L	0.01	11/21/03	BJH
Sodium (for SAR)	200.7	19.40	meq/L	0.01	11/21/03	BJH
Potassium by ICP	200.7	8.4	mg/L	0.1	11/21/03	BJH
Sodium Adsorption Ratio (SAR)	Handbook 60	36.99		0.01	11/21/03	BJH
Carbonate	310.1	1.62	meq/L	0.01	11/12/03	LJO
Bicarbonate	310.1	4.69	meq/L	0.01	11/12/03	LJO
Alkalinity (as CaCO ₃)	2320B	315.5	mg/L	0.1	11/12/03	LJO
Hardness as CaCO ₃	130.2	28	mg/L	1	11/21/03	BJH
Residual Sodium Carbonate (RSC)		5.76	meq/L	0.01	11/21/03	BJH
Chloride by Autoanalyzer	4500-Cl_D	111.0	mg/L	2.5	11/19/03	CAW
Sulfate	4500-SO ₄ _E	545	mg/L	10	11/26/03	JH
Fluoride by electrode	4500-F_C	11.82	mg/L	0.05	11/26/03	DJO
Aluminum by ICP	200.7	0.78	mg/L	0.05	12/05/03	BJH
Antimony by ICP	EPA 200.7	Not detected	mg/L	0.05	12/05/03	BJH
Arsenic by ICP	EPA 200.7	0.07	mg/L	0.05	12/05/03	BJH
Barium	200.8	53.1	ug/L	0.1	11/26/03	MBL
Beryllium	200.8	Not detected	ug/L	0.2	11/26/03	MBL
Bismuth by ICP		Not detected	mg/L	1	12/19/03	BJH
Cadmium by ICP (EPA 200.7)	EPA 200.7	Not detected	mg/L	0.01	12/05/03	BJH
Calcium by ICP	200.7	10.9	mg/L	0.1	12/05/03	BJH
Chromium by ICP (EPA 200.7)	EPA 200.7	Not detected	mg/L	0.01	12/05/03	BJH
Cobalt by ICP	200.7	Not detected	mg/L	0.01	12/05/03	BJH
Copper by ICP (EPA 200.7)	EPA 200.7	Not detected	mg/L	0.04	12/05/03	BJH
Iron by ICP	200.7	26.80	mg/L	0.05	12/05/03	BJH
Lead by ICP (EPA 200.7)	EPA 200.7	Not detected	mg/L	0.05	12/05/03	BJH
Magnesium by ICP	200.7	0.5	mg/L	0.1	12/05/03	BJH
Manganese by ICP	200.7	0.474	mg/L	0.005	12/05/03	BJH
Mercury	200.8	3.2	ug/L	0.2	11/26/03	MBL
Molybdenum by ICP-MS	200.8	71.1	ug/L	1	11/26/03	MBL
Nickel by ICP (EPA 200.7)	EPA 200.7	0.01	mg/L	0.01	12/05/03	BJH
Selenium by ICP	EPA 200.7	Not detected	mg/L	0.05	12/05/03	BJH
Silver by ICP	200.7	Not detected	mg/L	0.02	12/05/03	BJH
Sodium by ICP	200.7	473.6	mg/L	0.1	12/05/03	BJH
Thallium by ICP	200.7	Not detected	mg/L	0.05	12/05/03	BJH
Uranium by ICP-MS	200.8	1.77	ug/L	0.05	11/26/03	MBL

Sample I.D. AJS3998

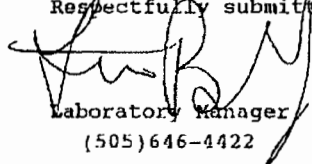
Sample Description: Animas NM Well TG 52-7 DST
Sample collection date: 11/05/03 Sample collection time: 15:00
Submittal date: 11/07/03 Submittal time: 15:18
WSS# Request ID No. Collector: ROY CUNNIFF
Sample Purpose: Sampling Information:

Element	Method	Result	Units	MDL	Date of Analysis	Analyst
Vanadium by ICP	200.7	Not detected	mg/L	0.05	12/05/03	BJH
Zinc by ICP	200.7	0.30	mg/L	0.01	12/05/03	BJH
Boron by ICP	200.7	10.10	mg/L	0.01	12/05/03	BJH
Silica by ICP	EPA 200.7	51.60	mg/L	0.25	12/05/03	BJH

Results relate only to the items tested. This report shall not be reproduced except in full, without the written approval of the laboratory. This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this report have been determined in accordance with the laboratory's terms of accreditation unless stated otherwise in the report. Those tests not presently accredited are noted by a hyphen.

Please advise should you have questions concerning these data.

Respectfully submitted,


Laboratory Manager
(505) 646-4422

Summary Report

Jim Rosser
Raser Technologies
5152 North Edgewood Dr.
Suite 375
Provo, UT, 84604

Report Date: March 18, 2008

Work Order: 8031235



Project Location: Animas, New Mexico
Project Name: Cold Water/Hot Water
Project Number: Lighting Dock

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
153439	LDC Cold Water	water	2008-03-12	07:54	2008-03-12
153440	LDC Hot Water	water	2008-03-12	08:23	2008-03-12

Sample - Field Code	TPH DRO	TPH GRO	TX1005	
	DRO (mg/L)	GRO (mg/L)	C6-C12 (mg/L)	>C12-C28 (mg/L)
153439 - LDC Cold Water	<5.00	<0.500	<5.00	<5.00
153440 - LDC Hot Water	<5.00	<0.500	<5.00	<5.00

Sample: 153439 - LDC Cold Water

Param	Flag	Result	Units	RL
Total Silver		<0.00500	mg/L	0.00500
Total Aluminum		<0.0500	mg/L	0.0500
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1.00
Bicarbonate Alkalinity		126	mg/L as CaCo3	5.00
Total Alkalinity		126	mg/L as CaCo3	5.00
Amenable Cyanide		<0.0100	mg/L	0.0100
Ammonia-N		1.48	mg/L	1.00
Total Arsenic		<0.00500	mg/L	0.00500
Total Boron		0.0590	mg/L	0.00500
Total Barium		0.0240	mg/L	0.00100
Total Beryllium		<0.00200	mg/L	0.00200
Total Calcium		42.8	mg/L	0.500
Total Cadmium		<0.00100	mg/L	0.00100
Chloride		20.4	mg/L	2.00
Chlorine		<0.0400	mg/L	0.0400
Free Chlorine		<0.0400	mg/L	0.0400
Chemical Oxygen Demand		<50.0	mg/L	50.0
Specific Conductance		550	uMHOS/cm	0.00
Total Chromium		<0.00100	mg/L	0.00100
Total Copper		0.0150	mg/L	0.00500

continued ...

sample 153439 continued ...

Param	Flag	Result	Units	RL
Total Iron		0.0130	mg/L	0.0100
Fluoride		1.04	mg/L	0.200
Free Cyanide		<0.0100	mg/L	0.0100
Total Mercury		<0.000200	mg/L	0.000200
Total Potassium		2.11	mg/L	0.500
Total Magnesium		3.81	mg/L	0.500
Total Manganese		<0.00250	mg/L	0.00250
Total Molybdenum		<0.0100	mg/L	0.0100
Total Sodium		68.0	mg/L	0.00
Total Nickel		<0.00500	mg/L	0.00500
Nitrite-N		<0.100	mg/L	0.100
Nitrate-N		1.19	mg/L	0.100
Total Lead		<0.00500	mg/L	0.00500
pH		7.48	s.u.	0.00
Phenolics		0.260	mg/L	0.130
PO4-P		<0.500	mg/L	0.500
Total Antimony		<0.0200	mg/L	0.0200
Total Selenium		<0.0100	mg/L	0.0100
Total Silica		34.7	mg/L	0.0500
Sulfate		94.8	mg/L	1.00
Sulfide		<0.100	mg/L	0.100
Total Dissolved Solids		358	mg/L	5.00
Total Kjeldahl Nitrogen - N		<6.00	mg/L	6.00
Total Thallium		<0.0200	mg/L	0.0200
Total Organic Carbon		<1.00	mg/L	1.00
Total Cyanide		<0.0150	mg/L	0.0150
Total Suspended Solids		<10.0	mg/L	10.0
Turbidity (Nephelometric)		0.0800	NTU	0.00
Bromochloromethane		<1.00	µg/L	1.00
Dichlorodifluoromethane		<1.00	µg/L	1.00
Chloromethane (methyl chloride)		<1.00	µg/L	1.00
Vinyl Chloride		<1.00	µg/L	1.00
Bromomethane (methyl bromide)		<5.00	µg/L	5.00
Chloroethane		<1.00	µg/L	1.00
Trichlorofluoromethane		<1.00	µg/L	1.00
Acetone		<10.0	µg/L	10.0
Iodomethane (methyl iodide)		<5.00	µg/L	5.00
Carbon Disulfide		<1.00	µg/L	1.00
Acrylonitrile		<1.00	µg/L	1.00
2-Butanone (MEK)		<5.00	µg/L	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	5.00
2-Hexanone		<5.00	µg/L	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10.0
1,1-Dichloroethene		<1.00	µg/L	1.00
Methylene chloride		<5.00	µg/L	5.00
MTBE		<1.00	µg/L	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1.00
1,1-Dichloroethane		<1.00	µg/L	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1.00
2,2-Dichloropropane		<1.00	µg/L	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1.00
Chloroform		<1.00	µg/L	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1.00

continued ...

sample 153439 continued ...

Param	Flag	Result	Units	RL
1,1-Dichloropropene		<1.00	µg/L	1.00
Benzene		<1.00	µg/L	1.00
Carbon Tetrachloride		<1.00	µg/L	1.00
1,2-Dichloropropane		<1.00	µg/L	1.00
Trichloroethene (TCE)		<1.00	µg/L	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1.00
Bromodichloromethane		<1.00	µg/L	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1.00
Toluene		<1.00	µg/L	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1.00
1,3-Dichloropropane		<1.00	µg/L	1.00
Dibromochloromethane		<1.00	µg/L	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1.00
Tetrachloroethene (PCE)		<1.00	µg/L	1.00
Chlorobenzene		<1.00	µg/L	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1.00
Ethylbenzene		<1.00	µg/L	1.00
m,p-Xylene		<1.00	µg/L	1.00
Bromoform		<1.00	µg/L	1.00
Styrene		<1.00	µg/L	1.00
o-Xylene		<1.00	µg/L	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1.00
2-Chlorotoluene		<1.00	µg/L	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1.00
Isopropylbenzene		<1.00	µg/L	1.00
Bromobenzene		<1.00	µg/L	1.00
n-Propylbenzene		<1.00	µg/L	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1.00
tert-Butylbenzene		<1.00	µg/L	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1.00
sec-Butylbenzene		<1.00	µg/L	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1.00
p-Isopropyltoluene		<1.00	µg/L	1.00
4-Chlorotoluene		<1.00	µg/L	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1.00
n-Butylbenzene		<1.00	µg/L	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	5.00
1,2,4-Trichlorobenzene		<5.00	µg/L	5.00
Naphthalene		<5.00	µg/L	5.00
Hexachlorobutadiene		<5.00	µg/L	5.00
Total Zinc		0.0490	mg/L	0.00700

Sample: 153440 - LDC Hot Water

Param	Flag	Result	Units	RL
Total Silver		<0.00500	mg/L	0.00500
Total Aluminum		<0.0500	mg/L	0.0500
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1.00

continued ...

sample 153440 continued ...

Param	Flag	Result	Units	RL
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1.00
Bicarbonate Alkalinity		94.0	mg/L as CaCo3	5.00
Total Alkalinity		94.0	mg/L as CaCo3	5.00
Amenable Cyanide		<0.0100	mg/L	0.0100
Ammonia-N		1.01	mg/L	1.00
Total Arsenic		<0.00500	mg/L	0.00500
Total Boron		0.369	mg/L	0.00500
Total Barium		0.0590	mg/L	0.00100
Total Beryllium		<0.00200	mg/L	0.00200
Total Calcium		38.6	mg/L	0.500
Total Cadmium		<0.00100	mg/L	0.00100
Chloride		77.0	mg/L	2.00
Chlorine		<0.0400	mg/L	0.0400
Free Chlorine		<0.0400	mg/L	0.0400
Chemical Oxygen Demand		<50.0	mg/L	50.0
Specific Conductance		1600	uMHOS/cm	0.00
Total Chromium		<0.00100	mg/L	0.00100
Total Copper		<0.00500	mg/L	0.00500
Total Iron		0.138	mg/L	0.0100
Fluoride		9.95	mg/L	0.200
Free Cyanide		<0.0100	mg/L	0.0100
Total Mercury		<0.000200	mg/L	0.000200
Total Potassium		3.00	mg/L	0.500
Total Magnesium		25.3	mg/L	0.500
Total Manganese		0.0120	mg/L	0.00250
Total Molybdenum		<0.0100	mg/L	0.0100
Total Sodium		254	mg/L	0.00
Total Nickel		<0.00500	mg/L	0.00500
Nitrite-N		<0.100	mg/L	0.100
Nitrate-N		4.25	mg/L	0.100
Total Lead		<0.00500	mg/L	0.00500
pH		7.91	s.u.	0.00
Phenolics		0.139	mg/L	0.130
PO4-P		<0.500	mg/L	0.500
Total Antimony		<0.0200	mg/L	0.0200
Total Selenium		0.0460	mg/L	0.0100
Total Silica		113	mg/L	0.0500
Sulfate		476	mg/L	1.00
Sulfide		<0.100	mg/L	0.100
Total Dissolved Solids		1110	mg/L	5.00
Total Kjeldahl Nitrogen - N		<6.00	mg/L	6.00
Total Thallium		<0.0200	mg/L	0.0200
Total Organic Carbon		<1.00	mg/L	1.00
Total Cyanide		<0.0150	mg/L	0.0150
Total Suspended Solids		<10.0	mg/L	10.0
Turbidity (Nephelometric)		0.350	NTU	0.00
Bromochloromethane		<1.00	µg/L	1.00
Dichlorodifluoromethane		<1.00	µg/L	1.00
Chloromethane (methyl chloride)		<1.00	µg/L	1.00
Vinyl Chloride		<1.00	µg/L	1.00
Bromomethane (methyl bromide)		<5.00	µg/L	5.00
Chloroethane		<1.00	µg/L	1.00
Trichlorofluoromethane		<1.00	µg/L	1.00

continued ...

sample 153440 continued ...

Param	Flag	Result	Units	RL
Acetone		<10.0	µg/L	10.0
Iodomethane (methyl iodide)		<5.00	µg/L	5.00
Carbon Disulfide		<1.00	µg/L	1.00
Acrylonitrile		<1.00	µg/L	1.00
2-Butanone (MEK)		<5.00	µg/L	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	5.00
2-Hexanone		<5.00	µg/L	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10.0
1,1-Dichloroethene		<1.00	µg/L	1.00
Methylene chloride		<5.00	µg/L	5.00
MTBE		<1.00	µg/L	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1.00
1,1-Dichloroethane		<1.00	µg/L	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1.00
2,2-Dichloropropane		<1.00	µg/L	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1.00
Chloroform		<1.00	µg/L	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1.00
1,1-Dichloropropene		<1.00	µg/L	1.00
Benzene		<1.00	µg/L	1.00
Carbon Tetrachloride		<1.00	µg/L	1.00
1,2-Dichloropropane		<1.00	µg/L	1.00
Trichloroethene (TCE)		<1.00	µg/L	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1.00
Bromodichloromethane		<1.00	µg/L	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1.00
Toluene		<1.00	µg/L	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1.00
1,3-Dichloropropane		<1.00	µg/L	1.00
Dibromochloromethane		<1.00	µg/L	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1.00
Tetrachloroethene (PCE)		<1.00	µg/L	1.00
Chlorobenzene		<1.00	µg/L	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1.00
Ethylbenzene		<1.00	µg/L	1.00
m,p-Xylene		<1.00	µg/L	1.00
Bromoform		<1.00	µg/L	1.00
Styrene		<1.00	µg/L	1.00
o-Xylene		<1.00	µg/L	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1.00
2-Chlorotoluene		<1.00	µg/L	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1.00
Isopropylbenzene		<1.00	µg/L	1.00
Bromobenzene		<1.00	µg/L	1.00
n-Propylbenzene		<1.00	µg/L	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1.00
tert-Butylbenzene		<1.00	µg/L	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1.00
sec-Butylbenzene		<1.00	µg/L	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1.00

continued ...

sample 153440 continued ...

Param	Flag	Result	Units	RL
p-Isopropyltoluene		<1.00	µg/L	1.00
4-Chlorotoluene		<1.00	µg/L	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1.00
n-Butylbenzene		<1.00	µg/L	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	5.00
1,2,4-Trichlorobenzene		<5.00	µg/L	5.00
Naphthalene		<5.00	µg/L	5.00
Hexachlorobutadiene		<5.00	µg/L	5.00
Total Zinc		<0.00700	mg/L	0.00700

STATE OF NEW MEXICO

DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

WATER CHEMISTRY SECTION [505]-841-2666

March 15, 1993

Request
ID No. 022251**ANALYTICAL REPORT**
SLD Accession No. WC-93-0269Distribution☐ User 70320
☒ Submitter 260
☒ SLD FilesTo: K. Brown
NM Oil Consv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088From: Water Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, Nonpres/No sample submitted to this laboratory on February 4, 1993

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 2-Feb-93	By: Bro ...	Produced Water
At: 10:30 hrs.	In/Near: Animas	Burgett Greenhouse, Animas

ANALYTICAL RESULTS

Analysis	Value	D. Lmt.	Units
calcium	22.00		mg/L
magnesium	< 1.00		mg/L
potassium	24.00		mg/L
ortho phosphate	404.00		mg/L
bicarbonate	89.90		mg/L
carbonate	13.30		mg/L
chloride	110.00		mg/L
fluoride	15.46		mg/L
sulfate	675.00		mg/L
total diss resid	1480.00		mg/L

Reviewed By: B.P.Bryan S. Patterson 03/15/93
Analyst, Water Chemistry Section

STATE OF NEW MEXICO

DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

AIR & HEAVY METALS SECTION [505]-841-2553

May 3, 1993

Request
ID No. 022252**ANALYTICAL REPORT**
SLD Accession No. IC-93-0134Distribution☐ User 70320☒ Submitter 260☒ SLD Files

To: Kathy Brown
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Air & Heavy Metals Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water sample submitted to this laboratory on February 4, 1993

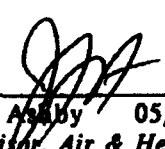
DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 2-Feb-93	By: Bro ...	Produced Water
At: 10:30 hrs.	In/Near: Animas	Burgert Greenhouse, Animas

ANALYTICAL RESULTS in mg/L

Analysis	Value	Analysis	Value	Analysis	Value
Aluminum	< 0.10	Cobalt	< 0.05	Nickel	< 0.10
Barium	< 0.10	Copper	< 0.10	Silicon	1.80
Beryllium	< 0.10	Iron	< 0.10	Silver	< 0.10
Boron	0.50	Lead	< 0.10	Strontium	0.50
Cadmium	< 0.10	Magnesium	0.20	Tin	< 0.10
Calcium	20.00	Manganese	< 0.05	Vanadium	< 0.10
Chromium	< 0.10	Molybdenum	< 0.10	Zinc	< 0.10

Reviewed By:


Jim F. Ashby 05/04/93
Supervisor, Air & Heavy Metals Section



**Westtech
Laboratories
Inc.**

The Quality People
Since 1995

3737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT N.M. OIL CONSERVATION DIVISION
ATTN: KATHY BROWN
P.O. BOX 2088
SANTA FE, NM 87504

SAMPLE NO. : 9303066
INVOICE NO.: 22130408
REPORT DATE: 02-19-93
REVIEWED BY: *NEW*
PAGE : 1 OF 1

CLIENT SAMPLE ID : 9302021030
SAMPLE TYPE: WATER
SAMPLED BY: K. BROWN/C. EUSTICE
SUBMITTED BY: K. BROWN
SAMPLE SOURCE: BURGETT PRODUCED WATER

AUTHORIZED BY : K. BROWN
CLIENT P.O. : --
SAMPLE DATE ...: 02-02-93
SUBMITTAL DATE : 02-08-93
EXTRACTION DATE: --

Cation / Anion Balance

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Calcium	19.	mg/L	0.05	02-18-93
Total Magnesium	0.41	mg/L	0.10	02-18-93
Total Potassium	23.	mg/L	1.0	02-17-93
Total Sodium	330.	mg/L	0.05	02-18-93
Carbonate	61.	mg/L	2.0	02-11-93
Bicarbonate	24.	mg/L	2.0	02-11-93

(1) Copy to Client

M. G. Smith
Managing Director



**Westtech
Laboratories
Inc.**
The Quality People
Since 1955

3737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT N.M. OIL CONSERVATION DIVISION
ATTN: KATHY BROWN
P.O. BOX 2088
SANTA FE, NM 87504

SAMPLE NO. : 9303066
INVOICE NO.: 22130408
REPORT DATE: 02-19-93
REVIEWED BY: *AGH*
PAGE : 1 OF 1

CLIENT SAMPLE ID : 9302021030
SAMPLE TYPE: WATER
SAMPLED BY: K. BROWN/C. EUSTICE
SUBMITTED BY: K. BROWN
SAMPLE SOURCE: BURGETT PRODUCED WATER

AUTHORIZED BY : K. BROWN
CLIENT P.O. : --
SAMPLE DATE ...: 02-02-93
SUBMITTAL DATE : 02-08-93
EXTRACTION DATE: --

Inorganic Chemistry - Total Metals

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Arsenic	<0.05	mg/L	0.05	02-15-93
Total Barium	0.08	mg/L	0.05	02-15-93
Total Cadmium	<0.05	mg/L	0.05	02-15-93
Total Chromium	<0.05	mg/L	0.05	02-15-93
Total Lead	<0.05	mg/L	0.05	02-15-93
Total Mercury	0.004	mg/L	0.001	02-17-93
Total Selenium	<0.05	mg/L	0.05	02-15-93
Total Silver	<0.05	mg/L	0.05	02-15-93

(1) Copy to Client

M. Grogan
Managing Director



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

PK

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	2/10/86	LAB NO.	HM 279	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection Date	1/28/86	SITE INFORMATION	Sample location		
Collection Time	0900		BURGETT GEOTHERMAL WELL		
Collected by — Person/Agency		Collection site description			
BAILEY/JOHNSON - OCO		7 T255 R/W BYPASS VALVE AT WELL HEAD			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box
Santa Fe, NM 87501

Attn: David Boyer

RECEIVED
2088 APR 28 1986
OIL CONSERVATION DIVISION
SANTA FE

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	STATIC W.L. 65'	Discharge	300 gpm	Sample type
		DEPTH TO WATER	90'			
pH (00400)	8.1	Conductivity (Uncorrected)	2900 μ mho	Water Temp. (00010)	48 °C	Conductivity at 25 °C (00094) μ mho
Field comments						
PUMPED FOR 10 HRS/DAY TO HEAT GREENHOUSES. REPORTED TO BE 240° F AT WELL HEAD. T.D. 250'						

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☒ A: 2 ml H ₂ SO ₄ /L added HNO ₃
☐ NA: No acid added ☐ Other-specify:				

ANALYTICAL RESULTS from SAMPLES

Units	Date analyzed	F. NA	Units	Date analyzed
RF, A-H₂SO₄				
☐ Conductivity (Corrected) 25 °C (00095)	μ mho	☐ Calcium (00015)	mg/l	
☐ Total non-filterable residue (suspended) (00630)	mg/l	☐ Magnesium (00025)	mg/l	
☒ Other: ICAF SCAN		☐ Sodium (00030)	mg/l	
☒ Other: Se	< 0.005	☐ Potassium (00035)	mg/l	
☐ Other: As	0.011	☐ Bicarbonate (00440)	mg/l	
		☐ Chloride (00040)	mg/l	
		☐ Sulfate (00045)	mg/l	
		☐ Total filterable residue (dissolved) (70300)	mg/l	
		☐ Other:		
RF, A-H₂SO₄				
☐ Nitrate-N + Nitrate-N total (00630)	mg/l	☐ Nitrate-N + Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l	☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l	☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	☐ Other:		
☐ Total organic carbon ()	mg/l			
☐ Other:				
☐ Other:				
Analyst		Date Reported	Reviewed by	
		4/18/86	Jim Bailey	
Laboratory remarks				



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

EN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED	2/10/86	LAB NO	WC 562	USER CODE	☐ 58300 ☐ 58800 ☒ OTHER: 82235
Collection DATE	1/28/86	SITE INFORMATION	Sample location		
Collection TIME	0900		BURETT GEOTHERMAL WELL		
Collected by — Person/Agency		Collection site description			
BAILEY/JOHNSON - OCO		7 T255 R19W BYPASS VALVE AT WELLHEAD			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	STATIC W.L. 65' DEPTH TO WATER 90'	Discharge	300 gpm	Sample type	
pH (00400)	8.1	Conductivity (Uncorrected)	2900 μ mho	Water Temp. (00010)	48 °C	Conductivity at 25 °C (00094)	μ mho
Field comments							
PUMPED FOR 10 HRS/DAY TO HEAT GREENHOUSES. REPORTED TO BE 240° F AT WELLHEAD. T.D. 250'							

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added ☐ Other-specify:				

ANALYTICAL RESULTS from SAMPLES

NR, NA	Units	Date analyzed	R, NA	Units	Date analyzed
☒ Conductivity (Corrected) 25 °C (00095)	μ mho		☒ Calcium (00918)	17.6 mg/l	2/70
☐ Total non-filterable residue (suspended) (00630)	mg/l		☒ Magnesium (00925)	6.34 mg/l	"
☐ Other:			☒ Sodium (00930)	322.7 mg/l	"
☐ Other:			☒ Potassium (00935)	12.9 mg/l	"
☐ Other:			☒ Bicarbonate (00440)	101.7 mg/l	2/15
			☒ Chloride (00940)	94.3 mg/l	2/130
			☒ Sulfate (00945)	58.5 mg/l	2/13
			☒ Total filterable residue (dissolved) (70300)	119.5 mg/l	3/13
			☒ Other: CO ₃	0.0	2/13
			☒ F	12.5	2/13
NF, A-H ₂ SO ₄			R, A-H ₂ SO ₄		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Laboratory remarks			Analyst	Date Reported	Reviewed by
				3/24/86	C. J. M.

Appendix B

Laboratory Analytical Sheets for Geothermal System Wells



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

October 02, 2014

Kacie Peterson
Lightning Dock Geothermal
PO Box 86
Animas, NM 88020
TEL: (575) 548-0301
FAX

RE: LDG 63-7 REGULATORY SAMPLE '14

OrderNo.: 1409B72

Dear Kacie Peterson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/24/2014 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 www.hallenvironmental.com 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,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman
Laboratory Manager
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#: 1409B72

Date: 10/2/2014

CLIENT: Lightning Dock Geothermal
Project: LDG 63-7 REGULATORY SAMPLE '14

Analytical Comments for 8260_W, Sample 1409B72-001a, Batch ID R21508 : Vial analyzed with headspace.

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1409B72

Date Reported: 10/2/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG 63-7 REG SAMPLE '14

Project: LDG 63-7 REGULATORY SAMPLE '14

Collection Date: 9/22/2014 3:30:00 PM

Lab ID: 1409B72-001

Matrix: AQUEOUS

Received Date: 9/24/2014 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: KJH
Benzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Toluene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Ethylbenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Naphthalene	ND	2.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1-Methylnaphthalene	ND	4.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
2-Methylnaphthalene	ND	4.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Acetone	15	10		µg/L	1	9/30/2014 12:50:20 PM	R21567
Bromobenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Bromodichloromethane	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Bromoform	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Bromomethane	ND	3.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
2-Butanone	ND	10		µg/L	1	9/26/2014 4:34:46 PM	R21508
Carbon disulfide	ND	10		µg/L	1	9/26/2014 4:34:46 PM	R21508
Carbon Tetrachloride	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Chlorobenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Chloroethane	ND	2.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Chloroform	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Chloromethane	ND	3.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
2-Chlorotoluene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
4-Chlorotoluene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
cis-1,2-DCE	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Dibromochloromethane	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Dibromomethane	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,2-Dichlorobenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,3-Dichlorobenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,4-Dichlorobenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Dichlorodifluoromethane	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,1-Dichloroethane	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,1-Dichloroethene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,2-Dichloropropane	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,3-Dichloropropane	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
2,2-Dichloropropane	ND	2.0		µg/L	1	9/26/2014 4:34:46 PM	R21508

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1409B72

Date Reported: 10/2/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG 63-7 REG SAMPLE '14

Project: LDG 63-7 REGULATORY SAMPLE '14

Collection Date: 9/22/2014 3:30:00 PM

Lab ID: 1409B72-001

Matrix: AQUEOUS

Received Date: 9/24/2014 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: KJH
1,1-Dichloropropene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Hexachlorobutadiene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
2-Hexanone	ND	10		µg/L	1	9/26/2014 4:34:46 PM	R21508
Isopropylbenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
4-Isopropyltoluene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
4-Methyl-2-pentanone	ND	10		µg/L	1	9/26/2014 4:34:46 PM	R21508
Methylene Chloride	ND	3.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
n-Butylbenzene	ND	3.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
n-Propylbenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
sec-Butylbenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Styrene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
tert-Butylbenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
trans-1,2-DCE	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Trichloroethene (TCE)	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Trichlorofluoromethane	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
1,2,3-Trichloropropane	ND	2.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Vinyl chloride	ND	1.0		µg/L	1	9/26/2014 4:34:46 PM	R21508
Xylenes, Total	ND	1.5		µg/L	1	9/26/2014 4:34:46 PM	R21508
Surr: 1,2-Dichloroethane-d4	96.1	70-130		%REC	1	9/26/2014 4:34:46 PM	R21508
Surr: 4-Bromofluorobenzene	107	70-130		%REC	1	9/26/2014 4:34:46 PM	R21508
Surr: Dibromofluoromethane	94.1	70-130		%REC	1	9/26/2014 4:34:46 PM	R21508
Surr: Toluene-d8	94.1	70-130		%REC	1	9/26/2014 4:34:46 PM	R21508
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	27	2.5		µg/L	1	9/29/2014	15568

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409B72

02-Oct-14

Client: Lightning Dock Geothermal

Project: LDG 63-7 REGULATORY SAMPLE '14

Sample ID	5mL-rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R21508			RunNo: 21508					
Prep Date:		Analysis Date: 9/26/2014			SeqNo: 629218		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								
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								
1,1-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

- 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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409B72

02-Oct-14

Client: Lightning Dock Geothermal

Project: LDG 63-7 REGULATORY SAMPLE '14

Sample ID	5mL-rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	PBW	Batch ID: R21508		RunNo: 21508						
Prep Date:		Analysis Date: 9/26/2014		SeqNo: 629218		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
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	9.4		10.00		93.5	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	9.2		10.00		92.0	70	130			
Surr: Toluene-d8	9.3		10.00		92.9	70	130			

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R21508			RunNo: 21508					
Prep Date:		Analysis Date: 9/26/2014			SeqNo: 629220		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	20	1.0	20.00	0	100	80	120			
Chlorobenzene	19	1.0	20.00	0	96.2	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	114	82.6	131			

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409B72

02-Oct-14

Client: Lightning Dock Geothermal
Project: LDG 63-7 REGULATORY SAMPLE '14

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R21508			RunNo: 21508					
Prep Date:		Analysis Date: 9/26/2014			SeqNo: 629220		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	19	1.0	20.00	0	93.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.2	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	9.3		10.00		93.2	70	130			
Surr: Toluene-d8	9.7		10.00		96.5	70	130			

Sample ID	1409B72-001a ms	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LDG 63-7 REG SAM	Batch ID:	R21508	RunNo:	21508					
Prep Date:		Analysis Date:	9/26/2014	SeqNo:	629246	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0.7600	104	70	130			
Toluene	19	1.0	20.00	0.2980	95.1	70	130			
Chlorobenzene	20	1.0	20.00	0	101	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	97.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.5	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.0	70	130			
Surr: Toluene-d8	9.0		10.00		90.0	70	130			

Sample ID	1409B72-001a msd			SampType:	MSD		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	LDG 63-7 REG SAM		Batch ID:	R21508		RunNo:	21508				
Prep Date:			Analysis Date:	9/26/2014		SeqNo:	629247		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	21	1.0	20.00	0.7600	101	70	130	3.26	20		
Toluene	20	1.0	20.00	0.2980	97.3	70	130	2.26	20		
Chlorobenzene	20	1.0	20.00	0	97.6	70	130	2.97	20		
1,1-Dichloroethene	22	1.0	20.00	0	111	70	130	3.71	20		
Trichloroethene (TCE)	17	1.0	20.00	0	86.6	70	130	11.4	20		
Surr: 1,2-Dichloroethane-d4	8.9		10.00		88.8	70	130	0	0		
Surr: 4-Bromofluorobenzene	9.9		10.00		98.7	70	130	0	0		
Surr: Dibromofluoromethane	9.1		10.00		90.9	70	130	0	0		
Surr: Toluene-d8	9.7		10.00		96.7	70	130	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409B72

02-Oct-14

Client: Lightning Dock Geothermal
Project: LDG 63-7 REGULATORY SAMPLE '14

Sample ID	5mL-rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R21567	RunNo:	21567					
Prep Date:		Analysis Date:	9/30/2014	SeqNo:	631945	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetone	ND	10								
Surr: 1,2-Dichloroethane-d4	8.6		10.00		85.9	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		91.6	70	130			
Surr: Dibromofluoromethane	7.7		10.00		76.5	70	130			
Surr: Toluene-d8	8.7		10.00		87.4	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R21567	RunNo:	21567					
Prep Date:		Analysis Date:	9/30/2014	SeqNo:	631948	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	8.0		10.00		80.5	70	130			
Surr: Toluene-d8	8.9		10.00		89.1	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409B72

02-Oct-14

Client: Lightning Dock Geothermal
Project: LDG 63-7 REGULATORY SAMPLE '14

Sample ID	MB-15568	SampType:	MBLK	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID:	15568	RunNo:	21501					
Prep Date:	9/29/2014	Analysis Date:	9/29/2014	SeqNo:	628906	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-15568	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	15568	RunNo:	21501					
Prep Date:	9/29/2014	Analysis Date:	9/29/2014	SeqNo:	628907	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	90.6	75.7	126			

Sample ID	1409813-002BMS	SampType:	MS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	BatchQC	Batch ID:	15568	RunNo:	21501					
Prep Date:	9/29/2014	Analysis Date:	9/29/2014	SeqNo:	628910	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	109	70.5	133			

Sample ID	1409813-002BMSD	SampType:	MSD	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	BatchQC	Batch ID:	15568	RunNo:	21501					
Prep Date:	9/29/2014	Analysis Date:	9/29/2014	SeqNo:	628911	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	20	2.5	20.00	0	102	70.5	133	6.83	23.4	

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.
- RL Reporting Detection Limit



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: LIGHTNING DOCK GEO

Work Order Number: 1409B72

RcptNo: 1

Received by/date:	MG	09/24/14
Logged By:	Lindsay Mangin	9/24/2014 7:15:00 AM
Completed By:	Lindsay Mangin	9/24/2014 9:57:52 AM
Reviewed By:		09/24/14

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? FedEx

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly 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 broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ 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.) Yes ☒ No ☐

of preserved bottles checked for pH: 1
(<2 or >12 unless noted)
Adjusted? no
Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with 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	8.4	Good	Yes			

CYRENE ENERGY SERVICES

Client: Lightning Dock Geothermal HI-01, LLC

Mailing Address:

18 Greenhouse Drive
Animas, NM 88020

Phone #: 575-548-0301

email or Fax#: kacie.peterson@cyrenergy.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation:

☐ NELAP ☐ Other

☐ EDD (Type)

Sampler: Kacie Peterson

On Ice: ☒ Yes ☐ No

Sample Temperature: 8/14

Date Time Matrix Sample Request ID

9/22/2014	15:30	Ag	LDG 63-7 REG SAMPLE '14
9/22/2014	15:30	Ag	LDG 63-7 REG SAMPLE '14
9/22/2014	15:30	Ag	LDG 63-7 REG SAMPLE '14

Container Type and #

3 x 40 mL VOA	HCl
1 x 1L Amber	H2SO4
1 x 1L Amber	NONE

Preservative Type

HEAL No: 1401B72

8260 Full Suite

9067 Total Phenolics

Hold for additional tests if required

Analysis Request



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Remarks:

Date: 9/22/14	Time: 14:05	Relinquished by: Kacie Peterson	Received by: [Signature]	Date: 09/24/14	Time: 0715
Date:	Time:	Relinquished by:	Received by:	Date:	Time:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this 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*

September 29, 2014

Kacie Peterson
Lightning Dock Geothermal
PO Box 86
Animas, NM 88020
TEL: (575) 548-0301
FAX

RE: LDG 47-7 REGULATORY SAMPLE '14

OrderNo.: 1409B66

Dear Kacie Peterson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/24/2014 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 www.hallenvironmental.com 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
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1409B66

Date Reported: 9/29/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG 47-7 REG SAMPLE '14

Project: LDG 47-7 REGULATORY SAMPLE '14

Collection Date: 9/22/2014 12:30:00 PM

Lab ID: 1409B66-001

Matrix: AQUEOUS

Received Date: 9/24/2014 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	15	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Toluene	19	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Ethylbenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Naphthalene	8.6	2.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1-Methylnaphthalene	ND	4.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
2-Methylnaphthalene	ND	4.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Acetone	51	10		µg/L	1	9/24/2014 3:10:28 PM	R21430
Bromobenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Bromodichloromethane	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Bromoform	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Bromomethane	ND	3.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
2-Butanone	28	10		µg/L	1	9/24/2014 3:10:28 PM	R21430
Carbon disulfide	ND	10		µg/L	1	9/24/2014 3:10:28 PM	R21430
Carbon Tetrachloride	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Chlorobenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Chloroethane	ND	2.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Chloroform	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Chloromethane	ND	3.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
2-Chlorotoluene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
4-Chlorotoluene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
cis-1,2-DCE	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Dibromochloromethane	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Dibromomethane	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,2-Dichlorobenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,3-Dichlorobenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,4-Dichlorobenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Dichlorodifluoromethane	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,1-Dichloroethane	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,1-Dichloroethene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,2-Dichloropropane	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,3-Dichloropropane	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
2,2-Dichloropropane	ND	2.0		µg/L	1	9/24/2014 3:10:28 PM	R21430

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1409B66

Date Reported: 9/29/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG 47-7 REG SAMPLE '14

Project: LDG 47-7 REGULATORY SAMPLE '14

Collection Date: 9/22/2014 12:30:00 PM

Lab ID: 1409B66-001

Matrix: AQUEOUS

Received Date: 9/24/2014 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1-Dichloropropene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Hexachlorobutadiene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
2-Hexanone	ND	10		µg/L	1	9/24/2014 3:10:28 PM	R21430
Isopropylbenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
4-Isopropyltoluene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
4-Methyl-2-pentanone	ND	10		µg/L	1	9/24/2014 3:10:28 PM	R21430
Methylene Chloride	ND	3.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
n-Butylbenzene	ND	3.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
n-Propylbenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
sec-Butylbenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Styrene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
tert-Butylbenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
trans-1,2-DCE	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Trichloroethene (TCE)	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Trichlorofluoromethane	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
1,2,3-Trichloropropane	ND	2.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Vinyl chloride	ND	1.0		µg/L	1	9/24/2014 3:10:28 PM	R21430
Xylenes, Total	7.0	1.5		µg/L	1	9/24/2014 3:10:28 PM	R21430
Surr: 1,2-Dichloroethane-d4	94.4	70-130		%REC	1	9/24/2014 3:10:28 PM	R21430
Surr: 4-Bromofluorobenzene	110	70-130		%REC	1	9/24/2014 3:10:28 PM	R21430
Surr: Dibromofluoromethane	104	70-130		%REC	1	9/24/2014 3:10:28 PM	R21430
Surr: Toluene-d8	83.3	70-130		%REC	1	9/24/2014 3:10:28 PM	R21430
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	28	2.5		µg/L	1	9/29/2014	15568

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409B66

29-Sep-14

Client: Lightning Dock Geothermal

Project: LDG 47-7 REGULATORY SAMPLE '14

Sample ID	5ml rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R21430	RunNo:	21430					
Prep Date:		Analysis Date:	9/24/2014	SeqNo:	626534	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409B66

29-Sep-14

Client: Lightning Dock Geothermal
Project: LDG 47-7 REGULATORY SAMPLE '14

Sample ID	5ml rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES
Client ID:	PBW	Batch ID:	R21430	RunNo:	21430
Prep Date:		Analysis Date:	9/24/2014	SeqNo:	626534
				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	9.5		10.00		95.2	70	130			
Surr: 4-Bromofluorobenzene	8.7		10.00		87.2	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.0	70	130			
Surr: Toluene-d8	8.8		10.00		88.2	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES
Client ID:	LCSW	Batch ID:	R21430	RunNo:	21430
Prep Date:		Analysis Date:	9/24/2014	SeqNo:	626536
				Units:	µg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	110	70	130			
Toluene	22	1.0	20.00	0	108	80	120			
Chlorobenzene	21	1.0	20.00	0	104	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409B66

29-Sep-14

Client: Lightning Dock Geothermal
Project: LDG 47-7 REGULATORY SAMPLE '14

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R21430			RunNo: 21430					
Prep Date:		Analysis Date: 9/24/2014			SeqNo: 626536		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	117	82.6	131			
Trichloroethene (TCE)	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.5	70	130			
Surr: 4-Bromofluorobenzene	8.8		10.00		87.7	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.3		10.00		93.5	70	130			

Sample ID	1409b66-001ams	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LDG 47-7 REG SAM	Batch ID:	R21430	RunNo:	21430					
Prep Date:		Analysis Date:	9/24/2014	SeqNo:	626539	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	34	1.0	20.00	14.89	97.8	70	130			
Toluene	39	1.0	20.00	18.76	101	70	130			
Chlorobenzene	22	1.0	20.00	0	111	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	110	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0.3940	98.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.6	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.4	70	130			
Surr: Toluene-d8	8.8		10.00		87.9	70	130			

Sample ID	1409b66-001amsd			SampType:	MSD		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	LDG 47-7 REG SAM			Batch ID:	R21430		RunNo:	21430			
Prep Date:				Analysis Date:	9/24/2014		SeqNo:	626545		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	33	1.0	20.00	14.89	91.8	70	130	3.50	20		
Toluene	36	1.0	20.00	18.76	87.2	70	130	7.57	20		
Chlorobenzene	20	1.0	20.00	0	99.1	70	130	11.8	20		
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130	9.20	20		
Trichloroethene (TCE)	20	1.0	20.00	0.3940	96.7	70	130	1.30	20		
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.2	70	130	0	0		
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130	0	0		
Surr: Dibromofluoromethane	11		10.00		107	70	130	0	0		
Surr: Toluene-d8	8.7		10.00		87.0	70	130	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409B66

29-Sep-14

Client: Lightning Dock Geothermal
Project: LDG 47-7 REGULATORY SAMPLE '14

Sample ID	MB-15568	SampType:	MBLK	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID:	15568	RunNo:	21501					
Prep Date:	9/29/2014	Analysis Date:	9/29/2014	SeqNo:	628906	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-15568	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	15568	RunNo:	21501					
Prep Date:	9/29/2014	Analysis Date:	9/29/2014	SeqNo:	628907	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	90.6	75.7	126			

Sample ID	1409813-002BMS	SampType:	MS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	BatchQC	Batch ID:	15568	RunNo:	21501					
Prep Date:	9/29/2014	Analysis Date:	9/29/2014	SeqNo:	628910	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	109	70.5	133			

Sample ID	1409813-002BMSD	SampType:	MSD	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	BatchQC	Batch ID:	15568	RunNo:	21501					
Prep Date:	9/29/2014	Analysis Date:	9/29/2014	SeqNo:	628911	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	20	2.5	20.00	0	102	70.5	133	6.83	23.4	

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.
- RL Reporting Detection Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4101
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: LIGHTNING DOCK GEO

Work Order Number: 1409B66

RcptNo: 1

Received by/date: MS 09/24/14

Logged By: Lindsay Mangin 9/24/2014 7:15:00 AM

Completed By: Lindsay Mangin 9/24/2014 9:21:02 AM

Reviewed By: MS 09/24/14

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? FedEx

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☐ No ☒ NA ☐
6. Sample(s) in proper container(s)? Approved by client. Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly 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 broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ 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.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted? NO

Checked by: [Signature]

Special Handling (if applicable)

16. Was client notified of all discrepancies with 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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	8.4	Good	Yes			



www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

[illegible]

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this 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 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 www.hallenvironmental.com 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

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 1312725

Date Reported: 1/8/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** AMEC**Client Sample ID:** MW-2**Project:** Lightning Dock Geothermal Groundwater**Collection Date:** 12/10/2013 11:00:00 AM**Lab ID:** 1312725-002**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							Analyst: LRW
1,2-Dibromoethane	ND	0.010		µg/L	1	12/18/2013 5:37:27 PM	10868
TOTAL PHENOLICS BY SW-846 9067							Analyst: 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.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Analytical Report

Lab Order 1312725

Date Reported: 1/8/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** AMEC**Client Sample ID:** MW-2B**Project:** Lightning Dock Geothermal Groundwater**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	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: LRW
1,2-Dibromoethane	ND	0.010		µg/L	1	12/18/2013 5:51:14 PM	10868
TOTAL PHENOLICS BY SW-846 9067							Analyst: 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.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Analytical Report

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	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: LRW
1,2-Dibromoethane	ND	0.010		µg/L	1	12/18/2013 6:05:07 PM	10868
TOTAL PHENOLICS BY SW-846 9067							Analyst: 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.

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

Analytical Report

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	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: LRW
1,2-Dibromoethane	ND	0.010		µg/L	1	12/18/2013 6:18:58 PM	10868
TOTAL PHENOLICS BY SW-846 9067							Analyst: 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.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312725

Date Reported: 1/8/2014

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	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: LRW
1,2-Dibromoethane	ND	0.010		µg/L	1	12/18/2013 6:32:39 PM	10868
TOTAL PHENOLICS BY SW-846 9067							Analyst: 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.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Analytical Report

Lab Order 1312725

Date Reported: 1/8/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** AMEC**Client Sample ID:** MW-6**Project:** Lightning Dock Geothermal Groundwater**Collection Date:** 12/9/2013 3:00:00 PM**Lab ID:** 1312725-007**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							Analyst: LRW
1,2-Dibromoethane	ND	0.010		µg/L	1	12/18/2013 6:46:28 PM	10868
TOTAL PHENOLICS BY SW-846 9067							Analyst: 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.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Full 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	Analysis Date:	12/18/2013	SeqNo:	449514	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-10868	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	10868	RunNo:	15596					
Prep Date:	12/18/2013	Analysis Date:	12/18/2013	SeqNo:	449515	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.10	0.010	0.1000	0	102	70	130			

alifiers:

* 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312725

08-Jan-14

Client: AMEC

Project: Lightning Dock Geothermal Groundwater Qualit

Sample ID	MB-10893	SampType:	MBLK	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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID	LCS-10893	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	10893	RunNo:	15599					
Prep Date:	12/19/2013	Analysis Date:	12/19/2013	SeqNo:	449236	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	23	2.5	20.00	0	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			
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	5.63	21.4	

Qualifiers:

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

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	12/10/2013	Date/Time Received	12/20/2013 2:09 PM			
Client Sample ID	1312725-001C / MW-1	Sampling Time	4:30 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	131220064-002	Sampling Date	12/10/2013	Date/Time Received	12/20/2013 2:09 PM			
Client Sample ID	1312725-002C / MW-2	Sampling Time	11:00 AM					
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	131220064-003	Sampling Date	12/10/2013	Date/Time Received	12/20/2013 2:09 PM			
Client Sample ID	1312725-003C / MW-2B	Sampling Time	11:30 AM					
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	131220064-004	Sampling Date	12/10/2013	Date/Time Received	12/20/2013 2:09 PM			
Client Sample ID	1312725-004C / MW-3	Sampling Time	10:30 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	131220064-005	Sampling Date	12/9/2013	Date/Time Received	12/20/2013 2:09 PM			
Client Sample ID	1312725-005C / MW-4	Sampling Time	6:00 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		

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
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 131220064
Project Name: 1312725

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

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL 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.

ANALYTICAL RESULTS

Project: 1312725
Pace Project No.: 30110107

Sample: 1312725-001 MW-1		Lab ID: 30110107001	Collected: 12/10/13 16:30	Received: 12/20/13 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.285 ± 0.350 (0.571)		pCi/L	01/06/14 13:54	13982-63-3	
Radium-228	EPA 904.0	0.888 ± 0.456 (0.799)		pCi/L	01/07/14 14:05	15262-20-1	

Sample: 1312725-002 MW-2		Lab ID: 30110107002	Collected: 12/10/13 11:00	Received: 12/20/13 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.266 ± 0.377 (0.638)		pCi/L	01/06/14 14:09	13982-63-3	
Radium-228	EPA 904.0	0.0585 ± 0.308 (0.702)		pCi/L	01/07/14 15:50	15262-20-1	

Sample: 1312725-003 MW-2B		Lab ID: 30110107003	Collected: 12/10/13 11:30	Received: 12/20/13 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.183 ± 0.312 (0.550)		pCi/L	01/06/14 13:54	13982-63-3	
Radium-228	EPA 904.0	0.468 ± 0.385 (0.767)		pCi/L	01/07/14 15:02	15262-20-1	

Sample: 1312725-004 MW-3		Lab ID: 30110107004	Collected: 12/10/13 10:30	Received: 12/20/13 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.102 ± 0.375 (0.720)		pCi/L	01/06/14 14:24	13982-63-3	
Radium-228	EPA 904.0	0.156 ± 0.270 (0.590)		pCi/L	01/07/14 15:02	15262-20-1	

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:				
Parameters	Method	Act ± Unc (MDC)		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.32 ± 0.615 (0.664)		pCi/L	01/06/14 14:09	13982-63-3	
Radium-228	EPA 904.0	0.542 ± 0.396 (0.772)		pCi/L	01/07/14 15:02	15262-20-1	

Sample: 1312725-006 MW-5		Lab ID: 30110107006	Collected: 12/09/13 12:00	Received: 12/20/13 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.305 ± 0.401 (0.667)		pCi/L	01/06/14 13:54	13982-63-3	
Radium-228	EPA 904.0	0.333 ± 0.452 (0.986)		pCi/L	01/07/14 17:06	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Date: 01/08/2014 12:44 PM



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
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
• Radium-226	EPA 903.1	0.140 ± 0.305 (0.562)	pCi/L	01/06/14 14:09	13982-63-3	
• Radium-228	EPA 904.0	2.53 ± 0.949 (1.39)	pCi/L	01/07/14 15:50	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Date: 01/08/2014 12:44 PM



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	

REPORT OF LABORATORY ANALYSIS

Date: 01/08/2014 12:44 PM

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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/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 ± 0.319 (0.769)	pCi/L	01/07/14 12:48	

REPORT OF LABORATORY ANALYSIS

Date: 01/08/2014 12:44 PM

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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: 1312725

RcptNo: 1

Received by/date: KS 12/16/13

Logged By: Anne Thorne 12/16/2013 9:05:00 AM

Anne Thorne

Completed By: Anne Thorne 12/17/2013

Anne Thorne

Reviewed By: MG 12/18/13

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

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly 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 broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ 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.) Yes ☒ No ☐

of preserved
bottles checked
for pH: 21, 7
(<2 or >12 unless noted)

Adjusted? NO

Checked by: KMS 12/18/13

Special Handling (if applicable)

16. Was client notified of all discrepancies with 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	2.9	Good	Not Present			



*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 www.hallenvironmental.com 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
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312659

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							Analyst: LRW
1,2-Dibromoethane	ND	0.010		µg/L	1	12/16/2013 9:45:56 PM	10822
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	12/18/2013 4:15:08 AM	10796
Aroclor 1221	ND	1.0		µg/L	1	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	1	12/18/2013 4:15:08 AM	10796
Aroclor 1248	ND	1.0		µg/L	1	12/18/2013 4:15:08 AM	10796
Aroclor 1254	ND	1.0		µg/L	1	12/18/2013 4:15:08 AM	10796
Aroclor 1260	ND	1.0		µg/L	1	12/18/2013 4:15:08 AM	10796
Surr: Decachlorobiphenyl	78.8	17-123		%REC	1	12/18/2013 4:15:08 AM	10796
Surr: Tetrachloro-m-xylene	55.2	22.6-113		%REC	1	12/18/2013 4:15:08 AM	10796
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	12/17/2013 10:00:05 PM	10797
1-Methylnaphthalene	ND	2.0		µg/L	1	12/17/2013 10:00:05 PM	10797
2-Methylnaphthalene	ND	2.0		µg/L	1	12/17/2013 10:00:05 PM	10797
Acenaphthylene	ND	2.5		µg/L	1	12/17/2013 10:00:05 PM	10797
Acenaphthene	ND	5.0		µg/L	1	12/17/2013 10:00:05 PM	10797
Fluorene	ND	0.80		µg/L	1	12/17/2013 10:00:05 PM	10797
Phenanthrene	ND	0.60		µg/L	1	12/17/2013 10:00:05 PM	10797
Anthracene	ND	0.60		µg/L	1	12/17/2013 10:00:05 PM	10797
Fluoranthene	ND	0.30		µg/L	1	12/17/2013 10:00:05 PM	10797
Pyrene	ND	0.30		µg/L	1	12/17/2013 10:00:05 PM	10797
Benz(a)anthracene	ND	0.070		µg/L	1	12/17/2013 10:00:05 PM	10797
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	ND	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							Analyst: JRR
Fluoride	9.3	2.0	*	mg/L	20	12/16/2013 9:57:25 PM	R15551
Chloride	120	10		mg/L	20	12/16/2013 9:57:25 PM	R15551
Phosphorus, Orthophosphate (As P _i)	ND	0.50	H	mg/L	1	12/16/2013 9:45:00 PM	R15551
Sulfate	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
P	Sample pH greater than 2 for VOA and TOC only.
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312659

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 200.7: DISSOLVED 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
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: IDC
Mercury	0.0016	0.00020		mg/L	1	1/3/2014 3:50:20 PM	11064
EPA METHOD 8270C: SEMIVOLATILES							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.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Analytical Report

Lab Order 1312659

Date Reported: 1/22/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cirq 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: 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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312659

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: SEMIVOLATILES							Analyst: DAM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
N-Nitrosodimethylamine	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
N-Nitrosodiphenylamine	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
Naphthalene	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
2-Nitroaniline	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
3-Nitroaniline	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
4-Nitroaniline	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
Nitrobenzene	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
2-Nitrophenol	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
4-Nitrophenol	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
Pentachlorophenol	ND	20		µg/L	1	12/18/2013 9:34:48 AM	10800
Phenanthrene	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
✓ Phenol	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
Pyrene	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
Pyridine	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
1,2,4-Trichlorobenzene	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
2,4,5-Trichlorophenol	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
2,4,6-Trichlorophenol	ND	10		µg/L	1	12/18/2013 9:34:48 AM	10800
Surr: 2-Fluorophenol	47.0	22.7-98		%REC	1	12/18/2013 9:34:48 AM	10800
Surr: Phenol-d5	35.9	23.4-74.9		%REC	1	12/18/2013 9:34:48 AM	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	10800
Surr: 2-Fluorobiphenyl	70.7	38.3-110		%REC	1	12/18/2013 9:34:48 AM	10800
Surr: 4-Terphenyl-d14	73.1	52.1-116		%REC	1	12/18/2013 9:34:48 AM	10800
EPA METHOD 8260B: VOLATILES							Analyst: JMP
✓ 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-Methylnaphthalene	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.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312659

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312659

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							Analyst: 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							Analyst: BCN
Petroleum Hydrocarbons, TR	1.3	1.0		mg/L	1	12/17/2013	10820
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	12/19/2013	10891
SM4500-H+B: PH							Analyst: SRM
✓ pH	7.66	1.68	H	pH units	1	12/16/2013 5:58:17 PM	R15528
SM2320B: ALKALINITY							Analyst: SRM
Bicarbonate (As CaCO3)	86	20		mg/L CaCO3	1	12/16/2013 5:58:17 PM	R15528
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	12/16/2013 5:58:17 PM	R15528
Total Alkalinity (as CaCO3)	86	20		mg/L CaCO3	1	12/16/2013 5:58:17 PM	R15528
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
✓ 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.

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

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 **Date/Time Received** 12/17/2013 12:36 PM
Client Sample ID 1312659-001K / MW-1B **Sampling Time** 10:45 AM
Matrix Water
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 131218049-002 **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 Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
✓ Cyanide	ND	mg/L	0.01	12/18/2013	CRW	EPA 335.4	

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

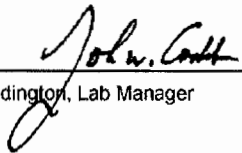
Batch #: 131218049
Project Name: 1312659

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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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.



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Gallatin, WY 800-888-7175 • Rapid City, SD 800-872-1225 • College Station, TX 800-880-2218

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
Date Received: 12/18/13
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ 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

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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Gillette, WY 866-686-7175 • Rapid City, SD 866-672-1225 • College Station, TX 866-880-2218

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Hall Environmental

Report Date: 12/23/13

Project: Not Indicated

Work Order: C13120620

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: D5072-92										Batch: R181914
Sample ID: C13120621-001ADUP 3 Sample Duplicate										
						Run: PACKARD 3100TR_131218A		12/18/13 18:01		
Radon 222		1.6	pCi/L					210	20	UR
Radon 222 precision ($\pm$)		75.1	pCi/L							
Radon 222 MDC		130	pCi/L							
- The Sample and the Duplicate are both below the MDC. The RPD is acceptable.										
Sample ID: MB-R181914 3 Method Blank										
						Run: PACKARD 3100TR_131218A		12/18/13 18:01		
Radon 222		7	pCi/L							U
Radon 222 precision ($\pm$)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Sample ID: LCS-R181914 Laboratory Control Sample										
						Run: PACKARD 3100TR_131218A		12/18/13 18:01		
Radon 222		552	pCi/L		96	80	120			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.



Pace Analytical Services, Inc.
1838 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5800

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: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	2.00 ± 0.722 (0.566)	pCi/L	12/27/13 12:46	13982-63-3	
Radium-228	EPA 904.0	0.711 ± 0.402 (0.727)	pCi/L	12/31/13 09:22	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Date: 01/02/2014 09:43 AM

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Greensburg, PA 15601
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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:	30109787001		

METHOD BLANK:	671140	Matrix:	Water
Associated Lab Samples:	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

Date: 01/02/2014 09:43 AM

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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

METHOD BLANK: 671139

Matrix: Water

Associated Lab Samples: 30109787001

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-228	0.177 ± 0.225 (0.479)	pCi/L	12/31/13 09:21	

REPORT OF LABORATORY ANALYSIS

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Date: 01/02/2014 09:43 AM

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrrq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R15612	RunNo:	15612					
Prep Date:		Analysis Date:	12/19/2013	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								

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			
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
- 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrg Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R15707	RunNo:	15707					
Prep Date:		Analysis Date:	12/23/2013	SeqNo:	453037	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Aluminum ND 0.020

Iron ND 0.020

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R15707	RunNo:	15707					
Prep Date:		Analysis Date:	12/23/2013	SeqNo:	453038	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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrg 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	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.026	0.0010	0.02500	0	103	85	115			
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
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	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:	458863	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	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:	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:	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	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	Qual
Uranium	0.027	0.0010	0.02500	0	109	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

QC SUMMARY REPORT

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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	ND	0.0010								

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:	459487	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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Full 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	SeqNo:	458393	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.9	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cirq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R15551	RunNo:	15551					
Prep Date:		Analysis 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 P	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R15551	RunNo:	15551					
Prep Date:		Analysis Date:	12/16/2013	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	110			

Sample ID	A4	SampType:	CCV_4	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15551	RunNo:	15551					
Prep Date:		Analysis Date:	12/16/2013	SeqNo:	447268	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	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15551	RunNo:	15551					
Prep Date:		Analysis Date:	12/16/2013	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 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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	A6	SampType: CCV_6			TestCode: EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID: R15551			RunNo: 15551					
Prep Date:		Analysis Date: 12/16/2013			SeqNo: 447292		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: EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID: R15551			RunNo: 15551					
Prep Date:		Analysis Date: 12/17/2013			SeqNo: 447304		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			

Sample ID	A5	SampType: CCV_5			TestCode: EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID: R15551			RunNo: 15551					
Prep Date:		Analysis Date: 12/17/2013			SeqNo: 447316		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	SampType: CCV_4			TestCode: EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID: R15551			RunNo: 15551					
Prep Date:		Analysis Date: 12/17/2013			SeqNo: 447327		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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cirq 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	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:	LCS	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSW	Batch ID:	10820	RunNo:	15560					
Prep Date:	12/16/2013	Analysis Date:	12/17/2013	SeqNo:	447702	Units:	mg/L			
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:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	10820	RunNo:	15560					
Prep Date:	12/16/2013	Analysis Date:	12/17/2013	SeqNo:	447704	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	4.7	1.0	5.000	0	94.8	80	120	5.14	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cirq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	MB-10822	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	10822	RunNo:	15527					
Prep Date:	12/16/2013	Analysis Date:	12/16/2013	SeqNo:	447079	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		SampType:	LCS		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	LCSW		Batch ID:	10822		RunNo:	15527				
Prep Date:	12/16/2013		Analysis Date:	12/16/2013		SeqNo:	447080		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	SampType:	LCSD	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSS02	Batch ID:	10822	RunNo:	15527					
Prep Date:	12/16/2013	Analysis Date:	12/16/2013	SeqNo:	447081	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.	B Analyte detected in the associated Method Blank
7 Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

Sample ID	MB-10796	SampType:	MBLK	TestCode:	EPA Method 8082: PCB's					
Client ID:	PBW	Batch ID:	10796	RunNo:	15544					
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	SampType:	LCS	TestCode:	EPA Method 8082: PCB's					
Client ID:	LCSW	Batch ID:	10796	RunNo:	15544					
Prep Date:	12/16/2013	Analysis Date:	12/17/2013	SeqNo:	447135	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

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cirq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R15529	RunNo:	15529					
Prep Date:		Analysis Date:	12/16/2013	SeqNo:	446644	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								
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.
Q 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock CYRQ ENERGY

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R15529	RunNo:	15529					
Prep Date:		Analysis Date:	12/16/2013	SeqNo:	446644	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 aca	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R15529	RunNo:	15529					
Prep Date:		Analysis Date:	12/16/2013	SeqNo:	446646	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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	100ng lcs200ng aca	SampType: LCS	TestCode: EPA Method 8260B: VOLATILES							
Client ID:	LCSW	Batch ID:	R15529	RunNo: 15529						
Prep Date:	Analysis Date: 12/16/2013			SeqNo: 446646		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.	B Analyte detected in the associated Method Blank
~ Value above quantitation range	H Holding times for preparation or analysis exceeded
^ Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cirq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	mb-10800	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	10800	RunNo:	15530					
Prep Date:	12/16/2013	Analysis Date:	12/16/2013	SeqNo:	446854	Units:	µg/L			
Analyte	Result	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:

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

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	mb-10800	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	10800	RunNo:	15530					
Prep Date:	12/16/2013	Analysis Date:	12/16/2013	SeqNo:	446854	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								
N-Nitrosodiphenylamine	ND	10								
1-Methylphenol	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.	B Analyte detected in the associated Method Blank
Value above quantitation range	H Holding times for preparation or analysis exceeded
Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
RPD outside accepted recovery limits	RL Reporting Detection Limit
Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

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 ID: 10800			RunNo: 15530				
Prep Date:	12/16/2013		Analysis Date: 12/16/2013			SeqNo: 446855		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	lcsd-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		
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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	lcsd-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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	83		100.0		82.9	52.1	116	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

Sample ID	MB-10797	SampType:	MBLK	TestCode:	EPA Method 8310: PAHs					
Client ID:	PBW	Batch ID:	10797	RunNo:	15541					
Prep Date:	12/16/2013	Analysis Date:	12/17/2013	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	SampType:	LCS	TestCode:	EPA Method 8310: PAHs					
Client ID:	LCSW	Batch ID:	10797	RunNo:	15541					
Prep Date:	12/16/2013	Analysis Date:	12/17/2013	SeqNo:	447058	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

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	LCS-10797	SampType:	LCS	TestCode:	EPA Method 8310: PAHs					
Client ID:	LCSW	Batch ID:	10797	RunNo:	15541					
Prep Date:	12/16/2013	Analysis Date:	12/17/2013	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.	B Analyte detected in the associated Method Blank
~ Value above quantitation range	H Holding times for preparation or analysis exceeded
^ Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cirq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	MB-10891	SampType:	MBLK	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID:	10891	RunNo:	15597					
Prep Date:	12/19/2013	Analysis Date:	12/19/2013	SeqNo:	449210	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-10891	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	10891	RunNo:	15597					
Prep Date:	12/19/2013	Analysis Date:	12/19/2013	SeqNo:	449211	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	21	2.5	20.00	0	103	73.7	135			

Qualifiers:

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

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312659

22-Jan-14

Client: Cyrg 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	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	lcs-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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.4	90	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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	lcs-2	SampType:	LCS	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R15528	RunNo:	15528					
Prep Date:		Analysis Date:	12/16/2013	SeqNo:	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.
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

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



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: 1312659

RcptNo: 1

Received by/date:	KS 12/16/13		
Logged By:	Anne Thorne	12/16/2013 9:05:00 AM	Anne Thorne
Completed By:	Anne Thorne	12/16/2013	Anne Thorne
Reviewed By:	AT 12/16/13		

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		

Log In

4. Was an attempt made to cool the samples?	Yes ☒	No ☐	NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly 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 broken?	Yes ☐	No ☒	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☒	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☒	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.)	Yes ☒	No ☐	

of preserved
bottles checked
for pH: 8
(2 or 12 unless noted)
Adjusted? _____
Checked by: AT 12/16/13

Special Handling (if applicable)

16. Was client notified of all discrepancies with 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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No.	Seal Date	Signed By
1	2.9	Good	Not Present			

12/02/13 / AT
Use this list

SYRQ ENERGY WQCC BOTTLES FOR 1 SAMPLE

TEST	BOTTLE TYPE/PRESERVATIVE
8260	3 x 40 ml HCl Voa's
DB-504.1	2 x 40 ml voa's Na2S2O3
1082-PCB	1 x ltr unpreserved amber
1310-PAH	1 x ltr unpreserved amber
1270-SVOC	1 x ltr unpreserved amber
Phenols	1 x ltr H2SO4 amber
Anions, TDS, pH, + WQCC Anions SO4, Cl, P, SO4, Carbonate, Bicarbonate, Total Alk TDS, pH, + X102-NO3 mercury AT 12/16/17	1 x 500 unpreserved plastic 1 x 125 H2SO4 plastic
Dissolved Metals/Cations Al, As, Ag, B, Ba, Br, Cd, Cu, Co, Fe, F, / Ca, Na, K, P, Hg, Li, Mn, Mg, Mo, Ni, Pb, Se, Rb, W, Zn, U	1 x 500 HN03 plastic
118.1 TPH	2 x 125 HN03 plastic
Total Phosphorus	1 x 500 HCl amber
Radon	Ask Hall
CYN	"
Radium 226/228	"

Note Li, Rb, 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*

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 www.hallenvironmental.com 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

4901 Hawkins NE

Albuquerque, NM 87109

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	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	H	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 METALS							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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312055

Date Reported: 12/16/2013

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 200.7: DISSOLVED 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 AM	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: SEMIVOLATILES							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.

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

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	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES							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
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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312055

Date Reported: 12/16/2013

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 8270C: SEMIVOLATILES							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.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312055

Date Reported: 12/16/2013

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					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
1,1,1,2,2-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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312055

Date Reported: 12/16/2013

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							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
pH	6.89	1.68	H	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 SOLIDS							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.

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



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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
Date Received: 12/04/13
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ 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

Report
Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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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
Date Received: 12/04/13
Matrix: Aqueous

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

Report
Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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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 Analytical Run: SUB-B216225										
Sample ID: ICV	Continuing Calibration Verification Standard									
Lithium		1.29	mg/L	0.10	103	95	105			12/09/13 11:35
Sample ID: ICSA	Interference Check Sample A									
Lithium		-0.00206	mg/L	0.10						12/09/13 11:47
Sample ID: ICSAB	Interference Check Sample AB									
Lithium		1.01	mg/L	0.10	101	80	120			12/09/13 11:51
Method: E200.7 Batch: B_R216225										
Sample ID: MB-6500DIS131209A	Method Blank									
Lithium		ND	mg/L	0.0003						Run: SUB-B216225 12/09/13 11:59
Sample ID: LFB-6500DIS131209A	Laboratory Fortified Blank									
Lithium		1.00	mg/L	0.10	100	85	115			Run: SUB-B216225 12/09/13 12:03
Sample ID: B13120529-002BMS2	Sample Matrix Spike									
Lithium		2.0	mg/L	0.10	100	70	130			Run: SUB-B216225 12/09/13 18:29
Sample ID: B13120529-002BMSD2	Sample Matrix Spike Duplicate									
Lithium		2.0	mg/L	0.10	99	70	130	0.8	20	Run: SUB-B216225 12/09/13 18:33

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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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: E200.8								Analytical Run: SUB-B216493		
Sample ID: QCS	2	Initial Calibration Verification Standard								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 Fortified Blank								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								12/13/13 09:56
Rubidium		0.03								
Tungsten		1.0								
Sample ID: B13120270-001CMS	2	Sample Matrix Spike								12/13/13 10:52
Rubidium		0.713	mg/L	0.010		70	130			A
Tungsten		0.113	mg/L	0.10	120	70	130			
Sample ID: B13120270-001CMSD	2	Sample Matrix Spike Duplicate								12/13/13 10:54
Rubidium		0.715	mg/L	0.010		70	130	0.3	20	A
Tungsten		0.113	mg/L	0.10	120	70	130	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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



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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: E365.1										Analytical Run: SUB-B216417
Sample ID: ICV										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										12/12/13 09:57
Phosphorus, Total as P		ND	mg/L	0.004						
Sample ID: LCS-76392										12/12/13 09:58
Phosphorus, Total as P		0.208	mg/L	0.0050	104	90	110			
Sample ID: B13120329-001BMS										12/12/13 10:11
Phosphorus, Total as P		0.255	mg/L	0.0050	104	90	110			
Sample ID: B13120329-001BMSD										12/12/13 10:12
Phosphorus, Total as P		0.255	mg/L	0.0050	104	90	110	0.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

WO#: 1312055

Ill Environmental Analysis Laboratory, Inc.

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:	R15213	RunNo:	15213					
Prep Date:		Analysis Date:	12/3/2013	SeqNo:	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								
Zinc	ND	0.010								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R15213	RunNo:	15213					
Prep Date:		Analysis Date:	12/3/2013	SeqNo:	438574	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.
- 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

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 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

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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	LCS		SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals			
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:	LCS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	LCSW		Batch ID:	R15358		RunNo:	15358			
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	MB		SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	PBW		Batch ID:	R15358		RunNo:	15358			
Prep Date:			Analysis Date:	12/9/2013		SeqNo:	442395		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	MB		SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	PBW		Batch ID:	R15358		RunNo:	15358			
Prep Date:			Analysis Date:	12/9/2013		SeqNo:	442396		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		SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	LCSW		Batch ID:	R15360		RunNo:	15360			
Prep Date:			Analysis Date:	12/9/2013		SeqNo:	442459		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	MB		SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	PBW		Batch ID:	R15360		RunNo:	15360			
Prep Date:			Analysis Date:	12/9/2013		SeqNo:	442460		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Modifiers:

* 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

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					
Prep Date:		Analysis Date:	12/9/2013	SeqNo:	442460	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								

Qualifiers:

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

QC SUMMARY REPORT

Full 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	RunNo:	15327					
Prep Date:	12/7/2013	Analysis Date:	12/8/2013	SeqNo:	441675	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	103	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	1312055-001EMS	SampType:	MS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LDG 55-7	Batch ID:	R15216	RunNo:	15216					
Prep Date:		Analysis Date:	12/3/2013	SeqNo:	438864	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	SampType:	MSD	TestCode:	EPA Method 300.0: Anions					
Client ID:	LDG 55-7	Batch ID:	R15216	RunNo:	15216					
Prep Date:		Analysis Date:	12/3/2013	SeqNo:	438865	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	SampType:	CCV_6	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15216	RunNo:	15216					
Prep Date:		Analysis Date:	12/3/2013	SeqNo:	438867	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	SampType:	CCV_4	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15216	RunNo:	15216					
Prep Date:		Analysis Date:	12/3/2013	SeqNo:	438879	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	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15216	RunNo:	15216					
Prep Date:		Analysis Date:	12/3/2013	SeqNo:	438891	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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Full 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: BatchQC	Batch ID: R15216		RunNo: 15216							
Prep Date:	Analysis Date: 12/3/2013		SeqNo: 438891		Units: mg/L					
Analyte	Result	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	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15216		RunNo: 15216							
Prep Date:	Analysis Date: 12/4/2013		SeqNo: 438903		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	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15288		RunNo: 15288							
Prep Date:	Analysis Date: 12/4/2013		SeqNo: 440664		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			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15288		RunNo: 15288							
Prep Date:	Analysis Date: 12/4/2013		SeqNo: 440676		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	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15288		RunNo: 15288							
Prep Date:	Analysis Date: 12/4/2013		SeqNo: 440688		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		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15288		RunNo: 15288							
Prep Date:	Analysis Date: 12/4/2013		SeqNo: 440700		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	95.9	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

QC SUMMARY REPORT

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:	BatchQC	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:	BatchQC	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:	R15288	RunNo:	15288					
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:	R15288	RunNo:	15288					
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:	BatchQC	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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	MB-10616	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH					
Client ID:	PBW	Batch ID:	10616	RunNo:	15202					
Prep Date:	12/3/2013	Analysis Date:	12/3/2013	SeqNo:	438249	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					
Prep Date:	12/3/2013	Analysis Date:	12/3/2013	SeqNo:	438250	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 92.4 80 120

Sample ID	LCSD-10616	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	10616	RunNo:	15202					
Prep Date:	12/3/2013	Analysis Date:	12/3/2013	SeqNo:	438251	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
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

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-10640		SampType:	MBLK		TestCode:	EPA Method 8082: PCB's			
Client ID:	PBW		Batch ID:	10640		RunNo:	15318			
Prep Date:	12/4/2013		Analysis Date:	12/8/2013		SeqNo:	441621		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	2.4		2.500		97.6	17	123			
Surr: Tetrachloro-m-xylene	2.2		2.500		86.0	22.6	113			

Sample ID	LCS-10640		SampType:	LCS		TestCode:	EPA Method 8082: PCB's			
Client ID:	LCSW		Batch ID:	10640		RunNo:	15318			
Prep Date:	12/4/2013		Analysis Date:	12/8/2013		SeqNo:	441622		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		SampType:	MS		TestCode:	EPA Method 8082: PCB's			
Client ID:	LDG 55-7		Batch ID:	10640		RunNo:	15318			
Prep Date:	12/4/2013		Analysis Date:	12/8/2013		SeqNo:	441776		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	1312055-001LMSD		SampType:	MSD		TestCode:	EPA Method 8082: PCB's			
Client ID:	LDG 55-7		Batch ID:	10640		RunNo:	15318			
Prep Date:	12/4/2013		Analysis Date:	12/8/2013		SeqNo:	441777		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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

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: R15195			RunNo: 15195					
Prep Date:		Analysis Date: 12/3/2013			SeqNo: 438387		Units: %REC			
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 lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R15195	RunNo:	15195					
Prep Date:		Analysis Date:	12/3/2013	SeqNo:	438389	Units:	%REC			
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	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	PBW	Batch ID: R15228		RunNo: 15228						
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
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.

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

QC SUMMARY REPORT

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	RunNo:	15228					
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
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

QC SUMMARY REPORT

Call 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		RunNo: 15228						
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	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R15228	RunNo:	15228					
Prep Date:		Analysis Date:	12/4/2013	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			
Toluene	19	1.0	20.00	0	97.3	82.2	124			
Chlorobenzene	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			

Modifiers:

* 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

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-10639	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
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	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

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	mb-10639	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
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	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								
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	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		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			

Modifiers:

- * 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	lcs-10639		SampType: LCS			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	LCSW		Batch ID: 10639			RunNo: 15239				
Prep Date:	12/4/2013		Analysis Date: 12/4/2013			SeqNo: 439468		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

QC SUMMARY REPORT

Call 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 ID: 10641		RunNo: 15357					
Prep Date:	12/4/2013		Analysis Date: 12/9/2013		SeqNo: 442493		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			
enz(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			
Indeno(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		SampType: MBLK		TestCode: EPA Method 8310: PAHs					
Client ID:	PBW		Batch ID: 10641		RunNo: 15357					
Prep Date:	12/4/2013		Analysis Date: 12/9/2013		SeqNo: 442494		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								

Qualifiers:

V 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

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-10641		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	10641		RunNo:	15357			
Prep Date:	12/4/2013		Analysis Date:	12/9/2013		SeqNo:	442494		Units: µg/L	
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		SampType:	MS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LDG 55-7		Batch ID:	10641		RunNo:	15357			
Prep Date:	12/4/2013		Analysis Date:	12/9/2013		SeqNo:	442956		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	1312055-001CMSD		SampType:	MSD		TestCode:	EPA Method 8310: PAHs			
Client ID:	LDG 55-7		Batch ID:	10641		RunNo:	15357			
Prep Date:	12/4/2013		Analysis Date:	12/9/2013		SeqNo:	442957		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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Call 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 ID:	10641	RunNo:	15357					
Prep Date:	12/4/2013	Analysis Date:	12/9/2013	SeqNo:	442957	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	57.2	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
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

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-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	SeqNo:	441860	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-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	SeqNo:	441861	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	23	2.5	20.00	0	113	74.1	125			

Qualifiers:

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

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312055

16-Dec-13

Client: AMEC

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	mb-2	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R15223	RunNo:	15223					
Prep Date:		Analysis Date:	12/3/2013	SeqNo:	439031	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	lcs-2	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R15223	RunNo:	15223					
Prep Date:		Analysis Date:	12/3/2013	SeqNo:	439032	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	98.1	90	110			

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

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

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-10626	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	10626	RunNo:	15274					
Prep Date:	12/3/2013	Analysis Date:	12/5/2013	SeqNo:	440340	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-10626	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	10626	RunNo:	15274					
Prep Date:	12/3/2013	Analysis Date:	12/5/2013	SeqNo:	440341	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



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

Received by/date:

AT 12/02/13

Logged By: Anne Thorne

12/2/2013 3:20:00 PM

Anne Thorne

Completed By: Anne Thorne

12/3/2013

Anne Thorne

Reviewed By:

AT 12/03/13

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		

Log In

4. Was an attempt made to cool the samples?	Yes ☒	No ☐	NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly preserved?	Yes	No ☒	
9. Was preservative added to bottles?	Yes ☒	No ☐	NA
10. VOA vials have zero headspace?	Yes ☐	No ☐	HNO ₃ , HNO ₃ No VOA Vials ☒
11. Were any sample containers received broken?	Yes ☐	No ☒	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☒	No ☐	# of preserved bottles checked for pH: 7 (≤ 2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☒	No ☐	Adjusted?
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.)	Yes	No ☒	Checked by: AT 12/03/13

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____ Date: _____
By Whom: _____ Via: _____ eMail _____ Phone _____ Fax _____ In Person _____
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

Radon sample broke during shipment to
Sylb Lab; unable to analyze for
Radon AT 12/04/13



**HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY**

*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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.7	Good	Not Present			



53-7

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 www.hallenvironmental.com 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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312666

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 8011/504.1: EDB							Analyst: LRW
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	H	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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312666

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CLIENT: Cyrg 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 200.7: DISSOLVED METALS							Analyst: 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	R15612
Cadmium	ND	0.0020		mg/L	1	12/19/2013 5:40:30 PM	R15612
Calcium	26	1.0		mg/L	1	12/19/2013 5:40:30 PM	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	R15612
Copper	ND	0.0060		mg/L	1	12/19/2013 5:40:30 PM	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	R15612
Manganese	0.067	0.0020	*	mg/L	1	12/19/2013 5:40:30 PM	R15612
Molybdenum	ND	0.0080		mg/L	1	12/19/2013 5:40:30 PM	R15612
Nickel	ND	0.010		mg/L	1	12/19/2013 5:40:30 PM	R15612
Potassium	3.9	1.0		mg/L	1	12/19/2013 5:40:30 PM	R15612
Silver	ND	0.0050		mg/L	1	12/19/2013 5:40:30 PM	R15612
Sodium	72	1.0		mg/L	1	12/19/2013 5:40:30 PM	R15612
Zinc	0.049	0.010		mg/L	1	12/19/2013 5:40:30 PM	R15612
EPA 200.8: DISSOLVED METALS							Analyst: 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							Analyst: IDC
Mercury	ND	0.00020		mg/L	1	1/3/2014 3:52:08 PM	11064
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
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/L	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 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/L	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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312666

Date Reported: 1/22/2014

CLIENT: Cirq 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 8270C: SEMIVOLATILES							Analyst: DAM
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 AM	10800
Hexachloroethane	ND	10		µg/L	1	12/18/2013 10:03:31 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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312666

Date Reported: 1/22/2014

CLIENT: Cyrg Energy Inc

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Project: Lightning Dock CYRQ ENERGY

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Matrix: AQUEOUS

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Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
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
ε 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							Analyst: JMP
• Benzene	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
• Toluene	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
• Ethylbenzene	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
~ 1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
• 1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
Naphthalene	ND	2.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
1-Methylnaphthalene	ND	4.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
2-Methylnaphthalene	ND	4.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
Acetone	ND	10		µg/L	1	12/16/2013 5:06:55 PM	R15529
Bromobenzene	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
Bromodichloromethane	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529

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

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Matrix: AQUEOUS

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Analyses	Result	RL	Qual	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-Dichlorobenzene	ND	1.0		µg/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		µg/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-Propylbenzene	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
sec-Butylbenzene	ND	1.0		µg/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		µg/L	1	12/16/2013 5:06:55 PM	R15529
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/16/2013 5:06:55 PM	R15529
1,1,2,2-Tetrachloroethane	ND	2.0		µg/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.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312666

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
• pH	7.53	1.68	H	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 SOLIDS							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.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

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
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 131218047
Project Name: 1312666

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	Sampling Date	12/13/2013	Date/Time Received	12/17/2013 12:36 PM
Client Sample ID	1312666-001L / 53-7	Sampling Time	2:00 PM		
Matrix	Water				
Comments					

Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

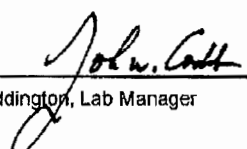
Batch #: 131218047
Project Name: 1312666

Analytical Results Report

Sample Number	131218047-003	Sampling Date	12/13/2013	Date/Time Received	12/17/2013 12:36 PM
Client Sample ID	1312666-001M / 53-7	Sampling Time	2:00 PM		
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
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

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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.



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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
Date Received: 12/18/13
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ 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

**Report
Definitions:**

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration



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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: C13120621-001ADUP 3 Sample Duplicate										
						Run: PACKARD 3100TR_131218A		12/18/13 18:01		
Radon 222		1.6	pCi/L					210	20	UR
Radon 222 precision ($\pm$)		75.1	pCi/L							
Radon 222 MDC		130	pCi/L							
- The Sample and the Duplicate are both below the MDC. The RPD is acceptable.										
Sample ID: MB-R181914 3 Method Blank										
						Run: PACKARD 3100TR_131218A		12/18/13 18:01		
Radon 222		7	pCi/L							U
Radon 222 precision ($\pm$)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Sample ID: LCS-R181914 Laboratory Control Sample										
						Run: PACKARD 3100TR_131218A		12/18/13 18:01		
Radon 222		552	pCi/L		96	80	120			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.



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	

REPORT OF LABORATORY ANALYSIS

Date: 01/03/2014 01:45 PM

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Greensburg, PA 15601
(724)850-5800

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		

METHOD BLANK:	671631	Matrix:	Water
Associated Lab Samples:	30109791001		

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-226	-0.536 ± 0.648 (0.960)	pCi/L	12/23/13 10:50	

REPORT OF LABORATORY ANALYSIS

Date: 01/03/2014 01:45 PM

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Pace Analytical Services, Inc.
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Greensburg, PA 15601
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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: 30109791001

METHOD BLANK: 671635

Matrix: Water

Associated Lab Samples: 30109791001

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-228	0.134 ± 0.301 (0.670)	pCi/L	01/02/14 13:25	

REPORT OF LABORATORY ANALYSIS

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Date: 01/03/2014 01:45 PM

QC SUMMARY REPORT

Full 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 Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R15612	RunNo:	15612					
Prep Date:		Analysis Date:	12/19/2013	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								
Sodium	ND	1.0								
?	ND	0.010								

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			
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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client: Cyrg 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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.50	0.010	0.5000	0	99.2	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Full 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 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	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.026	0.0010	0.02500	0	103	85	115			
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

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	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:	458863	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

enic	ND	0.0010								
ad	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:	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:	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	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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	Qual

Uranium	0.027	0.0010	0.02500	0	109	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

QC SUMMARY REPORT

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					
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
Uranium	ND	0.0010								

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:	459487	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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Full 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	SeqNo:	458393	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.9	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock CYRQ ENERGY

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions						
Client ID:	PBW	Batch ID:	R15551	RunNo:	15551						
Prep Date:		Analysis Date:	12/16/2013	SeqNo:	447258	Units:	mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride
Chloride
Phosphorus, Orthophosphate (As P)
Sulfate
Nitrate+Nitrite as N

ND
ND
ND
ND
ND

0.10
0.50
0.50
0.50
0.20

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 300.0: Anions				
Client ID:	LCSW		Batch ID:	R15551		RunNo:	15551				
Prep Date:			Analysis Date:	12/16/2013		SeqNo:	447259		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Fluoride
Chloride
Phosphorus, Orthophosphate (As P)
Sulfate
Nitrate+Nitrite as N

0.49
4.7
4.7
9.5
3.4

0.10
0.50
0.50
0.50
0.20

0.5000
5.000
5.000
10.00
3.500

0
0
0
0
0

98.7
93.2
94.4
95.4
97.2

90
90
90
90
90

110
110
110
110
110

Sample ID	A4		SampType:	CCV_4		TestCode:	EPA Method 300.0: Anions				
Client ID:	BatchQC		Batch ID:	R15551		RunNo:	15551				
Prep Date:			Analysis Date:	12/16/2013		SeqNo:	447268		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Fluoride
Chloride
Phosphorus, Orthophosphate (As P)
Sulfate
Nitrate+Nitrite as N

0.97
4.6
4.7
12
4.8

0.10
0.50
0.50
0.50
0.20

1.000
5.000
5.000
12.50
5.000

0
0
0
0
0

97.2
92.6
93.4
93.9
95.8

90
90
90
90
90

110
110
110
110
110

Sample ID	A5		SampType:	CCV_5		TestCode:	EPA Method 300.0: Anions				
Client ID:	BatchQC		Batch ID:	R15551		RunNo:	15551				
Prep Date:			Analysis Date:	12/16/2013		SeqNo:	447280		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Fluoride
Chloride
Phosphorus, Orthophosphate (As P)
Sulfate
Nitrate+Nitrite as N

1.6
7.7
7.8
20
8.0

0.10
0.50
0.50
0.50
0.20

1.600
8.000
8.000
20.00
8.000

0
0
0
0
0

97.6
96.8
97.2
98.5
101

90
90
90
90
90

110
110
110
110
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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client: Cyrr Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	A6	SampType:	CCV_6	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15551	RunNo:	15551					
Prep Date:		Analysis Date:	12/16/2013	SeqNo:	447292	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:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15551	RunNo:	15551					
Prep Date:		Analysis Date:	12/17/2013	SeqNo:	447304	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			

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15551	RunNo:	15551					
Prep Date:		Analysis Date:	12/17/2013	SeqNo:	447316	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	SampType:	CCV_4	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15551	RunNo:	15551					
Prep Date:		Analysis Date:	12/17/2013	SeqNo:	447327	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

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	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:	LCS	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSW	Batch ID:	10820	RunNo:	15560					
Prep Date:	12/16/2013	Analysis Date:	12/17/2013	SeqNo:	447702	Units:	mg/L			
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:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	10820	RunNo:	15560					
Prep Date:	12/16/2013	Analysis Date:	12/17/2013	SeqNo:	447704	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	4.7	1.0	5.000	0	94.8	80	120	5.14	20	

Qualifiers:

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

QC SUMMARY REPORT

Full 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	Batch ID:	10822	RunNo:	15527					
Prep Date:	12/16/2013	Analysis Date:	12/16/2013	SeqNo:	447079	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Sample ID	LCS-10822			SampType:	LCS		TestCode:	EPA Method 8011/504.1: EDB			
Client ID:	LCSW			Batch ID:	10822		RunNo:	15527			
Prep Date:	12/16/2013			Analysis Date:	12/16/2013		SeqNo:	447080		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	SampType:	LCSD	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSS02	Batch ID:	10822	RunNo:	15527					
Prep Date:	12/16/2013	Analysis Date:	12/16/2013	SeqNo:	447081	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.
- ? 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

QC SUMMARY REPORT

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		TestCode:	EPA Method 8082: PCB's			
Client ID:	PBW		Batch ID:	10796		RunNo:	15544			
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		SampType:	LCS		TestCode:	EPA Method 8082: PCB's			
Client ID:	LCSW		Batch ID:	10796		RunNo:	15544			
Prep Date:	12/16/2013		Analysis Date:	12/17/2013		SeqNo:	447135		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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client: Cyrg Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES						
Client ID:	PBW	Batch ID:	R15529	RunNo:	15529						
Prep Date:		Analysis Date:	12/16/2013	SeqNo:	446644	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									
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.
- ? 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock CYRQ ENERGY

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R15529	RunNo:	15529					
Prep Date:		Analysis Date:	12/16/2013	SeqNo:	446644	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 aca	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R15529	RunNo:	15529					
Prep Date:		Analysis Date:	12/16/2013	SeqNo:	446646	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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client: Cyrg Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID		100ng lcs200ng aca		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES				
Client ID:		LCSW		Batch ID: R15529		RunNo: 15529				
Prep Date:		Analysis Date: 12/16/2013		SeqNo: 446646		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

QC SUMMARY REPORT

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	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	10800	RunNo:	15530					
Prep Date:	12/16/2013	Analysis Date:	12/16/2013	SeqNo:	446854	Units:	µg/L			
Analyte	Result	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:

* 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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client: Cyrq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID: mb-10800	SampType: MBLK	TestCode: EPA Method 8270C: Semivolatiles								
Client ID: PBW	Batch ID: 10800	RunNo: 15530								
Prep Date: 12/16/2013	Analysis Date: 12/16/2013	SeqNo: 446854		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								
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	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.
- 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

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 ID: 10800	RunNo: 15530						
Prep Date:	12/16/2013		Analysis Date: 12/16/2013	SeqNo: 446855		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		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				
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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock CYRQ ENERGY

Sample ID	lcsd-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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	83		100.0		82.9	52.1	116	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client: Cyrq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	MB-10797		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	10797		RunNo:	15541			
Prep Date:	12/16/2013		Analysis Date:	12/17/2013		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		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	10797		RunNo:	15541			
Prep Date:	12/16/2013		Analysis Date:	12/17/2013		SeqNo:	447058		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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client: Cyrq Energy Inc
Project: Lightning Dock CYRQ ENERGY

Sample ID	LCS-10797	SampType:	LCS	TestCode:	EPA Method 8310: PAHs					
Client ID:	LCSW	Batch ID:	10797	RunNo:	15541					
Prep Date:	12/16/2013	Analysis Date:	12/17/2013	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

QC SUMMARY REPORT

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	Batch ID:	10891	RunNo:	15597					
Prep Date:	12/19/2013	Analysis Date:	12/19/2013	SeqNo:	449210	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-10891	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	10891	RunNo:	15597					
Prep Date:	12/19/2013	Analysis Date:	12/19/2013	SeqNo:	449211	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	21	2.5	20.00	0	103	73.7	135			

Qualifiers:

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

QC SUMMARY REPORT

Wall Environmental Analysis Laboratory, Inc.

WO#: 1312666

22-Jan-14

Client: Cirq 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	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	lcs-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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.4	90	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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	lcs-2	SampType:	LCS	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R15528	RunNo:	15528					
Prep Date:		Analysis Date:	12/16/2013	SeqNo:	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.	B Analyte detected in the associated Method Blank
Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

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	RunNo:	15624					
Prep Date:	12/18/2013	Analysis Date:	12/19/2013	SeqNo:	450504	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-10881	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	10881	RunNo:	15624					
Prep Date:	12/18/2013	Analysis Date:	12/19/2013	SeqNo:	450505	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

Sample Log-In Check List

Client Name: AMEC

Work Order Number: 1312668

RcptNo: 1

Received by/date:

Logged By: Anne Thorne

12/16/2013 9:03:00 AM

Completed By: **Anne Thorne**

12/16/2013

Reviewed By:

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

Log In

4. Was an attempt made to cool the samples?	Yes ☒	No ☐	NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly 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 broken?	Yes ☐	No ☒	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☒	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☒	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.)	Yes ☒	No ☐	
- # of preserved bottles checked for pH: 1

Adjusted? (1)

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with 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	2.9	Good	Not Present			

Chain-of-Custody Record

Client: AMEC E+T, INC

Mailing Address: 8514 Jefferson

ALBUQUERQUE, NM 87114

Phone #: 505-821-1801

email or Fax#: David.Jennings@AMEC.com

QA/QC Package: ☐ Level 4 (Full Validation)

Accreditation ☒ Standard ☐ Other _____

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Date Time Matrix Sample Request ID

12-13-13 14:00 H₂O 53-7

Turn-Around Time:

☐ Standard ☐ Rush

Project Name:

Lightning Dock / Cyro Energy

Project #:

11-517-000102

Project Manager:

David Jennings

Sampler: JC + ER

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.9

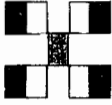
Container Type and #

Preservative Type

HEAL No.

1312666

-01



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

BTEx + MTBE + TMBs (8021)	BTEx + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)

Remarks:

SEE ATTACHED ANALYSES LIST,

Received by: John Cotton Date: 12/16/13 Time: 9:03

Received by: _____ Date: _____ Time: _____

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

12/02/13 / AT
Use this list

SYRQ ENERGY WQCC BOTTLES FOR 1 SAMPLE

TEST

8260 —

DB-504.1 —

082-PCB —

310-PAH —

270-SVOC —

Phenols —

Anions, TDS, pH, WQCC Anions — AT 12/16/13
SO₄, Cl, PO₄, Carbonate, Bicarbonate, Total Alk
TDS, pH + NO₂/NO₃ AT
12/16/13

Mercury

Dissolved Metals/Cations

Al, As, Ag, B, Ba, Br, Cd, Cu, Co, Fe, F, / Ca, Na, K, P,
Li, Mn, Mg, Mo, Ni, Pb, Se, Rb, W, Zn, U
18.1 TPH

Total Phosphorus

Radon

CYIN

Radium 226/228

BOTTLE TYPE/PRESERVATIVE

3 x 40 ml HCl Voa's

2 x 40 ml voa's Na₂S₂O₃

1 x ltr unpreserved amber

1 x ltr unpreserved amber

1 x ltr unpreserved amber

1 x ltr H₂SO₄ amber

1 x 500 unpreserved plastic

1 x 125 H₂SO₄ plastic

1 x 500 HN0₃ plastic

2 x 125 HN0₃ plastic

1 x 500 HCl amber

Ask Hall

Note Li, Rb, 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*

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 www.hallenvironmental.com 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

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B40

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	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	10979
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							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	10981
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 ³⁻)	ND	0.50	H	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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B40

Date Reported: 1/16/2014

CLIENT: Cyrg 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	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF
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 PM	R15768
Boron	2.6	0.20		mg/L	5	12/27/2013 2:48:35 PM	R15768
Cadmium	ND	0.0020		mg/L	1	12/27/2013 2:46:38 PM	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 PM	R15768
Copper	ND	0.0060		mg/L	1	12/27/2013 2:46:38 PM	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 PM	R15768
Molybdenum	0.038	0.0080		mg/L	1	12/27/2013 2:46:38 PM	R15768
Nickel	0.081	0.010		mg/L	1	12/27/2013 2:46:38 PM	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 PM	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 PM	R15768
EPA 200.8: DISSOLVED METALS							Analyst: 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							Analyst: JML
Mercury	ND	0.00020		mg/L	1	1/7/2014 2:17:05 PM	11092
EPA METHOD 8270C: SEMIVOLATILES							Analyst: 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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B40

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	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES							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

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

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

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	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES				Analyst: 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				Analyst: cadg			
• Benzene	23	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
• Toluene	45	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
• Ethylbenzene	1.3	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
1,2,4-Trimethylbenzene	2.7	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
• 1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
• 1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Naphthalene	12	2.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
1-Methylnaphthalene	ND	4.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
2-Methylnaphthalene	5.8	4.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Acetone	58	10		µg/L	1	12/29/2013 7:47:46 PM	R15774
Bromobenzene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Bromodichloromethane	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B40

Date Reported: 1/16/2014

CLIENT: Cyrg 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	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: cadg
Bromoform	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Bromomethane	ND	3.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
2-Butanone	27	10		µg/L	1	12/29/2013 7:47:46 PM	R15774
Carbon disulfide	ND	10		µg/L	1	12/29/2013 7:47:46 PM	R15774
• Carbon Tetrachloride	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Chlorobenzene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Chloroethane	ND	2.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
• Chloroform	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Chloromethane	ND	3.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
2-Chlorotoluene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
4-Chlorotoluene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
cis-1,2-DCE	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Dibromochloromethane	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Dibromomethane	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
• 1,1-Dichloroethane	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
• 1,1-Dichloroethene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
1,2-Dichloropropane	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
1,3-Dichloropropane	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
2,2-Dichloropropane	ND	2.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
1,1-Dichloropropene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Hexachlorobutadiene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
2-Hexanone	ND	10		µg/L	1	12/29/2013 7:47:46 PM	R15774
Isopropylbenzene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
4-Isopropyltoluene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
4-Methyl-2-pentanone	ND	10		µg/L	1	12/29/2013 7:47:46 PM	R15774
• Methylene Chloride	ND	3.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
n-Butylbenzene	ND	3.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
n-Propylbenzene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
sec-Butylbenzene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
Styrene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
tert-Butylbenzene	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/29/2013 7:47:46 PM	R15774
• 1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/29/2013 7:47:46 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.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B40

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	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							Analyst: 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
pH	7.33	1.68	H	pH units	1	12/26/2013 3:28:37 PM	R15744
SM2320B: ALKALINITY							Analyst: JML
Bicarbonate (As CaCO3)	440	20		mg/L CaCO3	1	12/26/2013 3:28:37 PM	R15744
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	12/26/2013 3:28:37 PM	R15744
Total Alkalinity (as CaCO3)	440	20		mg/L CaCO3	1	12/26/2013 3:28:37 PM	R15744
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1190	40.0	*	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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B40

Date Reported: 1/16/2014

CLIENT: Cirq 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	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 3:55:28 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	R15774
Chloromethane	ND	3.0		µg/L	1	12/28/2013 8:43:59 AM	R15774
2-Chlorotoluene	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.

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

Analytical Report

Lab Order 1312B40

Date Reported: 1/16/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cirq 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	Qual	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	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	R15774
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/28/2013 8:43:59 AM	R15774
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/28/2013 8:43:59 AM	R15774
Trichlorofluoromethane	ND	1.0		µg/L	1	12/28/2013 8:43:59 AM	R15774
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/28/2013 8:43:59 AM	R15774
Vinyl chloride	ND	1.0		µg/L	1	12/28/2013 8:43:59 AM	R15774
Xylenes, Total	ND	1.5		µg/L	1	12/28/2013 8:43:59 AM	R15774
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	1	12/28/2013 8:43:59 AM	R15774
Surr: 4-Bromofluorobenzene	109	70-130		%REC	1	12/28/2013 8:43:59 AM	R15774
Surr: Dibromofluoromethane	111	70-130		%REC	1	12/28/2013 8:43:59 AM	R15774
Surr: Toluene-d8	96.5	70-130		%REC	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.

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

Anatek Labs, Inc.

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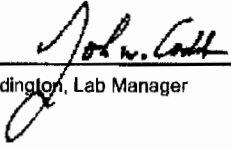
Client: HALL ENVIRONMENTAL ANALYSIS LAB **Batch #:** 131227021
Address: 4901 HAWKINS NE SUITE D **Project Name:** 1312B40
Attn: ANDY FREEMAN
ALBUQUERQUE, NM 87109

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					
Matrix	Water							
Comments								
	Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
6	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	1312B40-001O / LDG 47-7	Sampling Time	1:00 PM					
Matrix	Water							
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


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.

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); E871088

Friday, January 10, 2014

Page 1 of 1



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Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-680-2218

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
Date Received: 12/27/13
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ 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	H			D5072-92	12/31/13 12:25 / eli-ca
Radon 222 MDC	322	pCi/L	H			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

Report Date: 01/09/14

Project: Not Indicated

Work Order: B13121948

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7		Analytical Run: ICP203-B_131230A								
Sample ID: ICV		Continuing Calibration Verification 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		Method Blank		Run: ICP203-B_131230A		12/30/13 11:11				
Lithium		ND	mg/L	0.0003						
Sample ID: LFB-6500DIS131230A		Laboratory Fortified Blank		Run: ICP203-B_131230A		12/30/13 11:15				
Lithium		1.02	mg/L	0.10	102	85	115			
Sample ID: B13121948-001AMS2		Sample Matrix Spike		Run: ICP203-B_131230A		12/30/13 13:35				
Lithium		6.00	mg/L	0.10	101	70	130			
Sample ID: B13121948-001AMSD2		Sample Matrix Spike Duplicate		Run: ICP203-B_131230A		12/30/13 13:38				
Lithium		6.30	mg/L	0.10	107	70	130	4.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



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Gillette, WY 888-888-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-680-2218

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental

Report Date: 01/09/14

Project: Not Indicated

Work Order: B13121948

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8		Analytical Run: ICPMS203-B_140109A								
Sample ID: QCS-		2 Initial Calibration Verification Standard								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 Laboratory Fortified Blank								01/09/14 09:54
		Run: ICPMS203-B_140109A								
Rubidium		0.0492	mg/L	0.010	98	85	115			
Tungsten		0.0508	mg/L	0.10	102	85	115			
Sample ID: LRB		2 Method Blank								01/09/14 10:22
		Run: ICPMS203-B_140109A								
Rubidium		ND	mg/L	0.001						
Tungsten		ND	mg/L	0.001						
Sample ID: B13121948-001AMS		2 Sample Matrix Spike								01/09/14 11:54
		Run: ICPMS203-B_140109A								
Rubidium		0.186	mg/L	0.010		70	130			A
Tungsten		0.141	mg/L	0.10	137	70	130			S
Sample ID: B13121948-001AMSD		2 Sample Matrix Spike Duplicate								01/09/14 11:58
		Run: ICPMS203-B_140109A								
Rubidium		0.183	mg/L	0.010		70	130	1.5	20	A
Tungsten		0.138	mg/L	0.10	131	70	130	2.1	20	S

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

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

MDC - Minimum detectable concentration



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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	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: D5072-92							Batch: R182194		
Sample ID: B13121948-0018DUP							Run: PACKARD 3100TR_131231A		
Sample Duplicate							12/31/13 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 below the MDC. The RPD is acceptable.									
Sample ID: MB-R182194							Run: PACKARD 3100TR_131231A		
Method Blank							12/31/13 12:25		
Radon 222	10	pCi/L							U
Radon 222 precision (±)	30	pCi/L							
Radon 222 MDC	50	pCi/L							
Sample ID: LCS-R182194							Run: PACKARD 3100TR_131231A		
Laboratory Control Sample							12/31/13 12:25		
Radon 222	548	pCi/L	94		80	120			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.



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

Lab ID: 30110466001

Collected: 12/21/13 13:00

Received: 12/27/13 09:30

Matrix: Water

PWS:

Site ID:

Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
• Radium-226	EPA 903.1	0.0340 ± 0.481 (0.981)	pCi/L	01/10/14 16:13	13982-63-3	
• Radium-228	EPA 904.0	-0.191 ± 0.378 (0.924)	pCi/L	01/14/14 15:02	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Date: 01/15/2014 02:25 PM

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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: 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		

METHOD BLANK:	675523	Matrix:	Water
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	

REPORT OF LABORATORY ANALYSIS

Date: 01/15/2014 02:25 PM

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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: 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

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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Date: 01/15/2014 02:25 PM

QC SUMMARY REPORT

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:	R15768	RunNo:	15768					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455078	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	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R15768	RunNo:	15768					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455079	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	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R15805	RunNo:	15805					
Prep Date:		Analysis Date:	12/30/2013	SeqNo:	456073	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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cirq Energy Inc
Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R15805		RunNo: 15805					
Prep Date:			Analysis Date: 12/30/2013		SeqNo: 456074		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		SampType: MS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LDG 47-7		Batch ID: R15805		RunNo: 15805					
Prep Date:			Analysis Date: 12/30/2013		SeqNo: 456137		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			

Sample ID		1312B40-001JMSD			SampType: MSD		TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:		LDG 47-7		Batch ID:		R15805		RunNo: 15805			
Prep Date:				Analysis Date:		12/30/2013		SeqNo: 456138		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		SampType: MS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LDG 47-7		Batch ID: R15921		RunNo: 15921					
Prep Date:			Analysis Date: 1/7/2014		SeqNo: 459107		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		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LDG 47-7		Batch ID: R15921		RunNo: 15921					
Prep Date:			Analysis Date: 1/7/2014		SeqNo: 459108		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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312E40

16-Jan-14

Client: Cirq 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			SeqNo: 459138		Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum		ND	0.020								

Sample ID	LCS	SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID:	LCSW	Batch ID: R15921			RunNo: 15921						
Prep Date:		Analysis Date: 1/7/2014			SeqNo: 459139		Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum		0.56	0.020	0.5000	0	111	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

OC SUMMARY REPORT

Real Environmental Analysis Laboratory, Inc.

WO#: 13 12B40

16-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW	Batch ID: R15963			RunNo: 15963					
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
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			

Sample ID	MB	SampType: MBLK		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
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
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
- P RPD 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrg 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	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

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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cym 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: R15742		RunNo: 15742						
Prep Date:		Analysis Date: 12/24/2013		SeqNo: 454474		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	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R15742	RunNo:	15742					
Prep Date:		Analysis Date:	12/24/2013	SeqNo:	454478	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

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15742	RunNo:	15742					
Prep Date:		Analysis Date:	12/24/2013	SeqNo:	454484	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	SampType:	CCV_4	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15742	RunNo:	15742					
Prep Date:		Analysis Date:	12/24/2013	SeqNo:	454496	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.
- 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cirq 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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	2.8	0.10	2.500	0.3221	100	85.9	111	0.397	20	

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15742	RunNo:	15742					
Prep Date:		Analysis Date:	12/24/2013	SeqNo:	454508	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	SampType:	CCV_4	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15742	RunNo:	15742					
Prep Date:		Analysis Date:	12/24/2013	SeqNo:	454513	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	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	13	0.20	12.00	0	106	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrg 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			
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:	R15794	RunNo:	15794					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455811	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	97.6	90	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			
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	98.0	90	110			

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15794	RunNo:	15794					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455832	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	0	102	90	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:	455844	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	98.2	90	110			

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15794	RunNo:	15794					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455883	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	0	101	90	110			

Modifiers:

- * 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cynq 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					
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: EPA Method 300.0: Anions							
Client ID: BatchQC	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: EPA Method 300.0: Anions							
Client ID: BatchQC	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.

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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrg Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	MB-10991	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH					
Client ID:	PBW	Batch ID:	10991	RunNo:	15761					
Prep Date:	12/26/2013	Analysis Date:	12/27/2013	SeqNo:	454975	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-10991	SampType:	LCS	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSW	Batch ID:	10991	RunNo:	15761					
Prep Date:	12/26/2013	Analysis Date:	12/27/2013	SeqNo:	454976	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	5.3	1.0	5.000	0	106	80	120			

Sample ID	LCSD-10991	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	10991	RunNo:	15761					
Prep Date:	12/26/2013	Analysis Date:	12/27/2013	SeqNo:	454977	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	5.4	1.0	5.000	0	108	80	120	2.24	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

QC SUMMARY REPORT

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	RunNo:	15731					
Prep Date:	12/26/2013	Analysis Date:	12/26/2013	SeqNo:	454148	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-10989	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	10989	RunNo:	15731					
Prep Date:	12/26/2013	Analysis Date:	12/26/2013	SeqNo:	454165	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

1,2-Dibromoethane	0.12	0.010	0.1000	0	117	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

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrg Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	MB-10979	SampType:	MBLK	TestCode:	EPA Method 8082: PCB's					
Client ID:	PBW	Batch ID:	10979	RunNo:	15776					
Prep Date:	12/24/2013	Analysis Date:	12/29/2013	SeqNo:	455290	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	TestCode:	EPA Method 8082: PCB's					
Client ID:	LCSW	Batch ID:	10979	RunNo:	15776					
Prep Date:	12/24/2013	Analysis Date:	12/31/2013	SeqNo:	456267	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	3.7	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

Modifiers:

* 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrg Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R15774	RunNo:	15774					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455189	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

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R15774	RunNo:	15774					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455189	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	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	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R15774	RunNo:	15774					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455191	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			

Modifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID 100ng lcs	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R15774		RunNo: 15774							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455191		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: 15774							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455218		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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID b5	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R15774		RunNo: 15774							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455218		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								
+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	10		10.00		101	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	b5	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R15774	RunNo:	15774					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455218	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	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R15774	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

QC SUMMARY REPORT

Chall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	mb-10980	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	10980	RunNo:	15747					
Prep Date:	12/24/2013	Analysis Date:	12/26/2013	SeqNo:	454620	Units:	µg/L			
Analyte	Result	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								
'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								

alifiers:

* 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrg Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	mb-10980	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	10980	RunNo:	15747					
Prep Date:	12/24/2013	Analysis Date:	12/26/2013	SeqNo:	454620	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								
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		55.1	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

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	lcs-10980		SampType: LCS			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	LCSW		Batch ID: 10980			RunNo: 15747				
Prep Date:	12/24/2013		Analysis Date: 12/26/2013			SeqNo: 454621		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	lcsd-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	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.
- 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	lcSD-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	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	81		100.0		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

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	MB-10981		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	10981		RunNo:	15775			
Prep Date:	12/24/2013		Analysis Date:	12/27/2013		SeqNo:	455252		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								
enz(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	22		20.00		108	24.5	139			

Sample ID	LCS-10981		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	10981		RunNo:	15775			
Prep Date:	12/24/2013		Analysis Date:	12/27/2013		SeqNo:	455253		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

QC SUMMARY REPORT

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	SampType: LCS		TestCode: EPA Method 8310: PAHs						
Client ID:	LCSW	Batch ID: 10981		RunNo: 15775						
Prep Date:	12/24/2013	Analysis Date: 12/27/2013		SeqNo: 455253			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

QC SUMMARY REPORT

Chall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

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	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:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSSW	Batch ID:	11134	RunNo:	15937					
Prep Date:	1/8/2014	Analysis Date:	1/8/2014	SeqNo:	459500	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:	LCSD	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSS02	Batch ID:	11134	RunNo:	15937					
Prep Date:	1/8/2014	Analysis Date:	1/8/2014	SeqNo:	459505	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

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

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

RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

Client: Cyrg Energy Inc

Project: Lightning Dock Geothermal Water Quality Moni

Sample ID	mb-1		SampType:	mbk		TestCode:	SM2320B: Alkalinity				
Client ID:	PBW		Batch ID:	R15744		RunNo:	15744				
Prep Date:			Analysis Date:	12/26/2013		SeqNo:	454539		Units:	mg/L CaCO3	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	ND	20									

Sample ID	lcs-1		SampType: lcs		TestCode: SM2320B: Alkalinity					
Client ID:	LCSW		Batch ID: R15744		RunNo: 15744					
Prep Date:			Analysis Date: 12/26/2013		SeqNo: 454540		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	98.6	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B40

16-Jan-14

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



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: 1312B40

RcptNo: 1

Received by/date:

mg

12/24/13

Logged By: Michelle Garcia

12/24/2013 10:30:00 AM

Michelle Garcia

Completed By: Michelle Garcia

12/24/2013 12:30:27 PM

Michelle Garcia

Reviewed By:

IO

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

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly 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 broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ 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.) Yes ☒ No ☐

of preserved bottles checked for pH: *9*

Adjusted? *no*

Checked by: *[Signature]*

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

As per analyst request, poured off from unpreserved sample, filtered, and preserved for additional volume for dissolved metals on 1/8/14. lcms.

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: AMEC

Mailing Address: 8579 Jefferson St NE
Albuquerque NM 87113
Phone #: 505.821.1801

Email or Fax#: david.janney@amec.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

EDD (Type) Excel per 01/06/11

AS

Date Time Matrix Sample Request ID

12/13/13 1300 Water LDG 47-7

Trip Blank

Note: 2 x 125 HNO₃ samples
(Dissolved Metals) were
not filtered.

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Lightning Dock Geothermal
GW Quality Monitoring

Project #:
11-577-00102.06

Project Manager:

David Janney

Sample: Charles D. Gudy

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0°C

Container Type and # Preservative Type HEAL No.
21 3 1312B416

-001

Date:

Time: 12/13/13 10:10a

Relinquished by:

Date:

Time:

Remarks:

See attached analyte list.

Date:

Time: 12/13/13 10:30a

Received by:

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12/02/13/AT
Use this list

CYRQ ENERGY WQCC BOTTLES FOR 1 SAMPLE

TEST	BOTTLE TYPE/PRESERVATIVE
8260	3 x 40 ml HCl Voa's
EDB-504.1	2 x 40 ml voa's Na2S2O3
1082-PCB	1 x ltr unpreserved amber
1310-PAH	1 x ltr unpreserved amber
1270-SVOC	1 x ltr unpreserved amber
Phenols	1 x ltr H2SO4 amber
anions, TDS, pH, SO ₄ , Cl ₂ , PO ₄ , Carbonate, Bicarbonate, Total Alk DS, pH	1 x 500 unpreserved plastic 1 x 125 H2SO4 plastic
Mercury	1 x 500 HN03 plastic
Dissolved Metals/Cations 1, As, Ag, B, Ba, Br, Cd, Cu, Co, Fe, F, / Ca, Na, K, P, 3, Li, Mn, Mg, Mo, Ni, Pb, Se, Rb, W, Zn, U 18.1 TPH	2 x 125 HN03 plastic 1 x 500 HCl amber
Total Phosphorus	Ask Hall
Radon	
YIN	
adium 226/228	

Note Li, Rb, 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

January 14, 2014

David Janney

Cyrq Energy Inc

PO Box 86

Animas, NM 88020

TEL: (505) 796-7276

FAX

13-7

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 www.hallenvironmental.com 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

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

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 8011/504.1: EDB							Analyst: LRW
1,2-Dibromoethane	ND	0.010		µg/L	1	12/26/2013 2:31:48 PM	10989
EPA METHOD 8082: PCB'S							Analyst: 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	10979
Aroclor 1232	ND	1.0		µg/L	1	12/30/2013 2:42:39 AM	10979
Aroclor 1242	ND	1.0		µg/L	1	12/30/2013 2:42:39 AM	10979
Aroclor 1248	ND	1.0		µg/L	1	12/30/2013 2:42:39 AM	10979
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	10979
Surr: Decachlorobiphenyl	93.6	17-123		%REC	1	12/30/2013 2:42:39 AM	10979
Surr: Tetrachloro-m-xylene	98.0	22.6-113		%REC	1	12/30/2013 2:42:39 AM	10979
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	100		µg/L	50	12/28/2013 3:37:14 AM	10981
1-Methylnaphthalene	ND	100		µg/L	50	12/28/2013 3:37:14 AM	10981
2-Methylnaphthalene	ND	100		µg/L	50	12/28/2013 3:37:14 AM	10981
Acenaphthylene	ND	120		µg/L	50	12/28/2013 3:37:14 AM	10981
Acenaphthene	ND	250		µg/L	50	12/28/2013 3:37:14 AM	10981
Fluorene	ND	40		µg/L	50	12/28/2013 3:37:14 AM	10981
Phenanthrene	ND	30		µg/L	50	12/28/2013 3:37:14 AM	10981
Anthracene	ND	30		µg/L	50	12/28/2013 3:37:14 AM	10981
Fluoranthene	ND	15		µg/L	50	12/28/2013 3:37:14 AM	10981
Pyrene	ND	15		µg/L	50	12/28/2013 3:37:14 AM	10981
Benz(a)anthracene	ND	3.5		µg/L	50	12/28/2013 3:37:14 AM	10981
Chrysene	ND	10		µg/L	50	12/28/2013 3:37:14 AM	10981
Benzo(b)fluoranthene	ND	5.0		µg/L	50	12/28/2013 3:37:14 AM	10981
Benzo(k)fluoranthene	ND	3.5		µg/L	50	12/28/2013 3:37:14 AM	10981
Benzo(a)pyrene	ND	3.5		µg/L	50	12/28/2013 3:37:14 AM	10981
Dibenz(a,h)anthracene	ND	6.2		µg/L	50	12/28/2013 3:37:14 AM	10981
Benzo(g,h,i)perylene	ND	6.2		µg/L	50	12/28/2013 3:37:14 AM	10981
Indeno(1,2,3-cd)pyrene	ND	12		µg/L	50	12/28/2013 3:37:14 AM	10981
Surr: Benzo(e)pyrene	113	24.5-139		%REC	50	12/28/2013 3:37:14 AM	10981
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	14	0.50	*	mg/L	5	12/24/2013 3:52:17 PM	R15742
Chloride	97	2.5		mg/L	5	12/23/2013 9:15:25 PM	R15706
Bromide	ND	0.50		mg/L	5	12/23/2013 9:15:25 PM	R15706
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	12/24/2013 3:52:17 PM	R15742
Sulfate	540	10	*	mg/L	20	12/23/2013 9:27:49 PM	R15706
Nitrate+Nitrite as N	ND	1.0		mg/L	5	12/23/2013 11:31:56 PM	R15706

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

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

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 200.7: DISSOLVED METALS							Analyst: 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 PM	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	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 PM	R15707
Molybdenum	0.026	0.0080		mg/L	1	12/23/2013 6:00:22 PM	R15707
Nickel	ND	0.010		mg/L	1	12/27/2013 2:35:33 PM	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 PM	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 PM	R15768
EPA 200.8: DISSOLVED METALS							Analyst: 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							Analyst: JML
Mercury	ND	0.00020		mg/L	1	1/7/2014 2:11:45 PM	11092
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC
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

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

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

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

Date Reported: 1/14/2014

CLIENT: Cirq 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 8270C: SEMIVOLATILES							Analyst: JDC
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 PM	10980
Di-n-octyl phthalate	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Dibenz(a,h)anthracene	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Dibenzofuran	ND	10		µg/L	1	12/26/2013 10:13:19 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 PM	10980
3,3'-Dichlorobenzidine	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Diethyl phthalate	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Dimethyl phthalate	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
2,4-Dichlorophenol	ND	20		µg/L	1	12/26/2013 10:13:19 PM	10980
2,4-Dimethylphenol	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	12/26/2013 10:13:19 PM	10980
2,4-Dinitrophenol	ND	20		µg/L	1	12/26/2013 10:13:19 PM	10980
2,4-Dinitrotoluene	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
2,6-Dinitrotoluene	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Fluoranthene	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Fluorene	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Hexachlorobenzene	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Hexachlorobutadiene	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Hexachlorocyclopentadiene	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Hexachloroethane	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
Isophorone	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
1-Methylnaphthalene	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
2-Methylnaphthalene	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
2-Methylphenol	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980
3+4-Methylphenol	ND	10		µg/L	1	12/26/2013 10:13:19 PM	10980

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

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 8270C: SEMIVOLATILES				Analyst: JDC			
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				Analyst: cadg			
Benzene	ND	1.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
Toluene	ND	1.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
Ethylbenzene	ND	1.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
Naphthalene	ND	2.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
1-Methylnaphthalene	ND	4.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
2-Methylnaphthalene	ND	4.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
Acetone	ND	10		µg/L	1	12/29/2013 8:16:13 PM	R15774
Bromobenzene	ND	1.0		µg/L	1	12/29/2013 8:16:13 PM	R15774
Bromodichloromethane	ND	1.0		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.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

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 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-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 for flagged QC data and preservation information.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

Date Reported: 1/14/2014

CLIENT: Cirq 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
• pH	6.82	1.68	H	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 SOLIDS							Analyst: KS
• Total Dissolved Solids	1270	40.0	*	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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

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

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 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	10979
Aroclor 1232	ND	1.0		µg/L	1	12/30/2013 3:28:36 AM	10979
Aroclor 1242	ND	1.0		µg/L	1	12/30/2013 3:28:36 AM	10979
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	0.80		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	10981
Dibenz(a,h)anthracene	ND	0.12		µg/L	1	12/28/2013 4:06:32 AM	10981
Benzo(g,h,i)perylene	ND	0.12		µg/L	1	12/28/2013 4:06:32 AM	10981
Indeno(1,2,3-cd)pyrene	ND	0.25		µg/L	1	12/28/2013 4:06:32 AM	10981
Surr: Benzo(e)pyrene	35.0	24.5-139		%REC	1	12/28/2013 4:06:32 AM	10981
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	17	0.50	*	mg/L	5	12/24/2013 4:04:41 PM	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	H	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 PM	R15706

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
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: Cyrrq 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

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 METALS							Analyst: JLF
Aluminum	0.040	0.020		mg/L	1	12/23/2013 6:03:59 PM	R15707
Barium	0.051	0.0020		mg/L	1	12/23/2013 6:03:59 PM	R15707
Boron	2.0	0.20		mg/L	5	12/23/2013 6:05:51 PM	R15707
Cadmium	ND	0.0020		mg/L	1	12/23/2013 6:03:59 PM	R15707
Calcium	9.6	1.0		mg/L	1	12/30/2013 12:28:50 PM	R15805
Cobalt	ND	0.0060		mg/L	1	12/23/2013 6:03:59 PM	R15707
Copper	0.029	0.0060		mg/L	1	12/27/2013 2:39:09 PM	R15768
Iron	0.29	0.020		mg/L	1	12/23/2013 6:03:59 PM	R15707
Magnesium	ND	1.0		mg/L	1	12/30/2013 12:28:50 PM	R15805
Manganese	0.028	0.0020		mg/L	1	12/23/2013 6:03:59 PM	R15707
Molybdenum	0.094	0.0080		mg/L	1	12/23/2013 6:03:59 PM	R15707
Nickel	0.049	0.010		mg/L	1	12/27/2013 2:39:09 PM	R15768
Potassium	8.6	1.0		mg/L	1	12/30/2013 12:28:50 PM	R15805
Silver	ND	0.0050		mg/L	1	12/23/2013 6:03:59 PM	R15707
Sodium	260	5.0		mg/L	5	12/30/2013 12:30:46 PM	R15805
Zinc	0.027	0.010		mg/L	1	12/27/2013 2:39:09 PM	R15768
EPA 200.8: DISSOLVED METALS							Analyst: DBD
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							Analyst: JML
Mercury	ND	0.00020		mg/L	1	1/7/2014 2:13:33 PM	11092
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC
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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

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

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 8270C: SEMIVOLATILES							Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
4-Bromophenyl phenyl ether	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Butyl benzyl phthalate	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Carbazole	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
4-Chloro-3-methylphenol	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
4-Chloroaniline	ND	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	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Chrysene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Di-n-butyl phthalate	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Di-n-octyl phthalate	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Dibenz(a,h)anthracene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Dibenzofuran	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
1,2-Dichlorobenzene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
1,3-Dichlorobenzene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
1,4-Dichlorobenzene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
3,3'-Dichlorobenzidine	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Diethyl phthalate	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Dimethyl phthalate	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
2,4-Dichlorophenol	ND	20		µg/L	1	12/26/2013 10:42:21 PM	10980
2,4-Dimethylphenol	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	12/26/2013 10:42:21 PM	10980
2,4-Dinitrophenol	ND	20		µg/L	1	12/26/2013 10:42:21 PM	10980
2,4-Dinitrotoluene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
2,6-Dinitrotoluene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Fluoranthene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Fluorene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Hexachlorobenzene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Hexachlorobutadiene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Hexachlorocyclopentadiene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Hexachloroethane	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Isophorone	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
1-Methylnaphthalene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
2-Methylnaphthalene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
2-Methylphenol	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
3+4-Methylphenol	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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

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

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 8270C: SEMIVOLATILES				Analyst: JDC			
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 PM	10980
Nitrobenzene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
2-Nitrophenol	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
4-Nitrophenol	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Pentachlorophenol	ND	20		µg/L	1	12/26/2013 10:42:21 PM	10980
Phenanthrene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Phenol	18	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Pyrene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Pyridine	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
1,2,4-Trichlorobenzene	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
2,4,5-Trichlorophenol	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
2,4,6-Trichlorophenol	ND	10		µg/L	1	12/26/2013 10:42:21 PM	10980
Surr: 2-Fluorophenol	49.9	22.7-98		%REC	1	12/26/2013 10:42:21 PM	10980
Surr: Phenol-d5	36.5	23.4-74.9		%REC	1	12/26/2013 10:42:21 PM	10980
Surr: 2,4,6-Tribromophenol	84.2	23.3-111		%REC	1	12/26/2013 10:42:21 PM	10980
Surr: Nitrobenzene-d5	71.8	36.8-111		%REC	1	12/26/2013 10:42:21 PM	10980
Surr: 2-Fluorobiphenyl	84.9	38.3-110		%REC	1	12/26/2013 10:42:21 PM	10980
Surr: 4-Terphenyl-d14	89.5	52.1-116		%REC	1	12/26/2013 10:42:21 PM	10980
EPA METHOD 8260B: VOLATILES				Analyst: 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	R15774
Naphthalene	ND	2.0		µg/L	1	12/29/2013 8:44:38 PM	R15774
1-Methylnaphthalene	ND	4.0		µg/L	1	12/29/2013 8:44:38 PM	R15774
2-Methylnaphthalene	ND	4.0		µg/L	1	12/29/2013 8:44:38 PM	R15774
Acetone	78	10		µg/L	1	12/29/2013 8:44:38 PM	R15774
Bromobenzene	ND	1.0		µg/L	1	12/29/2013 8:44:38 PM	R15774
Bromodichloromethane	ND	1.0		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.

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

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 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
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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

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

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
o 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
o 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
o Vinyl chloride	ND	1.0		µg/L	1	12/29/2013 8:44:38 PM	R15774
o 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	H	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 SOLIDS							Analyst: KS
* Total Dissolved Solids	800	40.0	*	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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

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 8011/504.1: EDB							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	ND	1.0		µg/L	1	12/30/2013 4:14:27 AM	10979
Aroclor 1221	ND	1.0		µg/L	1	12/30/2013 4:14:27 AM	10979
Aroclor 1232	ND	1.0		µg/L	1	12/30/2013 4:14:27 AM	10979
Aroclor 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	ND	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 _i)	ND	2.5	H	mg/L	5	12/24/2013 4:17:06 PM	R15742
Sulfate	700	10	*	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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

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 200.7: DISSOLVED METALS				Analyst: JLF			
Aluminum	0.069	0.020		mg/L	1	12/23/2013 6:07:31 PM	R15707
Barium	0.099	0.0020		mg/L	1	12/23/2013 6:07:31 PM	R15707
Boron	0.52	0.040		mg/L	1	12/23/2013 6:07:31 PM	R15707
Cadmium	ND	0.0020		mg/L	1	12/23/2013 6:07:31 PM	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 PM	R15707
Copper	ND	0.0060		mg/L	1	12/27/2013 2:42:47 PM	R15768
Iron	0.033	0.020		mg/L	1	12/23/2013 6:07:31 PM	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 PM	R15707
Molybdenum	0.055	0.0080		mg/L	1	12/23/2013 6:07:31 PM	R15707
Nickel	ND	0.010		mg/L	1	12/27/2013 2:42:47 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 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 PM	R15768
EPA 200.8: DISSOLVED METALS				Analyst: 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				Analyst: JML			
Mercury	ND	0.00020		mg/L	1	1/7/2014 2:15:19 PM	11092
EPA METHOD 8270C: SEMIVOLATILES				Analyst: JDC			
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.

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312A59

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 8270C: SEMIVOLATILES							Analyst: 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/L	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/L	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/L	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.

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

Analytical Report

Lab Order 1312A59

Date Reported: 1/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrg 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 8270C: SEMIVOLATILES				Analyst: 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				Analyst: 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.

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

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

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					Analyst: cadg		
Bromoform	ND	10		µg/L	10	12/28/2013 11:33:52 AM	R15774
Bromomethane	ND	30		µg/L	10	12/28/2013 11:33:52 AM	R15774
2-Butanone	ND	100		µg/L	10	12/28/2013 11:33:52 AM	R15774
Carbon disulfide	ND	100		µg/L	10	12/28/2013 11:33:52 AM	R15774
Carbon Tetrachloride	ND	10		µg/L	10	12/28/2013 11:33:52 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	ND	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	ND	10		µg/L	10	12/28/2013 11:33:52 AM	R15774
2,2-Dichloropropane	ND	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	ND	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	ND	10		µg/L	10	12/28/2013 11:33:52 AM	R15774
Styrene	ND	10		µg/L	10	12/28/2013 11:33:52 AM	R15774
tert-Butylbenzene	ND	10		µg/L	10	12/28/2013 11:33:52 AM	R15774
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	12/28/2013 11:33:52 AM	R15774
1,1,2,2-Tetrachloroethane	ND	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.

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

Analytical Report

Lab Order 1312A59

Date Reported: 1/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cyrg 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							Analyst: 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							Analyst: JME
Petroleum Hydrocarbons, TR	1.4	1.1		mg/L	1	12/24/2013	10974
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	6.7	2.5		µg/L	1	1/8/2014	11134
SM4500-H+B: PH							Analyst: SRM
• pH	8.59	1.68	*H	pH units	1	12/23/2013 7:15:09 PM	R15709
SM2320B: ALKALINITY							Analyst: JML
Bicarbonate (As CaCO3)	100	20		mg/L CaCO3	1	12/26/2013 1:26:03 PM	R15744
Carbonate (As CaCO3)	9.9	2.0		mg/L CaCO3	1	12/26/2013 1:26:03 PM	R15744
Total Alkalinity (as CaCO3)	110	20		mg/L CaCO3	1	12/26/2013 1:26:03 PM	R15744
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
• 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.

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

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	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 3:13:39 PM	10989
EPA METHOD 8260B: VOLATILES							Analyst: cadg
Benzene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Toluene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Ethylbenzene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Naphthalene	ND	2.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
1-Methylnaphthalene	ND	4.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
2-Methylnaphthalene	ND	4.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Acetone	ND	10		µg/L	1	12/28/2013 12:02:19 PM	R15774
Bromobenzene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Bromodichloromethane	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Bromoform	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Bromomethane	ND	3.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
2-Butanone	ND	10		µg/L	1	12/28/2013 12:02:19 PM	R15774
Carbon disulfide	ND	10		µg/L	1	12/28/2013 12:02:19 PM	R15774
Carbon Tetrachloride	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Chlorobenzene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Chloroethane	ND	2.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Chloroform	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Chloromethane	ND	3.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
2-Chlorotoluene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
4-Chlorotoluene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
cis-1,2-DCE	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Dibromochloromethane	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Dibromomethane	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
1,1-Dichloroethane	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
1,1-Dichloroethene	ND	1.0		µg/L	1	12/28/2013 12:02:19 PM	R15774
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.

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

Analytical Report

Lab Order 1312A59

Date Reported: 1/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Cirq 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	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: 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 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.

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

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Client: HALL ENVIRONMENTAL ANALYSIS LAB **Batch #:** 131224034
Address: 4901 HAWKINS NE SUITE D **Project Name:** 1312A59
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Analytical Results Report

Sample Number 131224034-001 **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 Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
0 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 1312A59-001O / LDG 45-7 **Sampling Time** 11:00 AM
Matrix Water
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 **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
1 Cyanide	ND	mg/L	0.01	1/2/2014	CRW	EPA 335.4	

Sample Number 131224034-004 **Sampling Date** 12/20/2013 **Date/Time Received** 12/24/2013 12:26 PM
Client Sample ID 1312A59-002O / LDG 63-7 **Sampling Time** 1:00 PM
Matrix Water
Comments

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

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 131224034
Project Name: 1312A59

Analytical Results Report

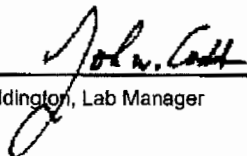
Sample Number	131224034-005	Sampling Date	12/20/2013	Date/Time Received	12/24/2013 12:26 PM
Client Sample ID	1312A59-003M / IW-1	Sampling Time	5:00 PM		
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	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


John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL 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.



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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
Date Received: 12/24/13
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
✓ Lithium	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

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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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
Date Received: 12/24/13
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ 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

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration



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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
Date Received: 12/24/13
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
• Lithium	0.6	mg/L		0.1		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

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 01/14/14

Client: Hall Environmental

Report Date: 01/09/14

Project: Not Indicated

Work Order: C13120851

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: D5072-92										Batch: R182062
Sample ID: C13120851-003BDUP	3	Sample Duplicate					Run: PACKARD 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	Method Blank					Run: PACKARD 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		Laboratory Control Sample					Run: PACKARD 3100TR_131226A			12/26/13 13:29
Radon 222		2210	pCi/L	97		80	120			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



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QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 01/14/14

Report Date: 01/09/14

Client: Hall Environmental

Project: Not Indicated

Work Order: C13120851

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: SUB-B217135		
Sample ID: ICV		Continuing Calibration Verification 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		Method Blank		Run: SUB-B217135				12/30/13 11:11		
Lithium		ND	mg/L	0.0003						
Sample ID: LFB-6500DIS131230A		Laboratory Fortified Blank		Run: SUB-B217135				12/30/13 11:15		
Lithium		1.02	mg/L	0.10	102	85	115			
Sample ID: B13121948-001AMS2		Sample Matrix Spike		Run: SUB-B217135				12/30/13 13:35		
Lithium		6.00	mg/L	0.10	101	70	130			
Sample ID: B13121948-001AMSD2		Sample Matrix Spike Duplicate		Run: SUB-B217135				12/30/13 13:38		
Lithium		6.30	mg/L	0.10	107	70	130	4.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



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QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 01/14/14

Client: Hall Environmental

Report Date: 01/09/14

Project: Not Indicated

Work Order: C13120851

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: SUB-B217575		
Sample ID: QCS-	3	Initial Calibration Verification Standard						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	Laboratory Fortified Blank						Run: SUB-B217575 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	Method Blank						Run: SUB-B217575 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	Sample Matrix Spike						Run: SUB-B217575 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	Sample Matrix Spike Duplicate						Run: SUB-B217575 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

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

ANALYTICAL RESULTS

Project: 1312A59
Pace Project No.: 30110362

Sample: 1312A59-001 LDG 45-7 **Lab ID: 30110362001** Collected: 12/19/13 11:00 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	6.49 ± 1.35 (0.367)	pCi/L	01/08/14 11:27	13982-63-3	
Radium-228	EPA 904.0	0.522 ± 0.331 (0.614)	pCi/L	01/09/14 13:06	15262-20-1	

Sample: 1312A59-002 LDG 63-7 **Lab ID: 30110362002** Collected: 12/20/13 13:00 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	-0.220 ± 0.306 (0.775)	pCi/L	01/08/14 11:29	13982-63-3	
Radium-228	EPA 904.0	0.0100 ± 0.365 (0.847)	pCi/L	01/09/14 13:29	15262-20-1	

Sample: 1312A59-003 IW-1 **Lab ID: 30110362003** Collected: 12/20/13 17:00 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	13982-63-3	
Radium-228	EPA 904.0	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: 1312A59
Pace Project No.: 30110362

QC Batch: 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 ± 0.246 (0.614)	pCi/L	01/08/14 10:30	

REPORT OF LABORATORY ANALYSIS

Date: 01/10/2014 02:44 PM

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(724)850-6800

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

Date: 01/10/2014 02:44 PM

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrq Energy Inc
Project: Lightning Dock Geothermal GW Quality Monito

Sample ID MB	SampType: MBLK	TestCode: EPA Method 200.7: Dissolved Metals								
Client ID: PBW	Batch ID: R15707	RunNo: 15707								
Prep Date:	Analysis Date: 12/23/2013	SeqNo: 453037		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	SampType: LCS	TestCode: EPA Method 200.7: Dissolved Metals								
Client ID: LCSW	Batch ID: R15707	RunNo: 15707								
Prep Date:	Analysis Date: 12/23/2013	SeqNo: 453038		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			
Barium	0.49	0.0020	0.5000	0	97.1	85	115			
Boron	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 MB	SampType: MBLK	TestCode: EPA Method 200.7: Dissolved Metals								
Client ID: PBW	Batch ID: R15768	RunNo: 15768								
Prep Date:	Analysis Date: 12/27/2013	SeqNo: 455078		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	SampType: LCS	TestCode: EPA Method 200.7: Dissolved Metals								
Client ID: LCSW	Batch ID: R15768	RunNo: 15768								
Prep Date:	Analysis Date: 12/27/2013	SeqNo: 455079		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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrg Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R15768		RunNo: 15768					
Prep Date:			Analysis Date: 12/27/2013		SeqNo: 455079		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	SampType:		MBLK	TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:		R15805	RunNo: 15805					
Prep Date:		Analysis Date:		12/30/2013	SeqNo: 456073		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		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R15805		RunNo: 15805					
Prep Date:			Analysis Date: 12/30/2013		SeqNo: 456074		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 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cirq Energy Inc
Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	1312A59-003JMS	SampType:	MS	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	IW-1	Batch ID:	R15933	RunNo:	15933					
Prep Date:		Analysis Date:	1/7/2014	SeqNo:	459412	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	0.0010	0.02500	.00007590	116	70	130			
Selenium	0.031	0.0010	0.02500	0.01024	84.0	70	130			

Sample ID	LCS	SampType:	LCS	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R15933	RunNo:	15933					
Prep Date:		Analysis Date:	1/7/2014	SeqNo:	459413	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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:	R15933	RunNo:	15933					
Prep Date:		Analysis Date:	1/7/2014	SeqNo:	459414	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.7	85	115			
Selenium	0.023	0.0010	0.02500	0	92.5	85	115			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	R15933	RunNo:	15933					
Prep Date:		Analysis Date:	1/7/2014	SeqNo:	459415	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								

Sample ID	1312A59-003JMS	SampType:	MS	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	IW-1	Batch ID:	R15934	RunNo:	15934					
Prep Date:		Analysis Date:	1/7/2014	SeqNo:	459483	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.034	0.0010	0.02500	0.001347	129	70	130			

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	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrrq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

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	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	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	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	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			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Uranium	ND	0.0010								

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:	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:	15963					
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	MB	SampType:	MBLK	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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Call 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	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	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cynq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/23/2013		SeqNo: 452922		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: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/23/2013		SeqNo: 452933		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: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/23/2013		SeqNo: 452935		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		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/23/2013		SeqNo: 452936		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	95.8	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: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/23/2013		SeqNo: 452945		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/23/2013		SeqNo: 452945		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	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/23/2013		SeqNo: 452957		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	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/23/2013		SeqNo: 452969		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	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/23/2013		SeqNo: 452981		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	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 452993		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Modifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrg Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15706	RunNo:	15706					
Prep Date:		Analysis Date:	12/24/2013	SeqNo:	452993	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	SampType:	CCV_4	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15706	RunNo:	15706					
Prep Date:		Analysis Date:	12/24/2013	SeqNo:	453005	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	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R15706	RunNo:	15706					
Prep Date:		Analysis Date:	12/24/2013	SeqNo:	453007	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	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R15706	RunNo:	15706					
Prep Date:		Analysis Date:	12/24/2013	SeqNo:	453008	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	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R15706	RunNo:	15706					
Prep Date:		Analysis Date:	12/24/2013	SeqNo:	453017	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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrg Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 453017		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	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15706		RunNo: 15706							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 453027		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	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R15742		RunNo: 15742							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454474		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	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R15742		RunNo: 15742							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454478		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	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15742		RunNo: 15742							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454484		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			

Modifiers:

* 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15742		RunNo: 15742							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454496		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	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15742		RunNo: 15742							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454508		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	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15742		RunNo: 15742							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454513		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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	MB-10974	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH					
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:	LCSSW	Batch ID:	10974	RunNo:	15713					
Prep Date:	12/24/2013	Analysis Date:	12/24/2013	SeqNo:	453481	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	92.4	80	120			

Sample ID	LCSD-10974	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	10974	RunNo:	15713					
Prep Date:	12/24/2013	Analysis Date:	12/24/2013	SeqNo:	453482	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	4.7	1.0	5.000	0	94.8	80	120	2.56	20	

Qualifiers:

V 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	MB-10989	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	10989	RunNo:	15731					
Prep Date:	12/26/2013	Analysis Date:	12/26/2013	SeqNo:	454148	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-10989	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	10989	RunNo:	15731					
Prep Date:	12/26/2013	Analysis Date:	12/26/2013	SeqNo:	454165	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	117	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	MB-10979		SampType:	MBLK		TestCode:	EPA Method 8082: PCB's			
Client ID:	PBW		Batch ID:	10979		RunNo:	15776			
Prep Date:	12/24/2013		Analysis Date:	12/29/2013		SeqNo:	455290		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	1312A59-003CMS		SampType:	MS		TestCode:	EPA Method 8082: PCB's			
Client ID:	IW-1		Batch ID:	10979		RunNo:	15776			
Prep Date:	12/24/2013		Analysis Date:	12/30/2013		SeqNo:	456259		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
Aroclor 1260	3.3	1.0	5.000	0	65.9	61.1	129			
Surr: Decachlorobiphenyl	1.9		2.500		74.4	17	123			
Surr: Tetrachloro-m-xylene	1.6		2.500		65.6	22.6	113			

Sample ID	1312A59-003CMSD		SampType:	MSD		TestCode:	EPA Method 8082: PCB's			
Client ID:	IW-1		Batch ID:	10979		RunNo:	15776			
Prep Date:	12/24/2013		Analysis Date:	12/30/2013		SeqNo:	456260		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: Decachlorobiphenyl	2.0		2.500		80.8	17	123	0	0	
Surr: Tetrachloro-m-xylene	1.8		2.500		70.4	22.6	113	0	0	

Sample ID	LCS-10979		SampType:	LCS		TestCode:	EPA Method 8082: PCB's			
Client ID:	LCSW		Batch ID:	10979		RunNo:	15776			
Prep Date:	12/24/2013		Analysis Date:	12/31/2013		SeqNo:	456267		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	3.7	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:

V 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

QC SUMMARY REPORT

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	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R15774	RunNo:	15774					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455189	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R15774	RunNo:	15774					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455189	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	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	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R15774	RunNo:	15774					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455191	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:

V 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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrg Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID 100ng lcs	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R15774		RunNo: 15774							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455191		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: 15774							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455218		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.

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	b5	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R15774	RunNo:	15774					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455218	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								
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	10		10.00		101	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

QC SUMMARY REPORT

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	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R15774	RunNo:	15774					
Prep Date:		Analysis Date:	12/27/2013	SeqNo:	455218	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	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R15774	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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	mb-10980	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	10980	RunNo:	15747					
Prep Date:	12/24/2013	Analysis Date:	12/26/2013	SeqNo:	454620	Units:	µg/L			
Analyte	Result	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								
'2-ethylhexyl)phthalate	ND	10								
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								

Modifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrg Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	mb-10980	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	10980	RunNo:	15747					
Prep Date:	12/24/2013	Analysis Date:	12/26/2013	SeqNo:	454620	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								
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		55.1	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cyrq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	lcs-10980		SampType: LCS	TestCode: EPA Method 8270C: Semivolatiles						
Client ID:	LCSW		Batch ID: 10980	RunNo: 15747						
Prep Date:	12/24/2013		Analysis Date: 12/26/2013	SeqNo: 454621		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	lcsd-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	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.	B	Analyte detected in the associated Method Blank
E Value above quantitation range	H	Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL	Reporting Detection Limit
S Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312AS9

15-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	lcsd-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	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	81		100.0		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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cirq Energy Inc

Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	MB-10981	SampType:	MBLK	TestCode:	EPA Method 8310: PAHs					
Client ID:	PBW	Batch ID:	10981	RunNo:	15775					
Prep Date:	12/24/2013	Analysis Date:	12/27/2013	SeqNo:	455252	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								
Benzo(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	22		20.00		108	24.5	139			

Sample ID	LCS-10981	SampType:	LCS	TestCode:	EPA Method 8310: PAHs					
Client ID:	LCSW	Batch ID:	10981	RunNo:	15775					
Prep Date:	12/24/2013	Analysis Date:	12/27/2013	SeqNo:	455253	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:

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

QC SUMMARY REPORT

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		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	10981		RunNo:	15775			
Prep Date:	12/24/2013		Analysis Date:	12/27/2013		SeqNo:	455253		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:	EPA Method 8310: PAHs			
Client ID:	IW-1		Batch ID:	10981		RunNo:	15775			
Prep Date:	12/24/2013		Analysis Date:	12/28/2013		SeqNo:	455279		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	1312A59-003DMSD		SampType:	MSD		TestCode:	EPA Method 8310: PAHs			
Client ID:	IW-1		Batch ID:	10981		RunNo:	15775			
Prep Date:	12/24/2013		Analysis Date:	12/28/2013		SeqNo:	455280		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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cirq Energy Inc
Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	1312A59-003DMSD	SampType:	MSD	TestCode:	EPA Method 8310: PAHs					
Client ID:	IW-1	Batch ID:	10981	RunNo:	15775					
Prep Date:	12/24/2013	Analysis Date:	12/28/2013	SeqNo:	455280	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.	B	Analyte detected in the associated Method Blank
E Value above quantitation range	H	Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL	Reporting Detection Limit
S Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cirq 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	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:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	11134	RunNo:	15937					
Prep Date:	1/8/2014	Analysis Date:	1/8/2014	SeqNo:	459500	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:	LCSD	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSS02	Batch ID:	11134	RunNo:	15937					
Prep Date:	1/8/2014	Analysis Date:	1/8/2014	SeqNo:	459505	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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cirq Energy Inc
Project: Lightning Dock Geothermal GW Quality Monito

Sample ID	mb-1	SampType:	mbk		TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R15744		RunNo:	15744					
Prep Date:		Analysis Date:	12/26/2013		SeqNo:	454539	Units:	mg/L CaCO3			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		ND	20								

Sample ID	lcs-1	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID:	LCSW	Batch ID: R15744			RunNo: 15744						
Prep Date:		Analysis Date: 12/26/2013			SeqNo: 454540		Units: mg/L CaCO3				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		79	20	80.00	0	98.6	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312A59

15-Jan-14

Client: Cirq 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	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



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 Number: 1312A59

RcptNo: 1

Received by/date:		12/21/13
Logged By:	Lindsay Mangin	12/21/2013 10:00:00 AM
Completed By:	Lindsay Mangin	12/23/2013 9:43:25 AM
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

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly 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 broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ 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.) Yes ☒ No ☐

of preserved
bottles checked
for pH: 273
(<2 or >12 unless noted)

Adjusted? No

Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with 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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No.	Seal Date	Signed By
1	4.6	Good	Not Present			

as of
12/02/13/AT
Use this list

CYRQ ENERGY WQCC BOTTLES FOR 1 SAMPLE

TEST	BOTTLE TYPE/PRESERVATIVE
8260 —	3 x 40 ml HCl Voa's
EDB-504.1 —	2 x 40 ml voa's Na2S2O3
8082-PCB —	1 x ltr unpreserved amber
8310-PAH —	1 x ltr unpreserved amber
8270-SVOC —	1 x ltr unpreserved amber
Phenols —	1 x ltr H2SO4 amber
Anions, TDS, pH, — SO ₄ , Cl, PO ₄ , Carbonate, Bicarbonate, Total Alk TPS, PH	1 x 500 unpreserved plastic 1 x 125 H2SO4 plastic
Mercury —	1 x 500 HN03 plastic
Dissolved Metals/Cations Al, As, Ag, B, Ba, Br, Cd, Cu, Co, Fe, F, / Ca, Na, K, P, Hg, Li, Mn, Mg, Mo, Ni, Pb, Se, Rb, W, Zn, U 418.1 TPH	2 x 125 HN03 plastic 1 x 500 HCl amber
Total Phosphorus —	Ask Hall
Radon —	"
CYIN —	"
Radium 226/228 —	"

Note Li, Rb, 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*

July 16, 2014

Kacie Peterson
Lightning Dock Geothermal
PO Box 86
Animas, NM 88020
TEL: (575) 548-0301
FAX

RE: LDG 45-7 T2 30-Day

OrderNo.: 1401A95

Dear Kacie Peterson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/28/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued February 18, 2014.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1401A95

Date Reported: 7/16/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG 45-7 T2 30-DAY

Project: LDG 45-7 T2 30-Day

Collection Date: 1/27/2014 12:04:00 PM

Lab ID: 1401A95-001

Matrix: AQUEOUS

Received Date: 1/28/2014 9:45:00 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	2/3/2014 12:25:36 PM	11533
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	2/5/2014 10:14:21 AM	11525
Aroclor 1221	ND	1.0		µg/L	1	2/5/2014 10:14:21 AM	11525
Aroclor 1232	ND	1.0		µg/L	1	2/5/2014 10:14:21 AM	11525
Aroclor 1242	ND	1.0		µg/L	1	2/5/2014 10:14:21 AM	11525
Aroclor 1248	ND	1.0		µg/L	1	2/5/2014 10:14:21 AM	11525
Aroclor 1254	ND	1.0		µg/L	1	2/5/2014 10:14:21 AM	11525
Aroclor 1260	ND	1.0		µg/L	1	2/5/2014 10:14:21 AM	11525
Surr: Decachlorobiphenyl	59.2	17-123		%REC	1	2/5/2014 10:14:21 AM	11525
Surr: Tetrachloro-m-xylene	56.8	22.6-113		%REC	1	2/5/2014 10:14:21 AM	11525
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	2/10/2014 8:52:53 AM	11526
1-Methylnaphthalene	ND	2.0		µg/L	1	2/10/2014 8:52:53 AM	11526
2-Methylnaphthalene	ND	2.0		µg/L	1	2/10/2014 8:52:53 AM	11526
Acenaphthylene	ND	2.5		µg/L	1	2/10/2014 8:52:53 AM	11526
Acenaphthene	ND	5.0		µg/L	1	2/10/2014 8:52:53 AM	11526
Fluorene	ND	0.80		µg/L	1	2/10/2014 8:52:53 AM	11526
Phenanthrene	ND	0.60		µg/L	1	2/10/2014 8:52:53 AM	11526
Anthracene	ND	0.60		µg/L	1	2/10/2014 8:52:53 AM	11526
Fluoranthene	ND	0.30		µg/L	1	2/10/2014 8:52:53 AM	11526
Pyrene	ND	0.30		µg/L	1	2/10/2014 8:52:53 AM	11526
Benz(a)anthracene	ND	0.070		µg/L	1	2/10/2014 8:52:53 AM	11526
Chrysene	ND	0.20		µg/L	1	2/10/2014 8:52:53 AM	11526
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/10/2014 8:52:53 AM	11526
Benzo(k)fluoranthene	ND	0.070		µg/L	1	2/10/2014 8:52:53 AM	11526
Benzo(a)pyrene	ND	0.070		µg/L	1	2/10/2014 8:52:53 AM	11526
Dibenz(a,h)anthracene	ND	0.12		µg/L	1	2/10/2014 8:52:53 AM	11526
Benzo(g,h,i)perylene	ND	0.12		µg/L	1	2/10/2014 8:52:53 AM	11526
Indeno(1,2,3-cd)pyrene	ND	0.25		µg/L	1	2/10/2014 8:52:53 AM	11526
Surr: Benzo(e)pyrene	70.6	24.5-139		%REC	1	2/10/2014 8:52:53 AM	11526
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	3.9	0.10		mg/L	1	1/29/2014 12:17:00 AM	R16369
Chloride	25	10		mg/L	20	1/29/2014 12:29:25 AM	R16369
Bromide	ND	0.10		mg/L	1	1/29/2014 12:17:00 AM	R16369
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	1/29/2014 12:17:00 AM	R16369
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	1/29/2014 12:17:00 AM	R16369
Sulfate	140	10		mg/L	20	1/29/2014 12:29:25 AM	R16369

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1401A95

Date Reported: 7/16/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG 45-7 T2 30-DAY

Project: LDG 45-7 T2 30-Day

Collection Date: 1/27/2014 12:04:00 PM

Lab ID: 1401A95-001

Matrix: AQUEOUS

Received Date: 1/28/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF
Aluminum	0.076	0.020		mg/L	1	2/4/2014 3:21:46 PM	R16518
Barium	0.022	0.0020		mg/L	1	2/4/2014 3:21:46 PM	R16518
Boron	0.18	0.040		mg/L	1	1/30/2014 12:44:50 PM	R16384
Cadmium	ND	0.0020		mg/L	1	1/30/2014 12:44:50 PM	R16384
Calcium	8.2	1.0		mg/L	1	2/4/2014 3:21:46 PM	R16518
Chromium	ND	0.0060		mg/L	1	2/4/2014 3:21:46 PM	R16518
Cobalt	ND	0.0060		mg/L	1	2/4/2014 3:21:46 PM	R16518
Copper	ND	0.0060		mg/L	1	1/30/2014 12:44:50 PM	R16384
Iron	ND	0.020		mg/L	1	2/7/2014 12:51:48 PM	R16602
Magnesium	ND	1.0		mg/L	1	1/30/2014 12:44:50 PM	R16384
Manganese	0.0079	0.0020		mg/L	1	2/4/2014 3:21:46 PM	R16518
Molybdenum	ND	0.0080		mg/L	1	1/30/2014 12:44:50 PM	R16384
Nickel	ND	0.010		mg/L	1	2/4/2014 3:21:46 PM	R16518
Potassium	11	1.0		mg/L	1	1/30/2014 12:44:50 PM	R16384
Silver	ND	0.0050		mg/L	1	1/30/2014 12:44:50 PM	R16384
Sodium	120	5.0		mg/L	5	1/30/2014 12:50:13 PM	R16384
Zinc	ND	0.010		mg/L	1	2/4/2014 3:21:46 PM	R16518
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	0.0040	0.0010		mg/L	1	2/10/2014 4:30:41 PM	R16644
Lead	ND	0.0010		mg/L	1	2/10/2014 4:30:41 PM	R16644
Selenium	ND	0.0010		mg/L	1	2/10/2014 4:30:41 PM	R16644
Uranium	ND	0.0010		mg/L	1	2/10/2014 4:30:41 PM	R16644
EPA METHOD 245.1: MERCURY							Analyst: JML
Mercury	0.00033	0.00020		mg/L	1	2/7/2014 5:04:43 PM	11612
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	8.0	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Toluene	2.5	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Ethylbenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Naphthalene	3.2	2.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1-Methylnaphthalene	ND	4.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
2-Methylnaphthalene	ND	4.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Acetone	ND	10		µg/L	1	2/3/2014 8:13:03 PM	R16497
Bromobenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1401A95

Date Reported: 7/16/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG 45-7 T2 30-DAY

Project: LDG 45-7 T2 30-Day

Collection Date: 1/27/2014 12:04:00 PM

Lab ID: 1401A95-001

Matrix: AQUEOUS

Received Date: 1/28/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Bromodichloromethane	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Bromoform	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Bromomethane	ND	3.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
2-Butanone	ND	10		µg/L	1	2/3/2014 8:13:03 PM	R16497
Carbon disulfide	ND	10		µg/L	1	2/3/2014 8:13:03 PM	R16497
Carbon Tetrachloride	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Chlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Chloroethane	ND	2.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Chloroform	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Chloromethane	ND	3.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
2-Chlorotoluene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
4-Chlorotoluene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
cis-1,2-DCE	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Dibromochloromethane	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Dibromomethane	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,1-Dichloroethane	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,1-Dichloroethene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,2-Dichloropropane	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,3-Dichloropropane	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
2,2-Dichloropropane	ND	2.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,1-Dichloropropene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Hexachlorobutadiene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
2-Hexanone	ND	10		µg/L	1	2/3/2014 8:13:03 PM	R16497
Isopropylbenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
4-Isopropyltoluene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
4-Methyl-2-pentanone	ND	10		µg/L	1	2/3/2014 8:13:03 PM	R16497
Methylene Chloride	ND	3.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
n-Butylbenzene	ND	3.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
n-Propylbenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
sec-Butylbenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Styrene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
tert-Butylbenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1401A95

Date Reported: 7/16/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG 45-7 T2 30-DAY

Project: LDG 45-7 T2 30-Day

Collection Date: 1/27/2014 12:04:00 PM

Lab ID: 1401A95-001

Matrix: AQUEOUS

Received Date: 1/28/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
trans-1,2-DCE	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Trichlorofluoromethane	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Vinyl chloride	ND	1.0		µg/L	1	2/3/2014 8:13:03 PM	R16497
Xylenes, Total	ND	1.5		µg/L	1	2/3/2014 8:13:03 PM	R16497
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	1	2/3/2014 8:13:03 PM	R16497
Surr: 4-Bromofluorobenzene	87.9	70-130		%REC	1	2/3/2014 8:13:03 PM	R16497
Surr: Dibromofluoromethane	97.5	70-130		%REC	1	2/3/2014 8:13:03 PM	R16497
Surr: Toluene-d8	99.5	70-130		%REC	1	2/3/2014 8:13:03 PM	R16497
EPA METHOD 418.1: TPH							Analyst: BCN
Petroleum Hydrocarbons, TR	9.0	1.0		mg/L	1	1/28/2014 12:00:00 PM	11442
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	2/17/2014	11753
SM4500-H+B: PH							Analyst: SRM
pH	5.67	1.68	H	pH units	1	1/29/2014 6:34:42 PM	R16395
SM2320B: ALKALINITY							Analyst: SRM
Bicarbonate (As CaCO3)	43	20		mg/L CaCO3	1	1/29/2014 6:34:42 PM	R16395
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	1/29/2014 6:34:42 PM	R16395
Total Alkalinity (as CaCO3)	43	20		mg/L CaCO3	1	1/29/2014 6:34:42 PM	R16395
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	386	20.0		mg/L	1	1/31/2014 6:54:00 PM	11493

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded	
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit	Page 4 of 27
O RSD is greater than RSDlimit	P Sample pH greater than 2.	
R RPD outside accepted recovery limits	RL Reporting Detection Limit	
S Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1401A95

Date Reported: 7/16/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: Trip Blank

Project: LDG 45-7 T2 30-Day

Collection Date:

Lab ID: 1401A95-002

Matrix: AQUEOUS

Received Date: 1/28/2014 9:45:00 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	2/3/2014 12:39:31 PM	11533
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Toluene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Ethylbenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Naphthalene	ND	2.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1-Methylnaphthalene	ND	4.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
2-Methylnaphthalene	ND	4.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Acetone	ND	10		µg/L	1	2/3/2014 8:44:52 PM	R16497
Bromobenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Bromodichloromethane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Bromoform	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Bromomethane	ND	3.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
2-Butanone	ND	10		µg/L	1	2/3/2014 8:44:52 PM	R16497
Carbon disulfide	ND	10		µg/L	1	2/3/2014 8:44:52 PM	R16497
Carbon Tetrachloride	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Chlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Chloroethane	ND	2.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Chloroform	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Chloromethane	ND	3.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
2-Chlorotoluene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
4-Chlorotoluene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
cis-1,2-DCE	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Dibromochloromethane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Dibromomethane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,1-Dichloroethane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,1-Dichloroethene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,2-Dichloropropane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 5 of 27
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1401A95

Date Reported: 7/16/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: Trip Blank

Project: LDG 45-7 T2 30-Day

Collection Date:

Lab ID: 1401A95-002

Matrix: AQUEOUS

Received Date: 1/28/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,3-Dichloropropane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
2,2-Dichloropropane	ND	2.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,1-Dichloropropane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Hexachlorobutadiene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
2-Hexanone	ND	10		µg/L	1	2/3/2014 8:44:52 PM	R16497
Isopropylbenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
4-Isopropyltoluene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
4-Methyl-2-pentanone	ND	10		µg/L	1	2/3/2014 8:44:52 PM	R16497
Methylene Chloride	ND	3.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
n-Butylbenzene	ND	3.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
n-Propylbenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
sec-Butylbenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Styrene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
tert-Butylbenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
trans-1,2-DCE	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Trichlorofluoromethane	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Vinyl chloride	ND	1.0		µg/L	1	2/3/2014 8:44:52 PM	R16497
Xylenes, Total	ND	1.5		µg/L	1	2/3/2014 8:44:52 PM	R16497
Surr: 1,2-Dichloroethane-d4	97.7	70-130		%REC	1	2/3/2014 8:44:52 PM	R16497
Surr: 4-Bromofluorobenzene	90.9	70-130		%REC	1	2/3/2014 8:44:52 PM	R16497
Surr: Dibromofluoromethane	90.7	70-130		%REC	1	2/3/2014 8:44:52 PM	R16497
Surr: Toluene-d8	89.5	70-130		%REC	1	2/3/2014 8:44:52 PM	R16497

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

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

Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 140129017
Project Name: 1401A95

Analytical Results Report

Sample Number 140129017-001 **Sampling Date** 1/27/2014 **Date/Time Received** 1/29/2014 12:30 PM
Client Sample ID 1401A95-001I / LDG 45-7 T2 30 DAY **Sampling Time** 12:04 PM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Lithium	0.259	mg/L	0.01	2/12/2014	ETL	EPA 200.8	
Dissolved Rubidium	0.123	mg/L	0.01	2/12/2014	ETL	EPA 200.8	
Dissolved Tungsten	0.0438	mg/L	0.01	2/12/2014	ETL	EPA 200.8	

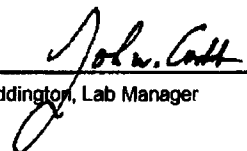
Sample Number 140129017-002 **Sampling Date** 1/27/2014 **Date/Time Received** 1/29/2014 12:30 PM
Client Sample ID 1401A95-001J / LDG 45-7 T2 30 DAY **Sampling Time** 12:04 PM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Total P	0.0129	mg/L	0.01	2/4/2014	CRW	SM4500PF	

Sample Number 140129017-003 **Sampling Date** 1/27/2014 **Date/Time Received** 1/29/2014 12:30 PM
Client Sample ID 1401A95-001M / LDG 45-7 T2 30 DAY **Sampling Time** 12:04 PM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	2/3/2014	CRW	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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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87883; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00168; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Wednesday, February 12, 2014

Page 1 of 1



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: C14010806-001
Client Sample ID: 1401A95-001L LDG 45-7 T2 30-Day

Report Date: 01/31/14
Collection Date: 01/27/14 12:04
Date Received: 01/29/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radon 222	6830	pCi/L				D5072-92	01/29/14 13:36 / dpb
Radon 222 precision ($\pm$)	89.4	pCi/L				D5072-92	01/29/14 13:36 / dpb
Radon 222 MDC	61.0	pCi/L				D5072-92	01/29/14 13:36 / dpb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Hall Environmental

Report Date: 01/31/14

Project: Not Indicated

Work Order: C14010806

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: D5072-92										Batch: R183160
Sample ID: C14010760-009GDUP	3	Sample Duplicate					Run: PACKARD 3100TR_140128A			01/28/14 14:15
Radon 222		681	pCi/L					8.3		20
Radon 222 precision ($\pm$)		71.0	pCi/L							
Radon 222 MDC		108	pCi/L							
Sample ID: MB-R183160	3	Method Blank					Run: PACKARD 3100TR_140128A			01/28/14 14:15
Radon 222		10	pCi/L							U
Radon 222 precision ($\pm$)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Sample ID: LCS-R183160		Laboratory Control Sample					Run: PACKARD 3100TR_140128A			01/28/14 14:15
Radon 222		2200	pCi/L	96		80	120			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



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

ANALYTICAL RESULTS

Project: 1401A95
Pace Project No.: 30112478

Sample: 1401A95-001 LDG 45-7 T2 Lab ID: 30112478001 Collected: 01/27/14 12:04 Received: 01/29/14 09:50 Matrix: Water
30-DAY

PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.95 ± 0.862 (0.757)	pCi/L	02/04/14 13:24	13982-63-3	
Radium-228	EPA 904.0	0.264 ± 0.346 (0.737)	pCi/L	02/11/14 13:26	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Date: 02/12/2014 10:47 AM



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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: 1401A95
Pace Project No.: 30112478

QC Batch:	RADC/18572	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30112478001		

METHOD BLANK:	888146	Matrix:	Water
Associated Lab Samples:	30112478001		

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-226	-0.111 ± 0.491 (0.914)	pCi/L	02/04/14 12:37	

REPORT OF LABORATORY ANALYSIS

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Date: 02/12/2014 10:47 AM



Pace Analytical Services, Inc.
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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: 1401A95

Pace Project No.: 30112478

QC Batch: RADC/18573

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 30112478001

METHOD BLANK: 686147

Matrix: Water

Associated Lab Samples: 30112478001

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-228	0.442 ± 0.315 (0.609)	pCi/L	02/11/14 12:21	

REPORT OF LABORATORY ANALYSIS

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Date: 02/12/2014 10:47 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R16384	RunNo:	16384					
Prep Date:		Analysis Date:	1/30/2014	SeqNo:	472530	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040								
Cadmium	ND	0.0020								
Copper	ND	0.0060								
Magnesium	ND	1.0								
Molybdenum	ND	0.0080								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R16384	RunNo:	16384					
Prep Date:		Analysis Date:	1/30/2014	SeqNo:	472531	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.53	0.040	0.5000	0	105	85	115			
Cadmium	0.52	0.0020	0.5000	0	104	85	115			
Copper	0.50	0.0060	0.5000	0	99.8	85	115			
Magnesium	51	1.0	50.00	0	102	85	115			
Molybdenum	0.52	0.0080	0.5000	0	105	85	115			
Potassium	48	1.0	50.00	0	97.0	85	115			
Silver	0.10	0.0050	0.1000	0	105	85	115			
Sodium	49	1.0	50.00	0	98.1	85	115			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R16384	RunNo:	16384					
Prep Date:		Analysis Date:	1/30/2014	SeqNo:	472562	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040								
Cadmium	ND	0.0020								
Copper	ND	0.0060								
Magnesium	ND	1.0								
Molybdenum	ND	0.0080								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								

Qualifiers:

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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R16384		RunNo: 16384					
Prep Date:			Analysis Date: 1/30/2014		SeqNo: 472563		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.52	0.040	0.5000	0	104	85	115			
Cadmium	0.52	0.0020	0.5000	0	104	85	115			
Copper	0.50	0.0060	0.5000	0	99.3	85	115			
Magnesium	50	1.0	50.00	0	99.3	85	115			
Molybdenum	0.51	0.0080	0.5000	0	102	85	115			
Potassium	48	1.0	50.00	0	96.0	85	115			
Silver	0.11	0.0050	0.1000	0	106	85	115			
Sodium	48	1.0	50.00	0	96.6	85	115			

Sample ID	1401A95-001HMS		SampType:	MS		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	LDG 45-7 T2 30-DAY		Batch ID:	R16384		RunNo:	16384				
Prep Date:			Analysis Date:	1/30/2014		SeqNo:	472970		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Boron	0.75	0.040	0.5000	0.1807	114	70	130				
Cadmium	0.54	0.0020	0.5000	0	108	70	130				
Copper	0.48	0.0060	0.5000	0	96.6	70	130				
Magnesium	52	1.0	50.00	0.04839	105	70	130				
Molybdenum	0.55	0.0080	0.5000	0.007470	108	70	130				
Potassium	62	1.0	50.00	10.95	103	70	130				
Silver	0.085	0.0050	0.1000	0	85.4	70	130				

Sample ID	1401A95-001HMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	LDG 45-7 T2 30-DAY		Batch ID:	R16384		RunNo:	16384				
Prep Date:			Analysis Date:	1/30/2014		SeqNo:	472971		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Boron	0.81	0.040	0.5000	0.1807	125	70	130	7.06	20		
Cadmium	0.60	0.0020	0.5000	0	119	70	130	9.33	20		
Copper	0.54	0.0060	0.5000	0	109	70	130	11.7	20		
Magnesium	58	1.0	50.00	0.04839	116	70	130	9.87	20		
Molybdenum	0.61	0.0080	0.5000	0.007470	121	70	130	11.1	20		
Potassium	68	1.0	50.00	10.95	114	70	130	8.59	20		
Silver	0.091	0.0050	0.1000	0	91.0	70	130	6.32	20		

Sample ID	1401A95-001HMS		SampType:	MS		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	LDG 45-7 T2 30-DAY		Batch ID:	R16384		RunNo:	16384				
Prep Date:			Analysis Date:	1/30/2014		SeqNo:	472973		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
- 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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	1401A95-001HMS	SampType:	MS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LDG 45-7 T2 30-DAY	Batch ID:	R16384	RunNo:	16384					
Prep Date:		Analysis Date:	1/30/2014	SeqNo:	472973	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	380	5.0	250.0	122.3	104	70	130			

Sample ID	1401A95-001HMSD	SampType:	MSD	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LDG 45-7 T2 30-DAY	Batch ID:	R16384	RunNo:	16384					
Prep Date:		Analysis Date:	1/30/2014	SeqNo:	472974	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	390	5.0	250.0	122.3	107	70	130	2.03	20	

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R16518	RunNo:	16518					
Prep Date:		Analysis Date:	2/4/2014	SeqNo:	475605	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								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Zinc	ND	0.010								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R16518	RunNo:	16518					
Prep Date:		Analysis Date:	2/4/2014	SeqNo:	475606	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	113	85	115			
Barium	0.48	0.0020	0.5000	0	96.6	85	115			
Calcium	51	1.0	50.00	0	102	85	115			
Chromium	0.48	0.0060	0.5000	0	96.5	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.4	85	115			
Manganese	0.47	0.0020	0.5000	0	94.8	85	115			
Nickel	0.47	0.010	0.5000	0	93.1	85	115			
Zinc	0.47	0.010	0.5000	0	93.6	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R16602	RunNo:	16602					
Prep Date:	2/5/2014	Analysis Date:	2/7/2014	SeqNo:	477885	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R16602	RunNo:	16602					
Prep Date:		Analysis Date:	2/7/2014	SeqNo:	477886	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	97.6	85	115			

Sample ID	LCSD	SampType:	LCSD	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSS02	Batch ID:	R16602	RunNo:	16602					
Prep Date:		Analysis Date:	2/7/2014	SeqNo:	477887	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	98.0	85	115	0.438	20	

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R16602	RunNo:	16602					
Prep Date:	2/5/2014	Analysis Date:	2/7/2014	SeqNo:	477910	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R16602	RunNo:	16602					
Prep Date:		Analysis Date:	2/7/2014	SeqNo:	477911	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	98.1	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	LCS		SampType: LCS			TestCode: EPA 200.8: Dissolved Metals				
Client ID:	LCSW		Batch ID: R16644			RunNo: 16644				
Prep Date:			Analysis Date: 2/10/2014			SeqNo: 479056		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	99.2	85	115			
Lead	0.026	0.0010	0.02500	0	104	85	115			
Selenium	0.024	0.0010	0.02500	0	96.6	85	115			
Uranium	0.026	0.0010	0.02500	0	103	85	115			

Sample ID	MB		SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals				
Client ID:	PBW		Batch ID: R16644			RunNo: 16644				
Prep Date:			Analysis Date: 2/10/2014			SeqNo: 479057		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.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	MB-11612	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	11612	RunNo:	16634					
Prep Date:	2/6/2014	Analysis Date:	2/7/2014	SeqNo:	478712	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-11612	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	11612	RunNo:	16634					
Prep Date:	2/6/2014	Analysis Date:	2/7/2014	SeqNo:	478714	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	0.0051	0.00020	0.005000	0	102	80	120			

Sample ID	1401A95-001GMS		SampType:	MS		TestCode:	EPA Method 245.1: Mercury				
Client ID:	LDG 45-7 T2 30-DAY		Batch ID:	11612		RunNo:	16634				
Prep Date:	2/6/2014		Analysis Date:	2/7/2014		SeqNo:	478719		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0052	0.00020	0.005000	0.0003258	97.8	75	125				

Sample ID	1401A95-001GMSD			SampType:	MSD		TestCode:	EPA Method 245.1: Mercury			
lient ID:	LDG 45-7 T2 30-DAY			Batch ID:	11612		RunNo:	16634			
Prep Date:	2/6/2014		Analysis Date:	2/7/2014		SeqNo:	478720		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0053	0.00020	0.005000	0.0003258	100	75	125	2.54	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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	A6		SampType: CCV_6			TestCode: EPA Method 300.0: Anions				
Client ID:	BatchQC		Batch ID: R16369			RunNo: 16369				
Prep Date:			Analysis Date: 1/28/2014			SeqNo: 471971		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	98.8	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Bromide	12	0.10	12.00	0	102	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	100	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID	A5		SampType: CCV_5			TestCode: EPA Method 300.0: Anions				
Client ID:	BatchQC		Batch ID: R16369			RunNo: 16369				
Prep Date:			Analysis Date: 1/28/2014			SeqNo: 471983		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	97.9	90	110			
Chloride	7.7	0.50	8.000	0	96.9	90	110			
Bromide	7.9	0.10	8.000	0	99.3	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	96.9	90	110			
Sulfate	20	0.50	20.00	0	98.8	90	110			

Sample ID	A6		SampType: CCV_6			TestCode: EPA Method 300.0: Anions				
Client ID:	BatchQC		Batch ID: R16369			RunNo: 16369				
Prep Date:			Analysis Date: 1/28/2014			SeqNo: 471995		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	99.1	90	110			
Chloride	12	0.50	12.00	0	102	90	110			
Bromide	12	0.10	12.00	0	102	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	108	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID	A4		SampType: CCV_4			TestCode: EPA Method 300.0: Anions				
Client ID:	BatchQC		Batch ID: R16369			RunNo: 16369				
Prep Date:			Analysis Date: 1/28/2014			SeqNo: 472007		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	95.1	90	110			
Chloride	4.7	0.50	5.000	0	93.2	90	110			
Bromide	4.9	0.10	5.000	0	97.3	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.2	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	A4	SampType:	CCV_4	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R16369	RunNo:	16369					
Prep Date:		Analysis Date:	1/28/2014	SeqNo:	472007	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	94.3	90	110			
Sulfate	12	0.50	12.50	0	95.7	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R16369	RunNo:	16369					
Prep Date:		Analysis Date:	1/28/2014	SeqNo:	472011	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					
Client ID:	LCSW	Batch ID:	R16369	RunNo:	16369					
Prep Date:		Analysis Date:	1/28/2014	SeqNo:	472012	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	95.2	90	110			
Chloride	4.5	0.50	5.000	0	90.8	90	110			
Bromide	2.4	0.10	2.500	0	95.3	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	95.8	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.0	90	110			
Sulfate	9.3	0.50	10.00	0	93.0	90	110			

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R16369	RunNo:	16369					
Prep Date:		Analysis Date:	1/29/2014	SeqNo:	472019	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	96.7	90	110			
Bromide	7.9	0.10	8.000	0	99.2	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.0	90	110			
Sulfate	20	0.50	20.00	0	98.8	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- U 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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R16369		RunNo: 16369							
Prep Date:	Analysis Date: 1/29/2014		SeqNo: 472031		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	101	90	110			
Chloride	12	0.50	12.00	0	102	90	110			
Bromide	12	0.10	12.00	0	102	90	110			
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	109	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			
Sulfate	31	0.50	30.00	0	104	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R16369		RunNo: 16369							
Prep Date:	Analysis Date: 1/29/2014		SeqNo: 472043		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.0	0.10	1.000	0	101	90	110			
Chloride	4.7	0.50	5.000	0	94.0	90	110			
Bromide	4.9	0.10	5.000	0	98.1	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	98.2	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.2	90	110			
Sulfate	12	0.50	12.50	0	96.3	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	MB-11442	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH					
Client ID:	PBW	Batch ID:	11442	RunNo:	16340					
Prep Date:	1/28/2014	Analysis Date:	1/28/2014	SeqNo:	471223	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-11442	SampType:	LCS	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSW	Batch ID:	11442	RunNo:	16340					
Prep Date:	1/28/2014	Analysis Date:	1/28/2014	SeqNo:	471224	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	5.0	1.0	5.000	0	99.4	80	120			

Sample ID	LCSD-11442	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	11442	RunNo:	16340					
Prep Date:	1/28/2014	Analysis Date:	1/28/2014	SeqNo:	471225	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	5.1	1.0	5.000	0	102	80	120	2.97	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	MB-11533	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	11533	RunNo:	16474					
Prep Date:	2/3/2014	Analysis Date:	2/3/2014	SeqNo:	474636	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-11533	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	11533	RunNo:	16474					
Prep Date:	2/3/2014	Analysis Date:	2/3/2014	SeqNo:	474637	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	110	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	MB-11525	SampType: MBLK			TestCode: EPA Method 8082: PCB's					
Client ID:	PBW	Batch ID: 11525			RunNo: 16528					
Prep Date:	2/2/2014	Analysis Date: 2/5/2014			SeqNo: 476489		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		83.2	17	123			
Surr: Tetrachloro-m-xylene	2.5		2.500		98.4	22.6	113			

Sample ID	LCS-11525	SampType:	LCS	TestCode:	EPA Method 8082: PCB's					
Client ID:	LCSW	Batch ID:	11525	RunNo:	16528					
Prep Date:	2/2/2014	Analysis Date:	2/5/2014	SeqNo:	476490	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	5.7	1.0	5.000	0	113	15	134			
Aroclor 1260	5.2	1.0	5.000	0	103	32.1	148			
Surr: Decachlorobiphenyl	2.1		2.500		85.6	17	123			
Surr: Tetrachloro-m-xylene	2.5		2.500		101	22.6	113			

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	5ml rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R16497	RunNo:	16497					
Prep Date:		Analysis Date:	2/3/2014	SeqNo:	475115	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:

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- 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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	5mi rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	PBW	Batch ID: R16497		RunNo: 16497						
Prep Date:		Analysis Date: 2/3/2014		SeqNo: 475115		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								
,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	11		10.00		114	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.1	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.4		10.00		93.5	70	130			

Sample ID	100ng lcs,200ngaca			SampType:	LCS		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	LCSW		Batch ID:	R16497		RunNo:	16497				
Prep Date:			Analysis Date:	2/3/2014		SeqNo:	475117		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	21	1.0	20.00	0	107	70	130				
Toluene	19	1.0	20.00	0	95.6	82.2	124				
Chlorobenzene	18	1.0	20.00	0	91.6	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

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- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	100ng lcs,200ngaca	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R16497	RunNo:	16497					
Prep Date:		Analysis Date:	2/3/2014	SeqNo:	475117	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	25	1.0	20.00	0	126	83.5	155			
Trichloroethene (TCE)	19	1.0	20.00	0	94.5	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.3	70	130			
Surr: Dibromofluoromethane	8.1		10.00		81.2	70	130			
Surr: Toluene-d8	9.5		10.00		95.2	70	130			

Qualifiers:

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- 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
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- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	MB-11526	SampType:	MBLK	TestCode:	EPA Method 8310: PAHs					
Client ID:	PBW	Batch ID:	11526	RunNo:	16614					
Prep Date:	2/2/2014	Analysis Date:	2/10/2014	SeqNo:	478214	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								
benzo(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	16		20.00		82.4	24.5	139			

Sample ID	LCS-11526		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 11526		RunNo: 16614					
Prep Date:	2/2/2014		Analysis Date: 2/10/2014		SeqNo: 478215		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	46	2.0	80.00	0	56.9	43.8	96.9			
1-Methylnaphthalene	39	2.0	80.20	0	48.7	41.3	87.3			
2-Methylnaphthalene	35	2.0	80.00	0	43.2	36.6	89.6			
Acenaphthylene	48	2.5	80.20	0	60.3	43.6	103			
Acenaphthene	37	5.0	80.00	0	46.9	42.4	87.6			
Fluorene	4.1	0.80	8.020	0	50.7	40.5	93.6			
Phenanthrene	2.6	0.60	4.020	0	64.2	43.9	111			
Anthracene	2.4	0.60	4.020	0	60.0	44.3	103			
Fluoranthene	4.9	0.30	8.020	0	60.8	43.5	109			
Pyrene	4.9	0.30	8.020	0	61.1	32.6	103			
Benz(a)anthracene	0.49	0.070	0.8020	0	61.1	43	114			
Chrysene	2.4	0.20	4.020	0	60.7	40.2	100			
Benzo(b)fluoranthene	0.61	0.10	1.002	0	60.9	44.4	118			
Benzo(k)fluoranthene	0.30	0.070	0.5000	0	60.0	41.5	120			

Qualifiers:

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- 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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	LCS-11526		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	11526		RunNo:	16614			
Prep Date:	2/2/2014		Analysis Date:	2/10/2014		SeqNo:	478215		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	0.63	0.12	1.002	0	62.9	38.3	107			
Benzo(g,h,i)perylene	0.61	0.12	1.000	0	61.0	38.4	110			
Indeno(1,2,3-cd)pyrene	1.3	0.25	2.004	0	63.4	42.4	113			
Surr. Benzo(e)pyrene	16		20.00		79.8	24.5	139			

Sample ID	1401A95-001DMS		SampType:	MS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LDG 45-7 T2 30-DAY		Batch ID:	11526		RunNo:	16614			
Prep Date:	2/2/2014		Analysis Date:	2/10/2014		SeqNo:	478458		Units: µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	73	2.0	80.00	0	91.9	25.2	109			
1-Methylnaphthalene	58	2.0	80.20	0	71.8	20.9	107			
2-Methylnaphthalene	50	2.0	80.00	0	62.7	13.9	113			
Acenaphthylene	73	2.5	80.20	0	91.4	30.1	121			
Acenaphthene	53	5.0	80.00	0	66.7	21.4	114			
Fluorene	5.9	0.80	8.020	0	72.9	22.6	117			
Phenanthrene	4.0	0.60	4.020	0	98.5	33.3	120			
Anthracene	3.4	0.60	4.020	0	85.6	32.3	116			
Fluoranthene	6.8	0.30	8.020	0	85.3	34.8	122			
Pyrene	6.8	0.30	8.020	0	84.2	30	113			
Benz(a)anthracene	0.69	0.070	0.8020	0	86.0	28.4	127			
Chrysene	3.4	0.20	4.020	0	83.3	29.3	112			
Benzo(b)fluoranthene	0.85	0.10	1.002	0	84.8	29.4	137			
Benzo(k)fluoranthene	0.44	0.070	0.5000	0	88.0	34.4	130			
Benzo(a)pyrene	0.47	0.070	0.5020	0	93.6	34.5	116			
Dibenz(a,h)anthracene	0.88	0.12	1.002	0	87.8	21.3	115			
Benzo(g,h,i)perylene	0.88	0.12	1.000	0.04000	84.0	28.2	124			
Indeno(1,2,3-cd)pyrene	1.7	0.25	2.004	0	86.8	20.3	121			
Surr. Benzo(e)pyrene	18		20.00		88.6	24.5	139			

Sample ID	1401A95-001DMSD		SampType:	MSD		TestCode:	EPA Method 8310: PAHs			
Client ID:	LDG 45-7 T2 30-DAY		Batch ID:	11526		RunNo:	16614			
Prep Date:	2/2/2014		Analysis Date:	2/10/2014		SeqNo:	478484		Units: µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	61	2.0	80.00	0	76.6	25.2	109	18.1	20	
1-Methylnaphthalene	55	2.0	80.20	0	68.5	20.9	107	4.59	20	
2-Methylnaphthalene	52	2.0	80.00	0	65.2	13.9	113	3.83	20	
Acenaphthylene	62	2.5	80.20	0	77.4	30.1	121	16.6	20	

Qualifiers:

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- E Value above quantitation range
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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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	1401A95-001DMSD	SampType:	MSD	TestCode:	EPA Method 8310: PAHs					
Client ID:	LDG 45-7 T2 30-DAY	Batch ID:	11526	RunNo:	16614					
Prep Date:	2/2/2014	Analysis Date:	2/10/2014	SeqNo:	478484	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	52	5.0	80.00	0	65.3	21.4	114	2.12	20	
Fluorene	5.6	0.80	8.020	0	69.6	22.6	117	4.72	20	
Phenanthrene	3.2	0.60	4.020	0	79.1	33.3	120	21.8	20	R
Anthracene	2.9	0.60	4.020	0	71.4	32.3	116	18.1	20	
Fluoranthene	5.6	0.30	8.020	0	69.7	34.8	122	20.1	20	R
Pyrene	5.8	0.30	8.020	0	71.7	30	113	16.0	20	
Benz(a)anthracene	0.58	0.070	0.8020	0	72.3	28.4	127	17.3	20	
Chrysene	2.8	0.20	4.020	0	69.4	29.3	112	18.2	20	
Benzo(b)fluoranthene	0.71	0.10	1.002	0	70.9	29.4	137	17.9	20	
Benzo(k)fluoranthene	0.36	0.070	0.5000	0	72.0	34.4	130	20.0	20	R
Benzo(a)pyrene	0.39	0.070	0.5020	0	77.7	34.5	116	18.6	20	
Dibenz(a,h)anthracene	0.73	0.12	1.002	0	72.9	21.3	115	18.6	20	
Benzo(g,h,i)perylene	0.74	0.12	1.000	0.04000	70.0	28.2	124	17.3	20	
Indeno(1,2,3-cd)pyrene	1.5	0.25	2.004	0	73.4	20.3	121	16.8	20	
Surr: Benzo(e)pyrene	15		20.00		74.0	24.5	139	0		

Qualifiers:

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- 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.
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	MB-11753	SampType:	MBLK	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID:	11753	RunNo:	16777					
Prep Date:	2/17/2014	Analysis Date:	2/17/2014	SeqNo:	482996	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-11753	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	11753	RunNo:	16777					
Prep Date:	2/17/2014	Analysis Date:	2/17/2014	SeqNo:	482997	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	23	2.5	20.00	0	115	73.7	135			

Qualifiers:

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- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Call Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	mb-1	SampType:	MBLK	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R16395	RunNo:	16395					
Prep Date:		Analysis Date:	1/29/2014	SeqNo:	472773	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	lcs-1		SampType:	LCS		TestCode:	SM2320B: Alkalinity				
Client ID:	LCSW		Batch ID:	R16395		RunNo:	16395				
Prep Date:			Analysis Date:	1/29/2014		SeqNo:	472774		Units: mg/L CaCO3		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	78	20	80.00	0	98.0	90	110				

Qualifiers:

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- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401A95

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG 45-7 T2 30-Day

Sample ID	MB-11493	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	11493	RunNo:	16435					
Prep Date:	1/30/2014	Analysis Date:	1/31/2014	SeqNo:	473956	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-11493	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	11493	RunNo:	16435					
Prep Date:	1/30/2014	Analysis Date:	1/31/2014	SeqNo:	473957	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
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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: LIGHTNING DOCK GEO

Work Order Number: 1401A95

RcptNo: 1

Received by/date: LA 01/28/14

Logged By: Anne Thorne 1/28/2014 9:45:00 AM

Anne Thorne

Completed By: Anne Thorne 1/28/2014

Anne Thorne

Reviewed By: LA 01/28/14

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? UPS

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly 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 broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ 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.) Yes ☒ No ☐

of preserved
bottles checked
for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

SAMPLE POURED OFF, FILTERED & PRESERVED IN LAB FOR DISSOLVED METALS at 1/28/14

18. Cooler Information

Cooler No.	Temp °C	Condition	Seal Intact	Seal No.	Seal Date	Signed By
1	2.6	Good	Yes			

Chain-of-Custody Record

Client: LIGHTNING DOCK GEOTHERMAL

Mailing Address: 10 GREENHOUSE DR

ANIMA'S NM 88020

Phone #: 575.548.0303

email or Fax#: chuck.smiley@cynergy.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

EDD (Type) Exhibit 4/23/14

Date Time Matrix

1/27/14 1204 AG

Sample Request ID

LDG 45-7-TZ-30DAY

SEE ATTACHED ANALYTE LIST

TRIP BLANK

NOTE: PLEASE TEST

FOR DISSOLVED METALS/CATIONS

USING NON-PRESERVATIVE

GROUNDWATER IN ONE-LITER AMBER

NEED TO FILTER!

Date: 1/27/14 3:30p

Relinquished by: Charles A Smiley

Date: 1/27/14 3:30p

Relinquished by:

Received by:

1/28/14 0945

Received by:

1/28/14 0945

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

LDG 45-7 TZ 30-DAY

Project #:

Project Manager:

CHUCK SMILEY

Sampler:

CHUCK SMILEY

On Ice? ☒ Yes ☐ No

Sample Temperature: 2.6

Container Type and #

1401195

HEAL No.

-001

-002

Remarks:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

BTEX + MTBE + TMB's (8021)

BTEX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH's (8310 or 8270 SIMS)

RCRA 8 Metals

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

Air Bubbles (Y or N)

Ag-11/28/14

See Attached List

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

LDG 45-7 T2 30-DAY

us 01
12/02/13/AT
Use this list

YRQ ENERGY WQCC BOTTLES FOR 1 SAMPLE

TEST

8280 ✓

DB-804.1 ✓

882-PCB ✓

510-PAH ✓

270-SVOC

DO NOT TEST
8270-SVOC

henols ✓

nlons, TDS, pH, ✓✓

SO₄, Cl, P, SO₄, Carbonate, Bicarbonate, Total Alk
PS, pH

cury ✓

✓✓
Dissolved Metals/Cations

Li, Rb, W
V, As, Ag, B, Ba, Br, Cd, Cu, Co, Fe, F, / Ca, Na, K, P,
S, Li, Mn, Mg, Mo, Ni, Pb, Se, Rb, W, Zn, U

18.1 TPH ✓

Total Phosphorus ✓

Radon ✓✓

3YIN ✓

Radium 226/228 ✓✓

NO₂/NO₃

DO NOT TEST NO₂/NO₃

Note Li, Rb, W on COC

BOTTLE TYPE/PRESERVATIVE

3 x 40 ml HCl Voa's

2 x 40 ml voa's Na2S2O3

1 x 1tr unpreserved amber

1 x 1tr unpreserved amber

1 x 1tr unpreserved amber

1 x 1tr H2SO4 amber

1 x 500 unpreserved plastic

1 x 125 H2SO4 plastic

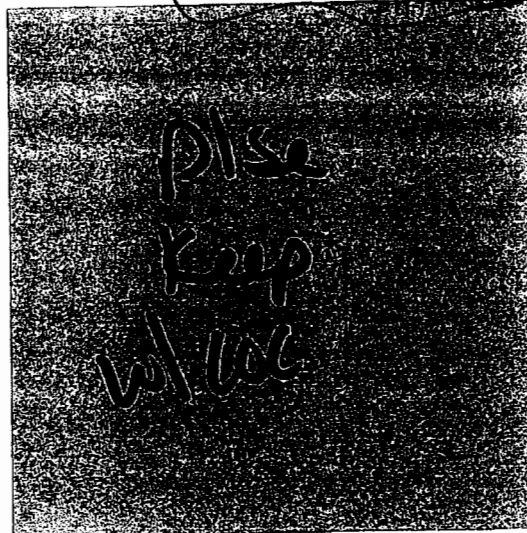
1 x 500 HNO3 plastic

2 x 125 HNO3 plastic

1 x 500 HCl amber

Ask Hall

DISSOLVED METALS/CATIONS:
NO FILTERED PLASTICS
IN THIS SHIPMENT.
PLEASE FILTER AND
TEST FROM PRODUCT
IN ONE-LITER AMBER
AS MARKED IN THIS
SHIPMENT.





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

June 05, 2014

Kacie Peterson
Lightning Dock Geothermal
PO Box 86
Animas, NM 88020
TEL: (575) 548-0301
FAX

RE: LDG T2 45-7, APR '14

OrderNo.: 1404946

Dear Kacie Peterson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/23/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued May 14, 2014.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404946

Date Reported: 6/5/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 45-7, APR '14

Project: LDG T2 45-7, APR '14

Collection Date: 4/22/2014 9:10:00 AM

Lab ID: 1404946-001

Matrix: AQUEOUS

Received Date: 4/23/2014 7:45:00 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	4/23/2014 6:48:36 PM	12838
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	5/2/2014 4:57:27 AM	12860
Aroclor 1221	ND	1.0		µg/L	1	5/2/2014 4:57:27 AM	12860
Aroclor 1232	ND	1.0		µg/L	1	5/2/2014 4:57:27 AM	12860
Aroclor 1242	ND	1.0		µg/L	1	5/2/2014 4:57:27 AM	12860
Aroclor 1248	ND	1.0		µg/L	1	5/2/2014 4:57:27 AM	12860
Aroclor 1254	ND	1.0		µg/L	1	5/2/2014 4:57:27 AM	12860
Aroclor 1260	ND	1.0		µg/L	1	5/2/2014 4:57:27 AM	12860
Surr: Decachlorobiphenyl	88.8	33.2-131		%REC	1	5/2/2014 4:57:27 AM	12860
Surr: Tetrachloro-m-xylene	100	34.7-138		%REC	1	5/2/2014 4:57:27 AM	12860
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/24/2014 12:38:55 AM	12827
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/24/2014 12:38:55 AM	12827
Surr: DNOP	115	62.7-145		%REC	1	4/24/2014 12:38:55 AM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/23/2014 3:46:27 PM	R18173
Surr: BFB	87.2	80.4-118		%REC	1	4/23/2014 3:46:27 PM	R18173
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	4/29/2014 1:34:08 PM	12861
1-Methylnaphthalene	ND	2.0		µg/L	1	4/29/2014 1:34:08 PM	12861
2-Methylnaphthalene	ND	2.0		µg/L	1	4/29/2014 1:34:08 PM	12861
Acenaphthylene	ND	2.5		µg/L	1	4/29/2014 1:34:08 PM	12861
Acenaphthene	ND	5.0		µg/L	1	4/29/2014 1:34:08 PM	12861
Fluorene	ND	0.80		µg/L	1	4/29/2014 1:34:08 PM	12861
Phenanthrene	ND	0.60		µg/L	1	4/29/2014 1:34:08 PM	12861
Anthracene	ND	0.60		µg/L	1	4/29/2014 1:34:08 PM	12861
Fluoranthene	ND	0.30		µg/L	1	4/29/2014 1:34:08 PM	12861
Pyrene	ND	0.30		µg/L	1	4/29/2014 1:34:08 PM	12861
Benz(a)anthracene	ND	0.070		µg/L	1	4/29/2014 1:34:08 PM	12861
Chrysene	ND	0.20		µg/L	1	4/29/2014 1:34:08 PM	12861
Benzo(b)fluoranthene	ND	0.10		µg/L	1	4/29/2014 1:34:08 PM	12861
Benzo(k)fluoranthene	ND	0.070		µg/L	1	4/29/2014 1:34:08 PM	12861
Benzo(a)pyrene	ND	0.070		µg/L	1	4/29/2014 1:34:08 PM	12861
Dibenz(a,h)anthracene	ND	0.12		µg/L	1	4/29/2014 1:34:08 PM	12861
Benzo(g,h,i)perylene	ND	0.12		µg/L	1	4/29/2014 1:34:08 PM	12861
Indeno(1,2,3-cd)pyrene	ND	0.25		µg/L	1	4/29/2014 1:34:08 PM	12861

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
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Analytical Report

Lab Order 1404946

Date Reported: 6/5/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 45-7, APR '14

Project: LDG T2 45-7, APR '14

Collection Date: 4/22/2014 9:10:00 AM

Lab ID: 1404946-001

Matrix: AQUEOUS

Received Date: 4/23/2014 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8310: PAHS							Analyst: SCC
Surr: Benzo(e)pyrene	64.1	24.5-139		%REC	1	4/29/2014 1:34:08 PM	12861
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	12	2.0	*	mg/L	20	4/23/2014 6:09:26 PM	R18180
Chloride	83	10		mg/L	20	4/23/2014 6:09:26 PM	R18180
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/23/2014 5:57:01 PM	R18180
Bromide	0.27	0.10		mg/L	1	4/23/2014 5:57:01 PM	R18180
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/23/2014 5:57:01 PM	R18180
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/23/2014 5:57:01 PM	R18180
Sulfate	520	10	*	mg/L	20	4/23/2014 6:09:26 PM	R18180
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF
Aluminum	0.22	0.020	*	mg/L	1	4/24/2014 3:53:50 PM	R18197
Barium	0.060	0.0020		mg/L	1	4/24/2014 3:53:50 PM	R18197
Boron	0.44	0.040		mg/L	1	4/24/2014 3:53:50 PM	R18197
Cadmium	ND	0.0020		mg/L	1	4/24/2014 3:53:50 PM	R18197
Calcium	22	1.0		mg/L	1	4/24/2014 3:53:50 PM	R18197
Chromium	ND	0.0060		mg/L	1	4/24/2014 3:53:50 PM	R18197
Cobalt	ND	0.0060		mg/L	1	4/24/2014 3:53:50 PM	R18197
Copper	ND	0.0060		mg/L	1	4/24/2014 3:53:50 PM	R18197
Iron	0.023	0.020		mg/L	1	4/24/2014 3:53:50 PM	R18197
Magnesium	ND	1.0		mg/L	1	4/24/2014 3:53:50 PM	R18197
Manganese	0.026	0.0020		mg/L	1	4/24/2014 3:53:50 PM	R18197
Molybdenum	0.027	0.0080		mg/L	1	4/24/2014 3:53:50 PM	R18197
Nickel	ND	0.010		mg/L	1	4/24/2014 3:53:50 PM	R18197
Potassium	31	1.0		mg/L	1	4/24/2014 3:53:50 PM	R18197
Silver	ND	0.0050		mg/L	1	4/24/2014 3:53:50 PM	R18197
Sodium	320	5.0		mg/L	5	4/24/2014 3:55:44 PM	R18197
Zinc	ND	0.010		mg/L	1	4/24/2014 3:53:50 PM	R18197
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	0.013	0.0010	*	mg/L	1	5/5/2014 3:08:49 PM	R18395
Lead	ND	0.0010		mg/L	1	5/5/2014 3:08:49 PM	R18395
Selenium	0.0010	0.0010		mg/L	1	5/5/2014 3:08:49 PM	R18395
Uranium	ND	0.0010		mg/L	1	5/5/2014 3:08:49 PM	R18395
EPA METHOD 245.1: MERCURY							Analyst: JML
Mercury	ND	0.00020		mg/L	1	4/25/2014 1:47:03 PM	12871
EPA METHOD 8260B: VOLATILES							Analyst: KJH
Benzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Toluene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175

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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Analytical Report

Lab Order 1404946

Date Reported: 6/5/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 45-7, APR '14

Project: LDG T2 45-7, APR '14

Collection Date: 4/22/2014 9:10:00 AM

Lab ID: 1404946-001

Matrix: AQUEOUS

Received Date: 4/23/2014 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst: KJH		
Ethylbenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Naphthalene	ND	2.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1-Methylnaphthalene	ND	4.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
2-Methylnaphthalene	ND	4.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Acetone	ND	10		µg/L	1	4/23/2014 1:08:51 PM	R18175
Bromobenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Bromodichloromethane	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Bromoform	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Bromomethane	ND	3.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
2-Butanone	ND	10		µg/L	1	4/23/2014 1:08:51 PM	R18175
Carbon disulfide	ND	10		µg/L	1	4/23/2014 1:08:51 PM	R18175
Carbon Tetrachloride	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Chlorobenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Chloroethane	ND	2.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Chloroform	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Chloromethane	ND	3.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
2-Chlorotoluene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
4-Chlorotoluene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
cis-1,2-DCE	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Dibromochloromethane	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Dibromomethane	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,2-Dichlorobenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,3-Dichlorobenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,4-Dichlorobenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Dichlorodifluoromethane	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,1-Dichloroethane	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,1-Dichloroethene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,2-Dichloropropane	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,3-Dichloropropane	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
2,2-Dichloropropane	ND	2.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,1-Dichloropropene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Hexachlorobutadiene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175

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

Qualifiers:

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- P Sample pH greater than 2.
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Analytical Report

Lab Order 1404946

Date Reported: 6/5/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 45-7, APR '14

Project: LDG T2 45-7, APR '14

Collection Date: 4/22/2014 9:10:00 AM

Lab ID: 1404946-001

Matrix: AQUEOUS

Received Date: 4/23/2014 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: KJH
2-Hexanone	ND	10		µg/L	1	4/23/2014 1:08:51 PM	R18175
Isopropylbenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
4-Isopropyltoluene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
4-Methyl-2-pentanone	ND	10		µg/L	1	4/23/2014 1:08:51 PM	R18175
Methylene Chloride	ND	3.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
n-Butylbenzene	ND	3.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
n-Propylbenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
sec-Butylbenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Styrene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
tert-Butylbenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
trans-1,2-DCE	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Trichlorofluoromethane	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
1,2,3-Trichloropropane	ND	2.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Vinyl chloride	ND	1.0		µg/L	1	4/23/2014 1:08:51 PM	R18175
Xylenes, Total	ND	1.5		µg/L	1	4/23/2014 1:08:51 PM	R18175
Surr: 1,2-Dichloroethane-d4	89.2	70-130		%REC	1	4/23/2014 1:08:51 PM	R18175
Surr: 4-Bromofluorobenzene	92.9	70-130		%REC	1	4/23/2014 1:08:51 PM	R18175
Surr: Dibromofluoromethane	85.2	70-130		%REC	1	4/23/2014 1:08:51 PM	R18175
Surr: Toluene-d8	91.0	70-130		%REC	1	4/23/2014 1:08:51 PM	R18175
EPA METHOD 418.1: TPH							Analyst: JME
Petroleum Hydrocarbons, TR	1.2	1.0		mg/L	1	4/25/2014 12:00:00 PM	12845
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/29/2014	12924
SM4500-H+B: PH							Analyst: JML
pH	7.00	1.68	H	pH units	1	4/23/2014 2:21:38 PM	R18171
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1300	20.0	*	mg/L	1	4/28/2014 1:21:00 PM	12837
SM 4500 NORG C: TKN							Analyst: TMG

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
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1404946**

Date Reported: **6/5/2014**

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 45-7, APR '14

Project: LDG T2 45-7, APR '14

Collection Date: 4/22/2014 9:10:00 AM

Lab ID: 1404946-001

Matrix: AQUEOUS

Received Date: 4/23/2014 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM 4500 NORG C: TKN							Analyst: TMG
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	4/30/2014 9:41:00 AM	12921

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

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

Analytical Report

Lab Order 1404946

Date Reported: 6/5/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Lightning Dock Geothermal

Client Sample ID: Trip Blank

Project: LDG T2 45-7, APR '14

Collection Date:

Lab ID: 1404946-002

Matrix: TRIP BLANK

Received Date: 4/23/2014 7:45:00 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	4/23/2014 7:16:55 PM	12838
EPA METHOD 8260B: VOLATILES							Analyst: KJH
Benzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Toluene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Ethylbenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Naphthalene	ND	2.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1-Methylnaphthalene	ND	4.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
2-Methylnaphthalene	ND	4.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Acetone	ND	10		µg/L	1	4/23/2014 2:33:23 PM	R18175
Bromobenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Bromodichloromethane	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Bromoform	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Bromomethane	ND	3.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
2-Butanone	ND	10		µg/L	1	4/23/2014 2:33:23 PM	R18175
Carbon disulfide	ND	10		µg/L	1	4/23/2014 2:33:23 PM	R18175
Carbon Tetrachloride	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Chlorobenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Chloroethane	ND	2.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Chloroform	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Chloromethane	ND	3.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
2-Chlorotoluene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
4-Chlorotoluene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
cis-1,2-DCE	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Dibromochloromethane	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Dibromomethane	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,2-Dichlorobenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,3-Dichlorobenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,4-Dichlorobenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Dichlorodifluoromethane	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,1-Dichloroethane	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,1-Dichloroethene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,2-Dichloropropane	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175

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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404946

Date Reported: 6/5/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: Trip Blank

Project: LDG T2 45-7, APR '14

Collection Date:

Lab ID: 1404946-002

Matrix: TRIP BLANK

Received Date: 4/23/2014 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: KJH			
1,3-Dichloropropane	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
2,2-Dichloropropane	ND	2.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,1-Dichloropropene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Hexachlorobutadiene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
2-Hexanone	ND	10		µg/L	1	4/23/2014 2:33:23 PM	R18175
Isopropylbenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
4-Isopropyltoluene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
4-Methyl-2-pentanone	ND	10		µg/L	1	4/23/2014 2:33:23 PM	R18175
Methylene Chloride	ND	3.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
n-Butylbenzene	ND	3.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
n-Propylbenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
sec-Butylbenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Styrene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
tert-Butylbenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
trans-1,2-DCE	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Trichlorofluoromethane	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
1,2,3-Trichloropropane	ND	2.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Vinyl chloride	ND	1.0		µg/L	1	4/23/2014 2:33:23 PM	R18175
Xylenes, Total	ND	1.5		µg/L	1	4/23/2014 2:33:23 PM	R18175
Surr: 1,2-Dichloroethane-d4	92.8	70-130		%REC	1	4/23/2014 2:33:23 PM	R18175
Surr: 4-Bromofluorobenzene	91.6	70-130		%REC	1	4/23/2014 2:33:23 PM	R18175
Surr: Dibromofluoromethane	88.9	70-130		%REC	1	4/23/2014 2:33:23 PM	R18175
Surr: Toluene-d8	91.0	70-130		%REC	1	4/23/2014 2:33:23 PM	R18175

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

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

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
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 140425018
Project Name: 1404946

Analytical Results Report

Sample Number 140425018-001 **Sampling Date** 4/22/2014 **Date/Time Received** 4/25/2014 12:00 PM
Client Sample ID 1404946-001I / LDG T2 45-7, APR 14 **Sampling Time** 9:10 AM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Lithium	0.672	mg/L	0.01	5/13/2014	ETL	EPA 200.8	
Dissolved Rubidium	0.366	mg/L	0.01	5/12/2014	ETL	EPA 200.8	
Dissolved Tungsten	0.0785	mg/L	0.01	5/12/2014	ETL	EPA 200.8	

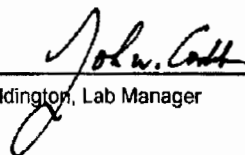
Sample Number 140425018-002 **Sampling Date** 4/22/2014 **Date/Time Received** 4/25/2014 12:00 PM
Client Sample ID 1404946-001J / LDG T2 45-7, APR 14 **Sampling Time** 9:10 AM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	4/29/2014	CRW	EPA 335.4	

Sample Number 140425018-003 **Sampling Date** 4/22/2014 **Date/Time Received** 4/25/2014 12:00 PM
Client Sample ID 1404946-001L / LDG T2 45-7, APR 14 **Sampling Time** 9:10 AM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Total P	ND	mg/L	0.01	5/8/2014	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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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.



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Gillette, WY 866-686-7175 • Rapid City, SD 888-872-1225 • College Station, TX 888-680-2218

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: (1404946-001K) LDG T2 45-7, APR '14
Location:
Lab ID: C14040725-001

Report Date: 05/05/14
Collection Date: 04/22/14 09:10
Date Received: 04/24/14
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By

RADIONUCLIDES - TOTAL

Radon 222	2840	pCi/L	D5072-92		04/24/14 17:46 / dpb
Radon 222 precision (±)	73.7	pCi/L	D5072-92		04/24/14 17:46 / dpb
Radon 222 MDC	75.5	pCi/L	D5072-92		04/24/14 17:46 / dpb

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-680-2218

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Hall Environmental

Report Date: 05/05/14

Project: Not Indicated

Work Order: C14040725

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: D5072-92										Batch: R186082
Lab ID: C14040725-001ADUP	3	Sample Duplicate					Run: PACKARD 3100TR_140424A			04/24/14 17:46
Radon 222		2850	pCi/L					0.5	20	
Radon 222 precision ($\pm$)		73.9	pCi/L							
Radon 222 MDC		75.5	pCi/L							
Lab ID: MB-R186082										Batch: R186082
	3	Method Blank					Run: PACKARD 3100TR_140424A			04/24/14 17:46
Radon 222		10	pCi/L							U
Radon 222 precision ($\pm$)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Lab ID: LCS-R186082										Batch: R186082
		Laboratory Control Sample					Run: PACKARD 3100TR_140424A			04/24/14 17:46
Radon 222		2190	pCi/L	96		80	120			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

ANALYTICAL RESULTS

Project: 1404946
Pace Project No.: 30119009

Sample: 1404946-001M LDG T2 45-7, APR' **Lab ID:** 30119009001 **Collected:** 04/22/14 09:10 **Received:** 04/25/14 10:15 **Matrix:** Water

PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	4.33 ± 1.41 (0.991) C:NA T:80%	pCi/L	05/13/14 15:34	13982-63-3	
Radium-228	EPA 904.0	0.441 ± 0.432 (0.893) C:77% T:89%	pCi/L	05/13/14 13:23	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Date: 05/14/2014 10:03 AM



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

QUALITY CONTROL DATA

Project: 1404946
Pace Project No.: 30119009

QC Batch:	RADC/19573	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30119009001		

METHOD BLANK:	722709	Matrix:	Water
Associated Lab Samples:	30119009001		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.357 ± 0.463 (0.990) C:82% T:89%	pCi/L	05/13/14 13:23	

REPORT OF LABORATORY ANALYSIS

Date: 05/14/2014 10:03 AM

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QUALITY CONTROL DATA

Project: 1404946
Pace Project No.: 30119009

QC Batch:	RADC/19570	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30119009001		

METHOD BLANK:	722704	Matrix:	Water
Associated Lab Samples:	30119009001		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.337 ± 0.596 (0.989) C:NA T:91%	pCi/L	05/13/14 13:06	

REPORT OF LABORATORY ANALYSIS

Date: 05/14/2014 10:03 AM

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R18197	RunNo:	18197					
Prep Date:		Analysis Date:	4/24/2014	SeqNo:	525096	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								
Sodium	ND	1.0								
Z	ND	0.010								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R18197	RunNo:	18197					
Prep Date:		Analysis Date:	4/24/2014	SeqNo:	525097	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	110	85	115			
Barium	0.48	0.0020	0.5000	0	95.8	85	115			
Boron	0.49	0.040	0.5000	0	98.8	85	115			
Cadmium	0.49	0.0020	0.5000	0	97.7	85	115			
Calcium	47	1.0	50.00	0	94.3	85	115			
Chromium	0.49	0.0060	0.5000	0	98.9	85	115			
Cobalt	0.47	0.0060	0.5000	0	95.0	85	115			
Copper	0.48	0.0060	0.5000	0	96.6	85	115			
Iron	0.49	0.020	0.5000	0	98.8	85	115			
Magnesium	48	1.0	50.00	0	96.2	85	115			
Manganese	0.49	0.0020	0.5000	0	97.1	85	115			
Molybdenum	0.49	0.0080	0.5000	0	97.1	85	115			
Nickel	0.47	0.010	0.5000	0	93.6	85	115			
Potassium	47	1.0	50.00	0	93.2	85	115			
Silver	0.10	0.0050	0.1000	0	102	85	115			
Sodium	47	1.0	50.00	0	94.0	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R18197	RunNo:	18197					
Prep Date:		Analysis Date:	4/24/2014	SeqNo:	525097	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.48	0.010	0.5000	0	95.8	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	LCS	SampType:	LCS	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R18395	RunNo:	18395					
Prep Date:		Analysis Date:	5/5/2014	SeqNo:	531385	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	96.9	85	115			
Lead	0.024	0.0010	0.02500	0	96.5	85	115			
Selenium	0.024	0.0010	0.02500	0	94.9	85	115			
Uranium	0.024	0.0010	0.02500	0	95.0	85	115			

Sample ID	LCS	SampType:	LCS	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R18395	RunNo:	18395					
Prep Date:		Analysis Date:	5/5/2014	SeqNo:	531386	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	97.4	85	115			
Lead	0.025	0.0010	0.02500	0	99.5	85	115			
Selenium	0.025	0.0010	0.02500	0	98.4	85	115			
Uranium	0.023	0.0010	0.02500	0	93.5	85	115			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	R18395	RunNo:	18395					
Prep Date:		Analysis Date:	5/5/2014	SeqNo:	531387	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	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	R18395	RunNo:	18395					
Prep Date:		Analysis Date:	5/5/2014	SeqNo:	531388	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.	B	Analyte detected in the associated Method Blank
Value above quantitation range	H	Holding times for preparation or analysis exceeded
Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
RSD is greater than RSDlimit	P	Sample pH greater than 2.
RPD outside accepted recovery limits	RL	Reporting Detection Limit
Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	MB-12871	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	12871	RunNo:	18219					
Prep Date:	4/24/2014	Analysis Date:	4/25/2014	SeqNo:	525964	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-12871	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	12871	RunNo:	18219					
Prep Date:	4/24/2014	Analysis Date:	4/25/2014	SeqNo:	525965	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	103	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524792		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.2	0.10	2.400	0	93.1	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	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	98.3	90	110			
Sulfate	31	0.50	30.00	0	104	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524794		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								
Nitrogen, Nitrite (As N)	ND	0.10								
Fluoride	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							
Client ID: LCSW	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524795		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.45	0.10	0.5000	0	91.0	90	110			
Chloride	4.6	0.50	5.000	0	92.1	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.8	90	110			
Bromide	2.4	0.10	2.500	0	96.6	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.6	90	110			
Phosphorus, Orthophosphate (As P)	4.6	0.50	5.000	0	91.3	90	110			
Sulfate	9.4	0.50	10.00	0	94.3	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524804		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	94.4	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R18180	RunNo:	18180					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524804	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	97.0	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.8	90	110			
Bromide	7.9	0.10	8.000	0	98.8	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.7	0.50	8.000	0	96.5	90	110			
Sulfate	20	0.50	20.00	0	99.8	90	110			

Sample ID	A6	SampType:	CCV_6	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R18180	RunNo:	18180					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524816	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	96.6	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	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	99.9	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID	A4	SampType:	CCV_4	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R18180	RunNo:	18180					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524828	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	94.8	90	110			
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Nitrogen, Nitrite (As N)	1.9	0.10	2.000	0	97.2	90	110			
Bromide	4.8	0.10	5.000	0	95.9	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	96.9	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	92.4	90	110			
Sulfate	12	0.50	12.50	0	95.4	90	110			

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R18180	RunNo:	18180					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524840	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	7.7	0.50	8.000	0	96.1	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524840		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.3	90	110			
Bromide	7.8	0.10	8.000	0	97.7	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			
Phosphorus, Orthophosphate (As P)	7.7	0.50	8.000	0	96.4	90	110			
Sulfate	20	0.50	20.00	0	98.7	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524850		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								
Nitrogen, Nitrite (As N)	ND	0.10								
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							
Client ID: LCSW	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524851		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	97.2	90	110			
Chloride	4.6	0.50	5.000	0	92.7	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	95.0	90	110			
Bromide	2.4	0.10	2.500	0	95.7	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.7	90	110			
Phosphorus, Orthophosphate (As P)	4.6	0.50	5.000	0	92.4	90	110			
Sulfate	9.4	0.50	10.00	0	94.1	90	110			

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524852		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	98.3	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	A6	SampType:	CCV_6	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R18180	RunNo:	18180					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524852	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	12	0.10	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	106	90	110			
Phosphorus, Orthophosphate (As P)	12	0.50	12.00	0	100	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID	A4	SampType:	CCV_4	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R18180	RunNo:	18180					
Prep Date:		Analysis Date:	4/24/2014	SeqNo:	524858	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	94.7	90	110			
Chloride	4.7	0.50	5.000	0	93.9	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	97.8	90	110			
Bromide	4.8	0.10	5.000	0	96.4	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.4	90	110			
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	94.8	90	110			
Sulfate	12	0.50	12.50	0	95.9	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	MB-12845	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH					
Client ID:	PBW	Batch ID:	12845	RunNo:	18209					
Prep Date:	4/23/2014	Analysis Date:	4/25/2014	SeqNo:	525525	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-12845	SampType:	LCS	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSW	Batch ID:	12845	RunNo:	18209					
Prep Date:	4/23/2014	Analysis Date:	4/25/2014	SeqNo:	525526	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Petroleum Hydrocarbons, TR	5.1	1.0	5.000	0	102	80	120			

Sample ID	LCSD-12845	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	12845	RunNo:	18209					
Prep Date:	4/23/2014	Analysis Date:	4/25/2014	SeqNo:	525531	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	92.8	80	120	9.64	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	MB-12838	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	12838	RunNo:	18161					
Prep Date:	4/23/2014	Analysis Date:	4/23/2014	SeqNo:	524319	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-12838	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	12838	RunNo:	18161					
Prep Date:	4/23/2014	Analysis Date:	4/23/2014	SeqNo:	524320	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.098	0.010	0.1000	0	98.0	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	MB-12827	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524763	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)

ND

1.0

Motor Oil Range Organics (MRO)

ND

5.0

Surr: DNOP

1.2

1.000

118

62.7

145

Sample ID	LCS-12827	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524791	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)

6.0

1.0

5.000

0

121

78.6

146

Surr: DNOP

0.60

0.5000

120

62.7

145

Sample ID	LCSD-12827	SampType:	LCSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSS02	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524860	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)

4.7

1.0

5.000

0

93.5

78.6

146

25.4

26.5

Surr: DNOP

0.45

0.5000

90.5

62.7

145

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.

RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R18173	RunNo:	18173					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524582	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		87.5	80.4	118			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R18173	RunNo:	18173					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524583	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	109	80	120			
Surr: BFB	18		20.00		91.3	80.4	118			

Sample ID	1404946-001BMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LDG T2 45-7, APR '1	Batch ID:	R18173	RunNo:	18173					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524589	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	112	79	121			
Surr: BFB	18		20.00		92.2	80.4	118			

Sample ID	1404946-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LDG T2 45-7, APR '1	Batch ID:	R18173	RunNo:	18173					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524590	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	79	121	3.38	20	
Surr: BFB	19		20.00		92.9	80.4	118	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	MB-12860	SampType: MBLK		TestCode: EPA Method 8082: PCB's						
Client ID:	PBW	Batch ID: 12860		RunNo: 18334						
Prep Date:	4/24/2014	Analysis Date: 5/1/2014		SeqNo: 529772		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	1.9		2.500		74.8	33.2	131			
Surr: Tetrachloro-m-xylene	1.7		2.500		69.2	34.7	138			

Sample ID	LCS-12860		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 12860		RunNo: 18334					
Prep Date:	4/24/2014		Analysis Date: 5/1/2014		SeqNo: 529774		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.6	1.0	5.000	0	51.4	15	134			
Aroclor 1260	3.2	1.0	5.000	0	63.5	32.1	148			
Surr: Decachlorobiphenyl	1.4		2.500		57.6	33.2	131			
Surr: Tetrachloro-m-xylene	1.3		2.500		52.4	34.7	138			

Sample ID	MB-12918		SampType:	MBLK		TestCode:	EPA Method 8082: PCB's				
Client ID:	PBW		Batch ID:	12918		RunNo:	18334				
Prep Date:	4/29/2014		Analysis Date:	5/1/2014		SeqNo:	529776		Units: %REC		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: Decachlorobiphenyl	1.7		2.500		68.4	33.2	131				
Surr: Tetrachloro-m-xylene	1.6		2.500		62.0	34.7	138				

Sample ID	LCS-12918		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 12918		RunNo: 18334					
Prep Date:	4/29/2014		Analysis Date: 5/1/2014		SeqNo: 529778		Units: %REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	1.6		2.500		65.6	33.2	131			
Surr: Tetrachloro-m-xylene	1.5		2.500		59.6	34.7	138			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	1404946-001EMS	SampType:	MS	TestCode:	EPA Method 8082: PCB's					
Client ID:	LDG T2 45-7, APR '1	Batch ID:	12860	RunNo:	18334					
Prep Date:	4/24/2014	Analysis Date:	5/2/2014	SeqNo:	529881	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.1	1.0	5.000	0	82.0	32	95.3			
Aroclor 1260	4.2	1.0	5.000	0	84.0	32.8	113			
Surr: Decachlorobiphenyl	2.2		2.500		86.0	33.2	131			
Surr: Tetrachloro-m-xylene	2.4		2.500		95.2	34.7	138			

Sample ID	1404946-001EMSD	SampType:	MSD	TestCode:	EPA Method 8082: PCB's					
Client ID:	LDG T2 45-7, APR '1	Batch ID:	12860	RunNo:	18334					
Prep Date:	4/24/2014	Analysis Date:	5/2/2014	SeqNo:	529882	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.3	1.0	5.000	0	86.2	32	95.3	4.99	20	
Aroclor 1260	4.4	1.0	5.000	0	87.9	32.8	113	4.51	27.6	
Surr: Decachlorobiphenyl	2.4		2.500		94.0	33.2	131	0	0	
Surr: Tetrachloro-m-xylene	2.6		2.500		102	34.7	138	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	5mL-rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R18175			RunNo: 18175					
Prep Date:		Analysis Date: 4/23/2014			SeqNo: 524679		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								
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.	B	Analyte detected in the associated Method Blank
Value above quantitation range	H	Holding times for preparation or analysis exceeded
Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
RSD is greater than RSDlimit	P	Sample pH greater than 2.
RPD outside accepted recovery limits	RL	Reporting Detection Limit
Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	5mL-rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	PBW	Batch ID: R18175		RunNo: 18175						
Prep Date:		Analysis Date: 4/23/2014		SeqNo: 524679		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	9.4		10.00		94.0	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		89.5	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.9	70	130			
Surr: Toluene-d8	9.0		10.00		90.4	70	130			

Sample ID	100ng lcs2	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R18175	RunNo:	18175					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524687	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	94.8	70	130			
Toluene	18	1.0	20.00	0	90.0	80	120			
Chlorobenzene	18	1.0	20.00	0	90.1	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	100ng lcs2	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R18175			RunNo: 18175					
Prep Date:		Analysis Date: 4/23/2014			SeqNo: 524687		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	24	1.0	20.00	0	118	90	143			
Trichloroethene (TCE)	17	1.0	20.00	0	87.4	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.7	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.0	70	130			
Surr: Dibromofluoromethane	8.9		10.00		88.9	70	130			
Surr: Toluene-d8	9.3		10.00		92.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	MB-12861	SampType:	MBLK	TestCode:	EPA Method 8310: PAHs					
Client ID:	PBW	Batch ID:	12861	RunNo:	18254					
Prep Date:	4/24/2014	Analysis Date:	4/29/2014	SeqNo:	527427	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	16		20.00		80.1	24.5	139			

Sample ID	LCS-12861		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 12861		RunNo: 18254					
Prep Date:	4/24/2014		Analysis Date: 4/29/2014		SeqNo: 527430		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	60	2.0	80.00	0	74.7	43.8	96.9			
1-Methylnaphthalene	59	2.0	80.20	0	73.1	41.3	87.3			
2-Methylnaphthalene	58	2.0	80.00	0	73.0	36.6	89.6			
Acenaphthylene	58	2.5	80.20	0	72.8	43.6	103			
Acenaphthene	58	5.0	80.00	0	73.0	42.4	87.6			
Fluorene	5.8	0.80	8.020	0	72.1	40.5	93.6			
Phenanthrene	2.9	0.60	4.020	0	72.6	43.9	111			
Anthracene	2.9	0.60	4.020	0	73.1	44.3	103			
Fluoranthene	6.0	0.30	8.020	0	74.9	43.5	109			
Pyrene	5.6	0.30	8.020	0	70.2	32.6	103			
Benz(a)anthracene	0.58	0.070	0.8020	0	72.3	43	114			
Chrysene	2.9	0.20	4.020	0	72.6	40.2	100			
Benzo(b)fluoranthene	0.73	0.10	1.002	0	72.9	44.4	118			
Benzo(k)fluoranthene	0.36	0.070	0.5000	0	72.0	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.

RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	LCS-12861	SampType: LCS			TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW	Batch ID: 12861			RunNo: 18254					
Prep Date:	4/24/2014	Analysis Date: 4/29/2014			SeqNo: 527430		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	0.72	0.12	1.002	0	71.9	38.3	107			
Benzo(g,h,i)perylene	0.70	0.12	1.000	0	70.0	38.4	110			
Indeno(1,2,3-cd)pyrene	1.5	0.25	2.004	0	72.9	42.4	113			
Surr: Benzo(e)pyrene	14		20.00		72.0	24.5	139			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	MB-12924	SampType:	MBLK	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID:	12924	RunNo:	18305					
Prep Date:	4/29/2014	Analysis Date:	4/29/2014	SeqNo:	528544	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-12924	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	12924	RunNo:	18305					
Prep Date:	4/29/2014	Analysis Date:	4/29/2014	SeqNo:	528545	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	20	2.5	20.00	0	101	73.7	135			

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	1404946-001f dup	SampType:	dup	TestCode:	SM4500-H+B: pH					
Client ID:	LDG T2 45-7, APR '1	Batch ID:	R18171	RunNo:	18171					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524424	Units:	pH units			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.02	1.68								H

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	MB-12837	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	12837	RunNo:	18236					
Prep Date:	4/23/2014	Analysis Date:	4/28/2014	SeqNo:	526735	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-12837	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	12837	RunNo:	18236					
Prep Date:	4/23/2014	Analysis Date:	4/28/2014	SeqNo:	526736	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404946

05-Jun-14

Location: Lightning Dock Geothermal

Project: LDG T2 45-7, APR '14

Sample ID	MB-12921	SampType:	MBLK	TestCode:	SM 4500 Norg C: TKN					
Client ID:	PBW	Batch ID:	12921	RunNo:	18299					
Prep Date:	4/29/2014	Analysis Date:	4/30/2014	SeqNo:	528417	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Nitrogen, Kjeldahl, Total

ND

1.0

Sample ID	LCS-12921	SampType:	LCS	TestCode:	SM 4500 Norg C: TKN					
Client ID:	LCSW	Batch ID:	12921	RunNo:	18299					
Prep Date:	4/29/2014	Analysis Date:	4/30/2014	SeqNo:	528418	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Nitrogen, Kjeldahl, Total

10

1.0

10.00

0

101

80

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.

RL 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

Client Name: LIGHTNING DOCK GEO Work Order Number: 1404946 RcptNo: 1

Received by/date:

Logged By: Lindsay Mangin

4/23/2014 7:45:00 AM

Completed By: Lindsay Mangin

4/23/2014 8:15:36 AM

Reviewed By:

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? UPS

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly 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 broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ 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.) Yes ☒ No ☐
of preserved bottles checked for pH: 9, 1
(<2 or >12 unless noted)
Adjusted? NO
Checked by: CS

Special Handling (If applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: poured off from 500mL unpres, filtered and preserved for
Dissolved metals analysis. -DOIN. KMS 5/1/14

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.7	Good	Yes			

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

[illegible]

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

LIGHTNING DOCK GEOTHERMAL "TABLE 2"
WQCC CONTAINERS FOR ONE SAMPLING EVENT

SAMPLING EFFORT LOG T2 45-7, APR '14

AMBERS

VOAS

ICE CHEST
#3

QC
QC
QC
QC

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB	LABELLED AT LDG	SAMPLED AT LDG	SHIPPED TO LAB	TEST RESULTS FROM
8260	3 x 40 mL HCl VOAs	XXX	XXX	XXX	XXX	
EDB-504.1	2 x 40 mL Na ₂ S ₂ O ₃ VOAs	XXX	XXX	XXX	XXX	
8082-PCB	2 X 1 L unpreserved amber glasses	X X (X)	XX(X)	X X X	XX(X)	
8310-PAH	1 x 1 L unpreserved amber glass	X(X)	X(X)	X (X)	X(X)	
Phenols	1 x 1 L H ₂ SO ₄ amber glass	X(X)	X(X)	X(X)	X(X)	
Anions, TDS, pH	1 x 500 mL unpreserved plastic 1 x 125 mL H ₂ SO ₄ plastic	X	X	X		
Mercury	1 x 500 mL HNO ₃ plastic	X	X	X		
Dissolved Metals + Li, Rb, W, Br	2 x 125 mL HNO ₃ plastics + filters	XX X	XX	XX	XX	
Total Cyanide	1 x 500 mL NaOH plastic amber	X	X	X		
Radium 226/228	2 x 1 L HNO ₃ plastics	XX	XX	XX		
Radon	2 x 40 mL unpreserved VOAs	XX	XX	XX	XX	
Phosphorous	1 x 500 mL H ₂ SO ₄ plastic	X	X	X		
418.1	1 x 500 mL HCl amber glass	X	X	X	X	
Nitrate/Nitrite TKN	1 x 125 mL unpreserved plastic 1 x 500 mL H ₂ SO ₄ plastic	X	X	X		
8015D Diesel / Motor oil range organics	2 x 40 mL unpreserved VOAs	X X	X X	X X	X X	
8015D Gasoline Range organics	3x 40 mL HCl VOAs	XX X	XX X	XX X	XX X	
Trip Blank		X	X	X	X	

PLASTICS
ICE CHEST
#4

LIGHTNING DOCK GEOTHERMAL "TABLE 2"
WQCC CONTAINERS FOR ONE SAMPLING EVENT
SAMPLING EFFORT LDG T2 45-7, APR '14

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB	LABELED AT LDG	SAMPLED AT LDG	SHIPPED TO LAB	TEST RESULTS FROM
8260	3 x 40 mL HCl VOAs	XXX	XXX	XXX		
EDB-504.1	2 x 40 mL Na ₂ S ₂ O ₃ VOAs	XX(X)	XX(X)	XX(X)		
8082-PCB	2 X 1 L unpreserved amber glasses	XX(X)	XX(X)	XX(X)		
8310-PAH	1 x 1 L unpreserved amber glass	X(X)	X(X)	X(X)		
Phenols	1 x 1 L H ₂ SO ₄ amber glass	X(X)	X(X)	X(X)		
Anions, TDS, pH	1 x 500 mL unpreserved plastic 1 x 125 mL H ₂ SO ₄ plastic	X	X	X	XX	
Mercury	1 x 500 mL HNO ₃ plastic	X	X	X	X	
Dissolved Metals + Li, Rb, W, Br	2 x 125 mL HNO ₃ plastics + filters	XX	XX	XX	XX	
Total Cyanide	1 x 500 mL NaOH plastic amber	X	X	X	X	
Radium 226/228	2 x 1 L HNO ₃ plastics	XX	XX	XX	XX	
Radon	2 x 40 mL unpreserved VOAs	XX	XX	XX		
Phosphorous	1 x 500 mL H ₂ SO ₄ plastic	X	X	X	X	
418.1	1 x 500 mL HCl amber glass	X	X	X		
Nitrate/Nitrite TKN	1 x 125 mL unpreserved plastic 1 x 500 mL H ₂ SO ₄ plastic	X	X	X	XX	
8015D Diesel / Motor oil range organics	2 x 40 mL unpreserved VOAs	XX	XX	XX		
8015D Gasoline Range organics	3x 40 mL HCl VOAs	XX	XX	XX	XX	
Trip Blank		X	X	X		

QC
QC
QC
QC

↓

↓



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

July 16, 2014

Kacie Peterson

Lightning Dock Geothermal

PO Box 86

Animas, NM 88020

TEL: (575) 548-0301

FAX

RE: LDG T2 55-7, APR '14

OrderNo.: 1404947

Dear Kacie Peterson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/23/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued May 14, 2014.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404947

Date Reported: 7/16/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, APR '14

Project: LDG T2 55-7, APR '14

Collection Date: 4/22/2014 8:15:00 AM

Lab ID: 1404947-001

Matrix: AQUEOUS

Received Date: 4/23/2014 7:45:00 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	4/23/2014 7:30:57 PM	12838
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	5/2/2014 8:04:00 AM	12860
Aroclor 1221	ND	1.0		µg/L	1	5/2/2014 8:04:00 AM	12860
Aroclor 1232	ND	1.0		µg/L	1	5/2/2014 8:04:00 AM	12860
Aroclor 1242	ND	1.0		µg/L	1	5/2/2014 8:04:00 AM	12860
Aroclor 1248	ND	1.0		µg/L	1	5/2/2014 8:04:00 AM	12860
Aroclor 1254	ND	1.0		µg/L	1	5/2/2014 8:04:00 AM	12860
Aroclor 1260	ND	1.0		µg/L	1	5/2/2014 8:04:00 AM	12860
Surr: Decachlorobiphenyl	86.0	33.2-131		%REC	1	5/2/2014 8:04:00 AM	12860
Surr: Tetrachloro-m-xylene	95.2	34.7-138		%REC	1	5/2/2014 8:04:00 AM	12860
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/24/2014 1:01:03 AM	12827
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/24/2014 1:01:03 AM	12827
Surr: DNOP	115	62.7-145		%REC	1	4/24/2014 1:01:03 AM	12827
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/23/2014 4:16:46 PM	R18173
Surr: BFB	87.3	80.4-118		%REC	1	4/23/2014 4:16:46 PM	R18173
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	4/29/2014 2:03:26 PM	12861
1-Methylnaphthalene	ND	2.0		µg/L	1	4/29/2014 2:03:26 PM	12861
2-Methylnaphthalene	ND	2.0		µg/L	1	4/29/2014 2:03:26 PM	12861
Acenaphthylene	ND	2.5		µg/L	1	4/29/2014 2:03:26 PM	12861
Acenaphthene	ND	5.0		µg/L	1	4/29/2014 2:03:26 PM	12861
Fluorene	ND	0.80		µg/L	1	4/29/2014 2:03:26 PM	12861
Phenanthrene	ND	0.60		µg/L	1	4/29/2014 2:03:26 PM	12861
Anthracene	ND	0.60		µg/L	1	4/29/2014 2:03:26 PM	12861
Fluoranthene	ND	0.30		µg/L	1	4/29/2014 2:03:26 PM	12861
Pyrene	ND	0.30		µg/L	1	4/29/2014 2:03:26 PM	12861
Benz(a)anthracene	ND	0.070		µg/L	1	4/29/2014 2:03:26 PM	12861
Chrysene	ND	0.20		µg/L	1	4/29/2014 2:03:26 PM	12861
Benzo(b)fluoranthene	ND	0.10		µg/L	1	4/29/2014 2:03:26 PM	12861
Benzo(k)fluoranthene	ND	0.070		µg/L	1	4/29/2014 2:03:26 PM	12861
Benzo(a)pyrene	ND	0.070		µg/L	1	4/29/2014 2:03:26 PM	12861
Dibenz(a,h)anthracene	ND	0.12		µg/L	1	4/29/2014 2:03:26 PM	12861
Benzo(g,h,i)perylene	ND	0.12		µg/L	1	4/29/2014 2:03:26 PM	12861
Indeno(1,2,3-cd)pyrene	ND	0.25		µg/L	1	4/29/2014 2:03:26 PM	12861

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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404947

Date Reported: 7/16/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, APR '14

Project: LDG T2 55-7, APR '14

Collection Date: 4/22/2014 8:15:00 AM

Lab ID: 1404947-001

Matrix: AQUEOUS

Received Date: 4/23/2014 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8310: PAHS							Analyst: SCC
Surr: Benzo(e)pyrene	84.9	24.5-139		%REC	1	4/29/2014 2:03:26 PM	12861
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	12	2.0	*	mg/L	20	4/23/2014 6:59:04 PM	R18180
Chloride	84	10		mg/L	20	4/23/2014 6:59:04 PM	R18180
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/23/2014 6:46:40 PM	R18180
Bromide	0.26	0.10		mg/L	1	4/23/2014 6:46:40 PM	R18180
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/23/2014 6:46:40 PM	R18180
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/23/2014 6:46:40 PM	R18180
Sulfate	530	10	*	mg/L	20	4/23/2014 6:59:04 PM	R18180
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF
Aluminum	0.23	0.020	*	mg/L	1	4/24/2014 3:57:25 PM	R18197
Barium	0.059	0.0020		mg/L	1	4/24/2014 3:57:25 PM	R18197
Boron	0.44	0.040		mg/L	1	4/24/2014 3:57:25 PM	R18197
Cadmium	ND	0.0020		mg/L	1	4/24/2014 3:57:25 PM	R18197
Calcium	22	1.0		mg/L	1	4/24/2014 3:57:25 PM	R18197
Chromium	ND	0.0060		mg/L	1	4/24/2014 3:57:25 PM	R18197
Cobalt	ND	0.0060		mg/L	1	4/24/2014 3:57:25 PM	R18197
Copper	ND	0.0060		mg/L	1	4/24/2014 3:57:25 PM	R18197
Iron	0.072	0.020		mg/L	1	4/24/2014 3:57:25 PM	R18197
Magnesium	ND	1.0		mg/L	1	4/24/2014 3:57:25 PM	R18197
Manganese	0.025	0.0020		mg/L	1	4/24/2014 3:57:25 PM	R18197
Molybdenum	0.024	0.0080		mg/L	1	4/24/2014 3:57:25 PM	R18197
Nickel	ND	0.010		mg/L	1	4/24/2014 3:57:25 PM	R18197
Potassium	31	1.0		mg/L	1	4/24/2014 3:57:25 PM	R18197
Silver	ND	0.0050		mg/L	1	4/24/2014 3:57:25 PM	R18197
Sodium	330	5.0		mg/L	5	4/24/2014 3:59:23 PM	R18197
Zinc	ND	0.010		mg/L	1	4/24/2014 3:57:25 PM	R18197
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	0.013	0.0010	*	mg/L	1	5/5/2014 3:11:57 PM	R18395
Lead	ND	0.0010		mg/L	1	5/5/2014 3:11:57 PM	R18395
Selenium	0.0011	0.0010		mg/L	1	5/5/2014 3:11:57 PM	R18395
Uranium	ND	0.0010		mg/L	1	5/5/2014 3:11:57 PM	R18395
EPA METHOD 245.1: MERCURY							Analyst: JML
Mercury	0.00050	0.00020		mg/L	1	4/25/2014 1:48:55 PM	12871
EPA METHOD 8260B: VOLATILES							Analyst: KJH
Benzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Toluene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175

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

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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
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404947

Date Reported: 7/16/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, APR '14

Project: LDG T2 55-7, APR '14

Collection Date: 4/22/2014 8:15:00 AM

Lab ID: 1404947-001

Matrix: AQUEOUS

Received Date: 4/23/2014 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: KJH
Ethylbenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Naphthalene	ND	2.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1-Methylnaphthalene	ND	4.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
2-Methylnaphthalene	ND	4.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Acetone	ND	10		µg/L	1	4/24/2014 1:19:00 AM	R18175
Bromobenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Bromodichloromethane	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Bromoform	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Bromomethane	ND	3.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
2-Butanone	ND	10		µg/L	1	4/24/2014 1:19:00 AM	R18175
Carbon disulfide	ND	10		µg/L	1	4/24/2014 1:19:00 AM	R18175
Carbon Tetrachloride	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Chlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Chloroethane	ND	2.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Chloroform	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Chloromethane	ND	3.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
2-Chlorotoluene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
4-Chlorotoluene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
cis-1,2-DCE	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Dibromochloromethane	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Dibromomethane	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,2-Dichlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,3-Dichlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,4-Dichlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Dichlorodifluoromethane	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,1-Dichloroethane	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,1-Dichloroethene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,2-Dichloropropane	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,3-Dichloropropane	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
2,2-Dichloropropane	ND	2.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,1-Dichloropropene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Hexachlorobutadiene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175

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
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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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404947

Date Reported: 7/16/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, APR '14

Project: LDG T2 55-7, APR '14

Collection Date: 4/22/2014 8:15:00 AM

Lab ID: 1404947-001

Matrix: AQUEOUS

Received Date: 4/23/2014 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: KJH
2-Hexanone	ND	10		µg/L	1	4/24/2014 1:19:00 AM	R18175
Isopropylbenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
4-Isopropyltoluene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
4-Methyl-2-pentanone	ND	10		µg/L	1	4/24/2014 1:19:00 AM	R18175
Methylene Chloride	ND	3.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
n-Butylbenzene	ND	3.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
n-Propylbenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
sec-Butylbenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Styrene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
tert-Butylbenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
trans-1,2-DCE	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Trichlorofluoromethane	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
1,2,3-Trichloropropane	ND	2.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Vinyl chloride	ND	1.0		µg/L	1	4/24/2014 1:19:00 AM	R18175
Xylenes, Total	ND	1.5		µg/L	1	4/24/2014 1:19:00 AM	R18175
Surr: 1,2-Dichloroethane-d4	93.0	70-130		%REC	1	4/24/2014 1:19:00 AM	R18175
Surr: 4-Bromofluorobenzene	92.8	70-130		%REC	1	4/24/2014 1:19:00 AM	R18175
Surr: Dibromofluoromethane	94.0	70-130		%REC	1	4/24/2014 1:19:00 AM	R18175
Surr: Toluene-d8	92.1	70-130		%REC	1	4/24/2014 1:19:00 AM	R18175
EPA METHOD 418.1: TPH							Analyst: JME
Petroleum Hydrocarbons, TR	4.4	1.0		mg/L	1	4/25/2014 12:00:00 PM	12845
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/29/2014	12924
SM4500-H+B: PH							Analyst: JML
pH	6.96	1.68	H	pH units	1	4/23/2014 2:29:54 PM	R18171
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1300	20.0	*	mg/L	1	4/28/2014 1:21:00 PM	12837
SM 4500 NORG C: TKN							Analyst: TMG

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1404947

Date Reported: 7/16/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, APR '14

Project: LDG T2 55-7, APR '14

Collection Date: 4/22/2014 8:15:00 AM

Lab ID: 1404947-001

Matrix: AQUEOUS

Received Date: 4/23/2014 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM 4500 NORG C: TKN							Analyst: TMG
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	4/30/2014 9:41:00 AM	12921

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 5 of 29
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Analytical Report

Lab Order 1404947

Date Reported: 7/16/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Lightning Dock Geothermal**Client Sample ID:** Trip Blank**Project:** LDG T2 55-7, APR '14**Collection Date:****Lab ID:** 1404947-002**Matrix:** TRIP BLANK**Received Date:** 4/23/2014 7:45:00 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	4/23/2014 7:44:56 PM	12838
EPA METHOD 8260B: VOLATILES							Analyst: KJH
Benzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Toluene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Ethylbenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Naphthalene	ND	2.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1-Methylnaphthalene	ND	4.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
2-Methylnaphthalene	ND	4.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Acetone	ND	10		µg/L	1	4/24/2014 1:47:00 AM	R18175
Bromobenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Bromodichloromethane	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Bromoform	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Bromomethane	ND	3.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
2-Butanone	ND	10		µg/L	1	4/24/2014 1:47:00 AM	R18175
Carbon disulfide	ND	10		µg/L	1	4/24/2014 1:47:00 AM	R18175
Carbon Tetrachloride	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Chlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Chloroethane	ND	2.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Chloroform	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Chloromethane	ND	3.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
2-Chlorotoluene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
4-Chlorotoluene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
cis-1,2-DCE	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Dibromochloromethane	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Dibromomethane	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,2-Dichlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,3-Dichlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,4-Dichlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Dichlorodifluoromethane	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,1-Dichloroethane	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,1-Dichloroethene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,2-Dichloropropane	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175

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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Analytical Report

Lab Order 1404947

Date Reported: 7/16/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Lightning Dock Geothermal**Client Sample ID:** Trip Blank**Project:** LDG T2 55-7, APR '14**Collection Date:****Lab ID:** 1404947-002**Matrix:** TRIP BLANK**Received Date:** 4/23/2014 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: KJH
1,3-Dichloropropane	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
2,2-Dichloropropane	ND	2.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,1-Dichloropropene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Hexachlorobutadiene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
2-Hexanone	ND	10		µg/L	1	4/24/2014 1:47:00 AM	R18175
Isopropylbenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
4-Isopropyltoluene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
4-Methyl-2-pentanone	ND	10		µg/L	1	4/24/2014 1:47:00 AM	R18175
Methylene Chloride	ND	3.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
n-Butylbenzene	ND	3.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
n-Propylbenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
sec-Butylbenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Styrene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
tert-Butylbenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
trans-1,2-DCE	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Trichlorofluoromethane	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
1,2,3-Trichloropropane	ND	2.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Vinyl chloride	ND	1.0		µg/L	1	4/24/2014 1:47:00 AM	R18175
Xylenes, Total	ND	1.5		µg/L	1	4/24/2014 1:47:00 AM	R18175
Surr: 1,2-Dichloroethane-d4	89.4	70-130		%REC	1	4/24/2014 1:47:00 AM	R18175
Surr: 4-Bromofluorobenzene	91.4	70-130		%REC	1	4/24/2014 1:47:00 AM	R18175
Surr: Dibromofluoromethane	95.9	70-130		%REC	1	4/24/2014 1:47:00 AM	R18175
Surr: Toluene-d8	92.7	70-130		%REC	1	4/24/2014 1:47:00 AM	R18175

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

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

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 140425023
Project Name: 1404947

Analytical Results Report

Sample Number	140425023-001	Sampling Date	4/22/2014	Date/Time Received	4/25/2014 12:00 PM
Client Sample ID	1404947-001I / LDG T2 55-7, APR 14			Sampling Time	8:15 AM
Matrix	Water	Sample Location			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Lithium	0.678	mg/L	0.01	5/13/2014	ETL	EPA 200.8	
Dissolved Rubidium	0.346	mg/L	0.01	5/12/2014	ETL	EPA 200.8	
Dissolved Tungsten	0.0791	mg/L	0.01	5/12/2014	ETL	EPA 200.8	

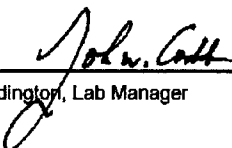
Sample Number	140425023-002	Sampling Date	4/22/2014	Date/Time Received	4/25/2014 12:00 PM
Client Sample ID	1404947-001J / LDG T2 55-7, APR 14			Sampling Time	8:15 AM
Matrix	Water	Sample Location			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	5/5/2014	CRW	EPA 335.4	

Sample Number	140425023-003	Sampling Date	4/22/2014	Date/Time Received	4/25/2014 12:00 PM
Client Sample ID	1404947-001L / LDG T2 55-7, APR 14			Sampling Time	8:15 AM
Matrix	Water	Sample Location			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Total P	ND	mg/L	0.01	5/8/2014	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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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87883; 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

Tuesday, May 13, 2014

Page 1 of 1



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Gillette, WY 866-888-7175 • Rapid City, SD 888-872-1225 • College Station, TX 888-888-2218

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: C14040724-001
Client Sample ID: (1404947-001K) LDG T2 55-7, APR '14

Report Date: 05/05/14
Collection Date: 04/22/14 08:15
Date Received: 04/24/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radon 222	2480	pCi/L				D5072-92	04/24/14 17:46 / dpb
Radon 222 precision (±)	71.0	pCi/L				D5072-92	04/24/14 17:46 / dpb
Radon 222 MDC	76.0	pCi/L				D5072-92	04/24/14 17:46 / dpb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 05/05/14

Work Order: C14040724

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: D5072-92										
Batch: R186082										
Lab ID: C14040725-001ADUP	3	Sample Duplicate								
Radon 222		2850	pCi/L					0.5	20	
Radon 222 precision (±)		73.9	pCi/L							
Radon 222 MDC		75.5	pCi/L							
Lab ID: MB-R186082	3	Method Blank								
Radon 222		10	pCi/L							U
Radon 222 precision (±)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Lab ID: LCS-R186082		Laboratory Control Sample								
Radon 222		2190	pCi/L	96		80	120			
Run: PACKARD 3100TR_140424A 04/24/14 17:46										

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



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

ANALYTICAL RESULTS

Project: 1404947

Pace Project No.: 30119008

Sample: 1404947-001M LDG T2 55-7, APR' Lab ID: 30119008001 Collected: 04/22/14 08:15 Received: 04/25/14 10:15 Matrix: Water

PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	5.14 ± 1.32 (0.968) C:NA T:78%	pCi/L	05/13/14 16:19	13982-63-3	
Radium-228	EPA 904.0	0.185 ± 0.355 (0.782) C:79% T:78%	pCi/L	05/13/14 13:25	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Date: 05/14/2014 10:02 AM



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Greensburg, PA 15601
(724)850-5800

QUALITY CONTROL DATA

Project: 1404947
Pace Project No.: 30119008

QC Batch:	RADC/19573	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30119008001		

METHOD BLANK: 722709 Matrix: Water

Associated Lab Samples: 30119008001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.357 ± 0.463 (0.990) C:82% T:89%	pCi/L	05/13/14 13:23	

REPORT OF LABORATORY ANALYSIS

Date: 05/14/2014 10:02 AM

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QUALITY CONTROL DATA

Project: 1404947
Pace Project No.: 30119008

QC Batch:	RADC/19570	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30119008001		

METHOD BLANK:	722704	Matrix:	Water
Associated Lab Samples:	30119008001		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.337 ± 0.596 (0.989) C:NA T:91%	pCi/L	05/13/14 13:06	

REPORT OF LABORATORY ANALYSIS

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Date: 05/14/2014 10:02 AM

QC SUMMARY REPORT

Tall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R18197	RunNo:	18197					
Prep Date:		Analysis Date:	4/24/2014	SeqNo:	525096	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								
Sodium	ND	1.0								
c	ND	0.010								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R18197	RunNo:	18197					
Prep Date:		Analysis Date:	4/24/2014	SeqNo:	525097	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	110	85	115			
Barium	0.48	0.0020	0.5000	0	95.8	85	115			
Boron	0.49	0.040	0.5000	0	98.8	85	115			
Cadmium	0.49	0.0020	0.5000	0	97.7	85	115			
Calcium	47	1.0	50.00	0	94.3	85	115			
Chromium	0.49	0.0060	0.5000	0	98.9	85	115			
Cobalt	0.47	0.0060	0.5000	0	95.0	85	115			
Copper	0.48	0.0060	0.5000	0	96.6	85	115			
Iron	0.49	0.020	0.5000	0	98.8	85	115			
Magnesium	48	1.0	50.00	0	96.2	85	115			
Manganese	0.49	0.0020	0.5000	0	97.1	85	115			
Molybdenum	0.49	0.0080	0.5000	0	97.1	85	115			
Nickel	0.47	0.010	0.5000	0	93.6	85	115			
Potassium	47	1.0	50.00	0	93.2	85	115			
Silver	0.10	0.0050	0.1000	0	102	85	115			
Sodium	47	1.0	50.00	0	94.0	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R18197	RunNo:	18197					
Prep Date:		Analysis Date:	4/24/2014	SeqNo:	525097	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.48	0.010	0.5000	0	95.8	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R18395		RunNo: 18395					
Prep Date:			Analysis Date: 5/5/2014		SeqNo: 531385		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	96.9	85	115			
Lead	0.024	0.0010	0.02500	0	96.5	85	115			
Selenium	0.024	0.0010	0.02500	0	94.9	85	115			
Uranium	0.024	0.0010	0.02500	0	95.0	85	115			

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R18395		RunNo: 18395					
Prep Date:			Analysis Date: 5/5/2014		SeqNo: 531386		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	97.4	85	115			
Lead	0.025	0.0010	0.02500	0	99.5	85	115			
Selenium	0.025	0.0010	0.02500	0	98.4	85	115			
Uranium	0.023	0.0010	0.02500	0	93.5	85	115			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	R18395	RunNo:	18395					
Prep Date:		Analysis Date:	5/5/2014	SeqNo:	531387	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	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	R18395	RunNo:	18395					
Prep Date:		Analysis Date:	5/5/2014	SeqNo:	531388	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
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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	MB-12871	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	12871	RunNo:	18219					
Prep Date:	4/24/2014	Analysis Date:	4/25/2014	SeqNo:	525964	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-12871	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	12871	RunNo:	18219					
Prep Date:	4/24/2014	Analysis Date:	4/25/2014	SeqNo:	525965	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	103	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524792		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.2	0.10	2.400	0	93.1	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	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	98.3	90	110			
Sulfate	31	0.50	30.00	0	104	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524794		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								
Nitrogen, Nitrite (As N)	ND	0.10								
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							
Client ID: LCSW	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524795		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.45	0.10	0.5000	0	91.0	90	110			
Chloride	4.6	0.50	5.000	0	92.1	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.8	90	110			
Bromide	2.4	0.10	2.500	0	96.6	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.6	90	110			
Phosphorus, Orthophosphate (As P)	4.6	0.50	5.000	0	91.3	90	110			
Sulfate	9.4	0.50	10.00	0	94.3	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524804		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	94.4	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524804		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	97.0	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.8	90	110			
Bromide	7.9	0.10	8.000	0	98.8	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.7	0.50	8.000	0	96.5	90	110			
Sulfate	20	0.50	20.00	0	99.8	90	110			

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524816		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	96.6	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	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	99.9	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524828		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	94.8	90	110			
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Nitrogen, Nitrite (As N)	1.9	0.10	2.000	0	97.2	90	110			
Bromide	4.8	0.10	5.000	0	95.9	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	96.9	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	92.4	90	110			
Sulfate	12	0.50	12.50	0	95.4	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524840		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	7.7	0.50	8.000	0	96.1	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Tall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions						
Client ID:	BatchQC	Batch ID:	R18180	RunNo:	18180						
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524840	Units:	mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.3	90	110			
Bromide	7.8	0.10	8.000	0	97.7	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			
Phosphorus, Orthophosphate (As P	7.7	0.50	8.000	0	96.4	90	110			
Sulfate	20	0.50	20.00	0	98.7	90	110			

Sample ID	MB	SampType:	MBLK		TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R18180		RunNo:	18180					
Prep Date:		Analysis Date:	4/23/2014		SeqNo:	524850		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								
Nitrogen, Nitrite (As N)	ND	0.10								
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				
Client ID:	LCSW		Batch ID:	R18180		RunNo:	18180				
Prep Date:			Analysis Date:	4/23/2014		SeqNo:	524851		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	97.2	90	110			
Chloride	4.6	0.50	5.000	0	92.7	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	95.0	90	110			
Bromide	2.4	0.10	2.500	0	95.7	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.7	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	92.4	90	110			
Sulfate	9.4	0.50	10.00	0	94.1	90	110			

Sample ID	A6		SampType:	CCV_6		TestCode:	EPA Method 300.0: Anions				
Client ID:	BatchQC		Batch ID:	R18180		RunNo:	18180				
Prep Date:			Analysis Date:	4/23/2014		SeqNo:	524852		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	98.3	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/23/2014		SeqNo: 524852		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	12	0.10	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	106	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	100	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R18180		RunNo: 18180							
Prep Date:	Analysis Date: 4/24/2014		SeqNo: 524858		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	94.7	90	110			
Chloride	4.7	0.50	5.000	0	93.9	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	97.8	90	110			
Bromide	4.8	0.10	5.000	0	96.4	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.4	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	90	110			
Sulfate	12	0.50	12.50	0	95.9	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	MB-12845	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH					
Client ID:	PBW	Batch ID:	12845	RunNo:	18209					
Prep Date:	4/23/2014	Analysis Date:	4/25/2014	SeqNo:	525525	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-12845	SampType:	LCS	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSW	Batch ID:	12845	RunNo:	18209					
Prep Date:	4/23/2014	Analysis Date:	4/25/2014	SeqNo:	525526	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	5.1	1.0	5.000	0	102	80	120			

Sample ID	LCSD-12845	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	12845	RunNo:	18209					
Prep Date:	4/23/2014	Analysis Date:	4/25/2014	SeqNo:	525531	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	92.8	80	120	9.64	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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	MB-12838	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	12838	RunNo:	18161					
Prep Date:	4/23/2014	Analysis Date:	4/23/2014	SeqNo:	524319	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-12838	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	12838	RunNo:	18161					
Prep Date:	4/23/2014	Analysis Date:	4/23/2014	SeqNo:	524320	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.098	0.010	0.1000	0	98.0	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Tall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	MB-12827	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524763	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.2		1.000		118	62.7	145			

Sample ID	LCS-12827	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524791	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.0	1.0	5.000	0	121	78.6	146			
Surr: DNOP	0.60		0.5000		120	62.7	145			

Sample ID	LCSD-12827	SampType:	LCSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSS02	Batch ID:	12827	RunNo:	18177					
Prep Date:	4/22/2014	Analysis Date:	4/24/2014	SeqNo:	524860	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.7	1.0	5.000	0	93.5	78.6	146	25.4	26.5	
Surr: DNOP	0.45		0.5000		90.5	62.7	145	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R18173	RunNo:	18173					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524582	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		87.5	80.4	118			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R18173	RunNo:	18173					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524583	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	109	80	120			
Surr: BFB	18		20.00		91.3	80.4	118			

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	MB-12860	SampType:	MBLK	TestCode:	EPA Method 8082: PCB's					
Client ID:	PBW	Batch ID:	12860	RunNo:	18334					
Prep Date:	4/24/2014	Analysis Date:	5/1/2014	SeqNo:	529772	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	1.9		2.500		74.8	33.2	131			
Surr: Tetrachloro-m-xylene	1.7		2.500		69.2	34.7	138			

Sample ID	LCS-12860	SampType:	LCS	TestCode:	EPA Method 8082: PCB's					
Client ID:	LCSW	Batch ID:	12860	RunNo:	18334					
Prep Date:	4/24/2014	Analysis Date:	5/1/2014	SeqNo:	529774	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.6	1.0	5.000	0	51.4	15	134			
Aroclor 1260	3.2	1.0	5.000	0	63.5	32.1	148			
Surr: Decachlorobiphenyl	1.4		2.500		57.6	33.2	131			
Surr: Tetrachloro-m-xylene	1.3		2.500		52.4	34.7	138			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- Q 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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	5mL-rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R18175	RunNo:	18175					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524679	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	5mL-rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R18175	RunNo:	18175					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524679	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								
cis-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	9.4		10.00		94.0	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		89.5	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.9	70	130			
Surr: Toluene-d8	9.0		10.00		90.4	70	130			

Sample ID	100ng lcs2	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R18175	RunNo:	18175					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524687	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	94.8	70	130			
Toluene	18	1.0	20.00	0	90.0	80	120			
Chlorobenzene	18	1.0	20.00	0	90.1	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	100ng lcs2	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R18175	RunNo:	18175					
Prep Date:		Analysis Date:	4/23/2014	SeqNo:	524687	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	24	1.0	20.00	0	118	90	143			
Trichloroethene (TCE)	17	1.0	20.00	0	87.4	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.7	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.0	70	130			
Surr: Dibromofluoromethane	8.9		10.00		88.9	70	130			
Surr: Toluene-d8	9.3		10.00		92.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Wall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	MB-12861		SampType: MBLK		TestCode: EPA Method 8310: PAHs					
Client ID:	PBW		Batch ID: 12861		RunNo: 18254					
Prep Date:	4/24/2014		Analysis Date: 4/29/2014		SeqNo: 527427		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								
Izop(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	16		20.00		80.1	24.5	139			

Sample ID	LCS-12861		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 12861		RunNo: 18254					
Prep Date:	4/24/2014		Analysis Date: 4/29/2014		SeqNo: 527430		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	60	2.0	80.00	0	74.7	43.8	96.9			
1-Methylnaphthalene	59	2.0	80.20	0	73.1	41.3	87.3			
2-Methylnaphthalene	58	2.0	80.00	0	73.0	36.6	89.6			
Acenaphthylene	58	2.5	80.20	0	72.8	43.6	103			
Acenaphthene	58	5.0	80.00	0	73.0	42.4	87.6			
Fluorene	5.8	0.80	8.020	0	72.1	40.5	93.6			
Phenanthrene	2.9	0.60	4.020	0	72.6	43.9	111			
Anthracene	2.9	0.60	4.020	0	73.1	44.3	103			
Fluoranthene	6.0	0.30	8.020	0	74.9	43.5	109			
Pyrene	5.6	0.30	8.020	0	70.2	32.6	103			
Benz(a)anthracene	0.58	0.070	0.8020	0	72.3	43	114			
Chrysene	2.9	0.20	4.020	0	72.6	40.2	100			
Benzo(b)fluoranthene	0.73	0.10	1.002	0	72.9	44.4	118			
Benzo(k)fluoranthene	0.36	0.070	0.5000	0	72.0	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	LCS-12861		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	12861		RunNo:	18254			
Prep Date:	4/24/2014		Analysis Date:	4/29/2014		SeqNo:	527430		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	0.72	0.12	1.002	0	71.9	38.3	107			
Benzo(g,h,i)perylene	0.70	0.12	1.000	0	70.0	38.4	110			
Indeno(1,2,3-cd)pyrene	1.5	0.25	2.004	0	72.9	42.4	113			
Surr: Benzo(e)pyrene	14		20.00		72.0	24.5	139			

Sample ID	1404947-001EMS		SampType:	MS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LDG T2 55-7, APR '1		Batch ID:	12861		RunNo:	18254			
Prep Date:	4/24/2014		Analysis Date:	4/29/2014		SeqNo:	527729		Units: µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	47	2.0	80.00	0	58.8	25.2	109			
1-Methylnaphthalene	37	2.0	80.20	0	45.9	20.9	107			
2-Methylnaphthalene	34	2.0	80.00	0	42.0	13.9	113			
Acenaphthylene	49	2.5	80.20	0	60.6	30.1	121			
Acenaphthene	37	5.0	80.00	0	46.4	21.4	114			
Fluorene	3.7	0.80	8.020	0	46.5	22.6	117			
Phenanthrene	2.4	0.60	4.020	0	60.7	33.3	120			
Anthracene	2.3	0.60	4.020	0	57.0	32.3	116			
Fluoranthene	4.9	0.30	8.020	0	60.6	34.8	122			
Pyrene	3.8	0.30	8.020	0	47.6	30	113			
Benz(a)anthracene	0.48	0.070	0.8020	0	59.9	28.4	127			
Chrysene	2.3	0.20	4.020	0	57.0	29.3	112			
Benzo(b)fluoranthene	0.60	0.10	1.002	0	59.9	29.4	137			
Benzo(k)fluoranthene	0.27	0.070	0.5000	0	54.0	34.4	130			
Benzo(a)pyrene	0.26	0.070	0.5020	0	51.8	34.5	116			
Dibenz(a,h)anthracene	0.60	0.12	1.002	0	59.9	21.3	115			
Benzo(g,h,i)perylene	0.61	0.12	1.000	0.05000	56.0	28.2	124			
Indeno(1,2,3-cd)pyrene	1.2	0.25	2.004	0	59.4	20.3	121			
Surr: Benzo(e)pyrene	18		20.00		92.3	24.5	139			

Sample ID	1404947-001EMSD		SampType:	MSD		TestCode:	EPA Method 8310: PAHs			
Client ID:	LDG T2 55-7, APR '1		Batch ID:	12861		RunNo:	18254			
Prep Date:	4/24/2014		Analysis Date:	4/29/2014		SeqNo:	527733		Units: µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	45	2.0	80.00	0	56.5	25.2	109	3.95	20	
1-Methylnaphthalene	34	2.0	80.20	0	42.7	20.9	107	7.21	20	
2-Methylnaphthalene	31	2.0	80.00	0	38.7	13.9	113	8.12	20	
Acenaphthylene	46	2.5	80.20	0	57.5	30.1	121	5.21	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Wall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	1404947-001EMSD	SampType:	MSD	TestCode:	EPA Method 8310: PAHs					
Client ID:	LDG T2 55-7, APR '1	Batch ID:	12861	RunNo:	18254					
Prep Date:	4/24/2014	Analysis Date:	4/29/2014	SeqNo:	527733	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	34	5.0	80.00	0	42.9	21.4	114	7.78	20	
Fluorene	3.5	0.80	8.020	0	43.6	22.6	117	6.36	20	
Phenanthrene	2.3	0.60	4.020	0	58.2	33.3	120	4.18	20	
Anthracene	2.2	0.60	4.020	0	54.5	32.3	116	4.46	20	
Fluoranthene	4.6	0.30	8.020	0	57.1	34.8	122	5.93	20	
Pyrene	3.4	0.30	8.020	0	42.3	30	113	11.9	20	
Benz(a)anthracene	0.45	0.070	0.8020	0	56.1	28.4	127	6.45	20	
Chrysene	2.2	0.20	4.020	0	53.5	29.3	112	6.31	20	
Benzo(b)fluoranthene	0.57	0.10	1.002	0	56.9	29.4	137	5.13	20	
Benzo(k)fluoranthene	0.26	0.070	0.5000	0	52.0	34.4	130	3.77	20	
Benzo(a)pyrene	0.25	0.070	0.5020	0	49.8	34.5	116	3.92	20	
Dibenz(a,h)anthracene	0.57	0.12	1.002	0	56.9	21.3	115	5.13	20	
Benzo(g,h,i)perylene	0.58	0.12	1.000	0.05000	53.0	28.2	124	5.04	20	
Indeno(1,2,3-cd)pyrene	1.1	0.25	2.004	0	56.9	20.3	121	4.29	20	
Surr: Benzo(e)pyrene	17		20.00		87.0	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	MB-12924	SampType:	MBLK	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID:	12924	RunNo:	18305					
Prep Date:	4/29/2014	Analysis Date:	4/29/2014	SeqNo:	528544	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-12924	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	12924	RunNo:	18305					
Prep Date:	4/29/2014	Analysis Date:	4/29/2014	SeqNo:	528545	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	20	2.5	20.00	0	101	73.7	135			

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	MB-12837	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	12837	RunNo:	18236					
Prep Date:	4/23/2014	Analysis Date:	4/28/2014	SeqNo:	526735	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-12837	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	12837	RunNo:	18236					
Prep Date:	4/23/2014	Analysis Date:	4/28/2014	SeqNo:	526736	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404947

16-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7, APR '14

Sample ID	MB-12921	SampType:	MBLK	TestCode:	SM 4500 Norg C: TKN					
Client ID:	PBW	Batch ID:	12921	RunNo:	18299					
Prep Date:	4/29/2014	Analysis Date:	4/30/2014	SeqNo:	528417	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID	LCS-12921	SampType:	LCS	TestCode:	SM 4500 Norg C: TKN					
Client ID:	LCSW	Batch ID:	12921	RunNo:	18299					
Prep Date:	4/29/2014	Analysis Date:	4/30/2014	SeqNo:	528418	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	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.
- RL 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

Client Name: LIGHTNING DOCK GEO

Work Order Number: 1404947

RcptNo: 1

Received by/date:

Logged By: Lindsay Mangin

4/23/2014 7:45:00 AM

Completed By: Lindsay Mangin

4/23/2014 8:46:23 AM

Reviewed By:

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? UPS

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly 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 broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ 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.) Yes ☒ No ☐
- # of preserved bottles checked for pH: 9/10
(<2 or >12 unless noted)
Adjusted? No
Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via:

eMail ☐

Phone ☐

Fax ☐

In Person ☐

Regarding:

Client Instructions:

17. Additional remarks: Poured off from 500mL unpres. filtered + preserved for Dissolved metals analysis. - DOIN. KMS 5/1/14

18. Cooler Information

Cooler No	Temp. $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.7	Good	Yes			

**LIGHTNING DOCK GEOTHERMAL "TABLE 2"
WQCC CONTAINERS FOR ONE SAMPLING EVENT**

SAMPLING EFFORT LDG T2 55-7 APRIL 2014

PLASTICS
ICE CHEST
#2

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB	LABELED AT LDG	SAMPLED AT LDG	SHIPPED TO LAB	TEST RESULTS FROM
8260	3 x 40 mL HCl VOAs	XX	XX			
EDB-504.1	2 x 40 mL Na ₂ S ₂ O ₃ VOAs	XX	XX(X)			
8082-PCB	2 X 1 L unpreserved amber glasses	XX	XX(X)			
8310-PAH	1 x 1 L unpreserved amber glass	X	X(X)			
Phenols	1 x 1 L H ₂ SO ₄ amber glass	X	X(X)			
Anions, TDS, pH	1 x 500 mL unpreserved plastic 1 x 125 mL H ₂ SO ₄ plastic	X	X	X		
Mercury	1 x 500 mL HNO ₃ plastic	X	X	X		
Dissolved Metals + Li, Rb, W, Br	2 x 125 mL HNO ₃ plastics + filters	XX	XX	XX		
Total Cyanide	1 x 500 mL NaOH plastic amber	X	X	X		
Radium 226/228	2 x 1 L HNO ₃ plastics	XX	XX	XX		
Radon	2 x 40 mL unpreserved VOAs	XX	XX			
Phosphorous	1 x 500 mL H ₂ SO ₄ plastic	X	X	X		
418.1	1 x 500 mL HCl amber glass	X	X			
Nitrate/Nitrite TKN	1 x 125 mL unpreserved plastic 1 x 500 mL H ₂ SO ₄ plastic	X	X	X		
8015D Diesel / Motor oil range organics	2 x 40 mL unpreserved VOAs	XX	XX			
8015D Gasoline Range organics	3x 40 mL HCl VOAs	XXX	XXX			
Trip Blank		X	X			

(QC) (QC) (QC) (QC)

*

*

**LIGHTNING DOCK GEOTHERMAL "TABLE 2"
WQCC CONTAINERS FOR ONE SAMPLING EVENT**

SAMPLING EFFORT LDG TZ 55-7 APRIL 2014

AMBERS

+ VOAS

**ICE CHEST
#1**

(QC) (QC) (QC) (QC)

*

*

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB	LABELED AT LDG	SAMPLED AT LDG	SHIPPED TO LAB	TEST RESULTS FROM
8260	3 x 40 mL HCl VOAS	XX	XX	XX	XX	
EDB-504.1	2 x 40 mL Na ₂ S ₂ O ₃ VOAs	XX	XX(X)	XX(X)	XX(X)	
8082-PCB	2 X 1 L unpreserved amber glasses	XX	XX(X)	XX(X)	XX(X)	
8310-PAH	1 x 1 L unpreserved amber glass	X	XX(X)	XX(X)	XX(X)	
Phenols	1 x 1 L H ₂ SO ₄ amber glass	X	X(X)	X(X)	X(X)	
Anions, TDS, pH	1 x 500 mL unpreserved plastic 1 x 125 mL H ₂ SO ₄ plastic	XX	XX	XX		
Mercury	1 x 500 mL HNO ₃ plastic	X	X	X		
Dissolved Metals + Li, Rb, W, Br	2 x 125 mL HNO ₃ plastics + filters	XX	XX	XX		
Total Cyanide	1 x 500 mL NaOH plastic amber	X	X	X		
Radium 226/228	2 x 1 L HNO ₃ plastics	XX	XX	XX		
Radon	2 x 40 mL unpreserved VOAs	XX	XX	XX	XX	
Phosphorous	1 x 500 mL H ₂ SO ₄ plastic	X	X	X		
418.1	1 x 500 mL HCl amber glass	X	X	X	X	
Nitrate/Nitrite TKN	1 x 125 mL unpreserved plastic 1 x 500 mL H ₂ SO ₄ plastic	XX	XX	XX		
8015D Diesel / Motor oil range organics	2 x 40 mL unpreserved VOAs	XX	XX	XX	XX	
8015D Gasoline Range organics	3x 40 mL HCl VOAs	XX	XX	XX	XX	
Trip Blank		X	X	X	X	



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

June 24, 2014

Kacie Peterson
Lightning Dock Geothermal
PO Box 86
Animas, NM 88020
TEL: (575) 548-0301
FAX

RE: LDG T2 45-7, LDG 55-7 May '14

OrderNo.: 1405C00

Dear Kacie Peterson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 5/29/2014 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 www.hallenvironmental.com 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,

A handwritten signature in black ink, appearing to read 'John Caldwell', is written in a cursive style.

John Caldwell
Supervisor
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1405C00

Date Reported: 6/24/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 45-7, MAY '14

Project: LDG T2 45-7, LDG 55-7 May '14

Collection Date: 5/28/2014 12:20:00 PM

Lab ID: 1405C00-001

Matrix: AQUEOUS

Received Date: 5/29/2014

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	5/29/2014 11:00:58 PM	13431
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	6/5/2014 6:19:21 AM	13508
Aroclor 1221	ND	1.0		µg/L	1	6/5/2014 6:19:21 AM	13508
Aroclor 1232	ND	1.0		µg/L	1	6/5/2014 6:19:21 AM	13508
Aroclor 1242	ND	1.0		µg/L	1	6/5/2014 6:19:21 AM	13508
Aroclor 1248	ND	1.0		µg/L	1	6/5/2014 6:19:21 AM	13508
Aroclor 1254	ND	1.0		µg/L	1	6/5/2014 6:19:21 AM	13508
Aroclor 1260	ND	1.0		µg/L	1	6/5/2014 6:19:21 AM	13508
Surr: Decachlorobiphenyl	94.0	33.2-131		%REC	1	6/5/2014 6:19:21 AM	13508
Surr: Tetrachloro-m-xylene	76.8	34.7-138		%REC	1	6/5/2014 6:19:21 AM	13508
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/3/2014 11:53:05 AM	13421
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/3/2014 11:53:05 AM	13421
Surr: DNOP	122	76-161		%REC	1	6/3/2014 11:53:05 AM	13421
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/2/2014 2:47:33 PM	R18994
Surr: BFB	99.9	70.9-130		%REC	1	6/2/2014 2:47:33 PM	R18994
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	6/4/2014 1:07:17 PM	13509
1-Methylnaphthalene	ND	2.0		µg/L	1	6/4/2014 1:07:17 PM	13509
2-Methylnaphthalene	ND	2.0		µg/L	1	6/4/2014 1:07:17 PM	13509
Acenaphthylene	ND	2.5		µg/L	1	6/4/2014 1:07:17 PM	13509
Acenaphthene	ND	5.0		µg/L	1	6/4/2014 1:07:17 PM	13509
Fluorene	ND	0.80		µg/L	1	6/4/2014 1:07:17 PM	13509
Phenanthrene	ND	0.60		µg/L	1	6/4/2014 1:07:17 PM	13509
Anthracene	ND	0.60		µg/L	1	6/4/2014 1:07:17 PM	13509
Fluoranthene	ND	0.30		µg/L	1	6/4/2014 1:07:17 PM	13509
Pyrene	ND	0.30		µg/L	1	6/4/2014 1:07:17 PM	13509
Benz(a)anthracene	ND	0.070		µg/L	1	6/4/2014 1:07:17 PM	13509
Chrysene	ND	0.20		µg/L	1	6/4/2014 1:07:17 PM	13509
Benzo(b)fluoranthene	ND	0.10		µg/L	1	6/4/2014 1:07:17 PM	13509
Benzo(k)fluoranthene	ND	0.070		µg/L	1	6/4/2014 1:07:17 PM	13509
Benzo(a)pyrene	ND	0.070		µg/L	1	6/4/2014 1:07:17 PM	13509
Dibenz(a,h)anthracene	ND	0.12		µg/L	1	6/4/2014 1:07:17 PM	13509
Benzo(g,h,i)perylene	ND	0.12		µg/L	1	6/4/2014 1:07:17 PM	13509
Indeno(1,2,3-cd)pyrene	ND	0.25		µg/L	1	6/4/2014 1:07:17 PM	13509

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

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

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1405C00

Date Reported: 6/24/2014

CLIENT: Lightning Dock Geothermal**Client Sample ID:** LDG T2 45-7, MAY '14**Project:** LDG T2 45-7, LDG 55-7 May '14**Collection Date:** 5/28/2014 12:20:00 PM**Lab ID:** 1405C00-001**Matrix:** AQUEOUS**Received Date:** 5/29/2014

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8310: PAHS							Analyst: SCC
Surr: Benzo(e)pyrene	77.8	32.1-134		%REC	1	6/4/2014 1:07:17 PM	13509
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	11	2.0	*	mg/L	20	5/29/2014 2:20:44 PM	R18947
Chloride	84	10		mg/L	20	5/29/2014 2:20:44 PM	R18947
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	5/29/2014 1:43:31 PM	R18947
Bromide	0.26	0.10		mg/L	1	5/29/2014 1:43:31 PM	R18947
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	5/29/2014 1:43:31 PM	R18947
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	5/29/2014 1:43:31 PM	R18947
Sulfate	520	10	*	mg/L	20	5/29/2014 2:20:44 PM	R18947
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF
Aluminum	0.21	0.020	*	mg/L	1	6/5/2014 1:50:49 PM	R19064
Barium	0.061	0.0020		mg/L	1	6/5/2014 1:50:49 PM	R19064
Boron	0.46	0.040		mg/L	1	6/5/2014 1:50:49 PM	R19064
Cadmium	ND	0.0020		mg/L	1	6/5/2014 1:50:49 PM	R19064
Calcium	23	1.0		mg/L	1	6/5/2014 1:50:49 PM	R19064
Chromium	ND	0.0060		mg/L	1	6/5/2014 1:50:49 PM	R19064
Cobalt	ND	0.0060		mg/L	1	6/5/2014 1:50:49 PM	R19064
Copper	ND	0.0060		mg/L	1	6/5/2014 1:50:49 PM	R19064
Iron	0.038	0.020		mg/L	1	6/5/2014 1:50:49 PM	R19064
Magnesium	ND	1.0		mg/L	1	6/5/2014 1:50:49 PM	R19064
Manganese	0.026	0.0020		mg/L	1	6/5/2014 1:50:49 PM	R19064
Molybdenum	0.027	0.0080		mg/L	1	6/5/2014 1:50:49 PM	R19064
Nickel	ND	0.010		mg/L	1	6/5/2014 1:50:49 PM	R19064
Potassium	30	1.0		mg/L	1	6/5/2014 1:50:49 PM	R19064
Silver	ND	0.0050		mg/L	1	6/5/2014 1:50:49 PM	R19064
Sodium	310	5.0		mg/L	5	6/5/2014 1:52:47 PM	R19064
Zinc	ND	0.010		mg/L	1	6/5/2014 1:50:49 PM	R19064
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	0.015	0.0010	*	mg/L	1	6/11/2014 3:25:57 PM	R19187
Lead	ND	0.0010		mg/L	1	6/11/2014 3:25:57 PM	R19187
Selenium	0.0016	0.0010		mg/L	1	6/11/2014 3:25:57 PM	R19187
Uranium	ND	0.0010		mg/L	1	6/11/2014 3:25:57 PM	R19187
EPA METHOD 245.1: MERCURY							Analyst: JML
Mercury	ND	0.00020		mg/L	1	5/30/2014 11:53:11 AM	13426
EPA METHOD 8260B: VOLATILES							Analyst: KJH
Benzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Toluene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955

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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Analytical Report

Lab Order 1405C00

Date Reported: 6/24/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 45-7, MAY '14

Project: LDG T2 45-7, LDG 55-7 May '14

Collection Date: 5/28/2014 12:20:00 PM

Lab ID: 1405C00-001

Matrix: AQUEOUS

Received Date: 5/29/2014

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst: KJH		
Ethylbenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Naphthalene	ND	2.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
2-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Acetone	ND	10		µg/L	1	5/30/2014 9:26:15 PM	R18955
Bromobenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Bromodichloromethane	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Bromoform	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Bromomethane	ND	3.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
2-Butanone	ND	10		µg/L	1	5/30/2014 9:26:15 PM	R18955
Carbon disulfide	ND	10		µg/L	1	5/30/2014 9:26:15 PM	R18955
Carbon Tetrachloride	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Chlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Chloroethane	ND	2.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Chloroform	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Chloromethane	ND	3.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
2-Chlorotoluene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
4-Chlorotoluene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
cis-1,2-DCE	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Dibromochloromethane	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Dibromomethane	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,1-Dichloroethane	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,1-Dichloroethene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,2-Dichloropropane	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,3-Dichloropropane	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
2,2-Dichloropropane	ND	2.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,1-Dichloropropene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Hexachlorobutadiene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955

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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1405C00

Date Reported: 6/24/2014

CLIENT: Lightning Dock Geothermal**Client Sample ID:** LDG T2 45-7, MAY '14**Project:** LDG T2 45-7, LDG 55-7 May '14**Collection Date:** 5/28/2014 12:20:00 PM**Lab ID:** 1405C00-001**Matrix:** AQUEOUS**Received Date:** 5/29/2014

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: KJH
2-Hexanone	ND	10		µg/L	1	5/30/2014 9:26:15 PM	R18955
Isopropylbenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
4-Isopropyltoluene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
4-Methyl-2-pentanone	ND	10		µg/L	1	5/30/2014 9:26:15 PM	R18955
Methylene Chloride	ND	3.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
n-Butylbenzene	ND	3.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
n-Propylbenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
sec-Butylbenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Styrene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
tert-Butylbenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
trans-1,2-DCE	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Trichlorofluoromethane	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Vinyl chloride	ND	1.0		µg/L	1	5/30/2014 9:26:15 PM	R18955
Xylenes, Total	ND	1.5		µg/L	1	5/30/2014 9:26:15 PM	R18955
Surr: 1,2-Dichloroethane-d4	93.8	70-130		%REC	1	5/30/2014 9:26:15 PM	R18955
Surr: 4-Bromofluorobenzene	96.7	70-130		%REC	1	5/30/2014 9:26:15 PM	R18955
Surr: Dibromofluoromethane	94.6	70-130		%REC	1	5/30/2014 9:26:15 PM	R18955
Surr: Toluene-d8	92.8	70-130		%REC	1	5/30/2014 9:26:15 PM	R18955
EPA METHOD 418.1: TPH							Analyst: BCN
Petroleum Hydrocarbons, TR	ND	1.0		mg/L	1	5/29/2014 12:00:00 PM	13416
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	6/16/2014	13713
SM4500-H+B: PH							Analyst: JML
pH	6.80	1.68	H	pH units	1	5/30/2014 11:26:06 AM	R18961
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1310	20.0	*	mg/L	1	6/2/2014 3:55:00 PM	13457
SM 4500 NORG C: TKN							Analyst: TMG

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
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1405C00**

Date Reported: 6/24/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 45-7, MAY '14

Project: LDG T2 45-7, LDG 55-7 May '14

Collection Date: 5/28/2014 12:20:00 PM

Lab ID: 1405C00-001

Matrix: AQUEOUS

Received Date: 5/29/2014

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM 4500 NORG C: TKN							Analyst: TMG
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	6/10/2014 12:50:00 PM	13596

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

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

Analytical Report

Lab Order 1405C00

Date Reported: 6/24/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Lightning Dock Geothermal

Client Sample ID: Trip Blank

Project: LDG T2 45-7, LDG 55-7 May '14

Collection Date:

Lab ID: 1405C00-002

Matrix: TRIP BLANK

Received Date: 5/29/2014

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	5/30/2014 12:02:39 AM	13431
EPA METHOD 8260B: VOLATILES				Analyst: KJH			
Benzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Toluene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Ethylbenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Naphthalene	ND	2.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
2-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Acetone	ND	10		µg/L	1	5/30/2014 9:54:10 PM	R18955
Bromobenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Bromodichloromethane	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Bromoform	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Bromomethane	ND	3.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
2-Butanone	ND	10		µg/L	1	5/30/2014 9:54:10 PM	R18955
Carbon disulfide	ND	10		µg/L	1	5/30/2014 9:54:10 PM	R18955
Carbon Tetrachloride	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Chlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Chloroethane	ND	2.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Chloroform	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Chloromethane	ND	3.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
2-Chlorotoluene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
4-Chlorotoluene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
cis-1,2-DCE	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Dibromochloromethane	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Dibromomethane	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,1-Dichloroethane	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,1-Dichloroethene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,2-Dichloropropane	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1405C00

Date Reported: 6/24/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: Trip Blank

Project: LDG T2 45-7, LDG 55-7 May '14

Collection Date:

Lab ID: 1405C00-002

Matrix: TRIP BLANK

Received Date: 5/29/2014

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst: KJH		
1,3-Dichloropropane	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
2,2-Dichloropropane	ND	2.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,1-Dichloropropene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Hexachlorobutadiene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
2-Hexanone	ND	10		µg/L	1	5/30/2014 9:54:10 PM	R18955
Isopropylbenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
4-Isopropyltoluene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
4-Methyl-2-pentanone	ND	10		µg/L	1	5/30/2014 9:54:10 PM	R18955
Methylene Chloride	ND	3.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
n-Butylbenzene	ND	3.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
n-Propylbenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
sec-Butylbenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Styrene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
tert-Butylbenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
trans-1,2-DCE	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Trichlorofluoromethane	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Vinyl chloride	ND	1.0		µg/L	1	5/30/2014 9:54:10 PM	R18955
Xylenes, Total	ND	1.5		µg/L	1	5/30/2014 9:54:10 PM	R18955
Surr: 1,2-Dichloroethane-d4	95.3	70-130		%REC	1	5/30/2014 9:54:10 PM	R18955
Surr: 4-Bromofluorobenzene	94.1	70-130		%REC	1	5/30/2014 9:54:10 PM	R18955
Surr: Dibromofluoromethane	96.2	70-130		%REC	1	5/30/2014 9:54:10 PM	R18955
Surr: Toluene-d8	90.8	70-130		%REC	1	5/30/2014 9:54:10 PM	R18955

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1405C00

Date Reported: 6/24/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, MAY '14

Project: LDG T2 45-7, LDG 55-7 May '14

Collection Date: 5/28/2014 1:00:00 PM

Lab ID: 1405C00-003

Matrix: AQUEOUS

Received Date: 5/29/2014

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	6/3/2014 12:08:27 PM	13485
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	6/5/2014 8:39:54 AM	13508
Aroclor 1221	ND	1.0		µg/L	1	6/5/2014 8:39:54 AM	13508
Aroclor 1232	ND	1.0		µg/L	1	6/5/2014 8:39:54 AM	13508
Aroclor 1242	ND	1.0		µg/L	1	6/5/2014 8:39:54 AM	13508
Aroclor 1248	ND	1.0		µg/L	1	6/5/2014 8:39:54 AM	13508
Aroclor 1254	ND	1.0		µg/L	1	6/5/2014 8:39:54 AM	13508
Aroclor 1260	ND	1.0		µg/L	1	6/5/2014 8:39:54 AM	13508
Surr: Decachlorobiphenyl	104	33.2-131		%REC	1	6/5/2014 8:39:54 AM	13508
Surr: Tetrachloro-m-xylene	118	34.7-138		%REC	1	6/5/2014 8:39:54 AM	13508
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/3/2014 1:28:46 PM	13421
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/3/2014 1:28:46 PM	13421
Surr: DNOP	119	76-161		%REC	1	6/3/2014 1:28:46 PM	13421
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/4/2014 2:08:24 PM	R19041
Surr: BFB	98.2	70.9-130		%REC	1	6/4/2014 2:08:24 PM	R19041
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	6/4/2014 1:36:35 PM	13509
1-Methylnaphthalene	ND	2.0		µg/L	1	6/4/2014 1:36:35 PM	13509
2-Methylnaphthalene	ND	2.0		µg/L	1	6/4/2014 1:36:35 PM	13509
Acenaphthylene	ND	2.5		µg/L	1	6/4/2014 1:36:35 PM	13509
Acenaphthene	ND	5.0		µg/L	1	6/4/2014 1:36:35 PM	13509
Fluorene	ND	0.80		µg/L	1	6/4/2014 1:36:35 PM	13509
Phenanthrene	ND	0.60		µg/L	1	6/4/2014 1:36:35 PM	13509
Anthracene	ND	0.60		µg/L	1	6/4/2014 1:36:35 PM	13509
Fluoranthene	ND	0.30		µg/L	1	6/4/2014 1:36:35 PM	13509
Pyrene	ND	0.30		µg/L	1	6/4/2014 1:36:35 PM	13509
Benz(a)anthracene	ND	0.070		µg/L	1	6/4/2014 1:36:35 PM	13509
Chrysene	ND	0.20		µg/L	1	6/4/2014 1:36:35 PM	13509
Benzo(b)fluoranthene	ND	0.10		µg/L	1	6/4/2014 1:36:35 PM	13509
Benzo(k)fluoranthene	ND	0.070		µg/L	1	6/4/2014 1:36:35 PM	13509
Benzo(a)pyrene	ND	0.070		µg/L	1	6/4/2014 1:36:35 PM	13509
Dibenz(a,h)anthracene	ND	0.12		µg/L	1	6/4/2014 1:36:35 PM	13509
Benzo(g,h,i)perylene	ND	0.12		µg/L	1	6/4/2014 1:36:35 PM	13509
Indeno(1,2,3-cd)pyrene	ND	0.25		µg/L	1	6/4/2014 1:36:35 PM	13509

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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1405C00

Date Reported: 6/24/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, MAY '14

Project: LDG T2 45-7, LDG 55-7 May '14

Collection Date: 5/28/2014 1:00:00 PM

Lab ID: 1405C00-003

Matrix: AQUEOUS

Received Date: 5/29/2014

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8310: PAHS							Analyst: SCC
Surr: Benzo(e)pyrene	77.6	32.1-134		%REC	1	6/4/2014 1:36:35 PM	13509
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	12	2.0	*	mg/L	20	6/2/2014 11:56:53 PM	R19002
Chloride	85	10		mg/L	20	6/2/2014 11:56:53 PM	R19002
Bromide	0.26	0.10		mg/L	1	6/2/2014 11:19:40 PM	R19002
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	6/2/2014 11:19:40 PM	R19002
Sulfate	530	10	*	mg/L	20	6/2/2014 11:56:53 PM	R19002
Nitrate+Nitrite as N	ND	1.0		mg/L	5	6/3/2014 5:19:29 AM	R19002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF
Aluminum	0.22	0.020	*	mg/L	1	6/5/2014 1:54:38 PM	R19064
Barium	0.061	0.0020		mg/L	1	6/5/2014 1:54:38 PM	R19064
Boron	0.45	0.040		mg/L	1	6/5/2014 1:54:38 PM	R19064
Cadmium	ND	0.0020		mg/L	1	6/5/2014 1:54:38 PM	R19064
Calcium	22	1.0		mg/L	1	6/5/2014 1:54:38 PM	R19064
Chromium	ND	0.0060		mg/L	1	6/5/2014 1:54:38 PM	R19064
Cobalt	ND	0.0060		mg/L	1	6/5/2014 1:54:38 PM	R19064
Copper	ND	0.0060		mg/L	1	6/5/2014 1:54:38 PM	R19064
Iron	0.12	0.020		mg/L	1	6/5/2014 1:54:38 PM	R19064
Magnesium	ND	1.0		mg/L	1	6/5/2014 1:54:38 PM	R19064
Manganese	0.027	0.0020		mg/L	1	6/5/2014 1:54:38 PM	R19064
Molybdenum	0.026	0.0080		mg/L	1	6/5/2014 1:54:38 PM	R19064
Nickel	ND	0.010		mg/L	1	6/5/2014 1:54:38 PM	R19064
Potassium	30	1.0		mg/L	1	6/5/2014 1:54:38 PM	R19064
Silver	ND	0.0050		mg/L	1	6/5/2014 1:54:38 PM	R19064
Sodium	320	5.0		mg/L	5	6/5/2014 1:56:38 PM	R19064
Zinc	ND	0.010		mg/L	1	6/5/2014 1:54:38 PM	R19064
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	0.015	0.0010	*	mg/L	1	6/11/2014 3:30:58 PM	R19187
Lead	ND	0.0010		mg/L	1	6/11/2014 3:30:58 PM	R19187
Selenium	0.0021	0.0010		mg/L	1	6/11/2014 3:30:58 PM	R19187
Uranium	ND	0.0010		mg/L	1	6/11/2014 3:30:58 PM	R19187
EPA METHOD 245.1: MERCURY							Analyst: MMD
Mercury	ND	0.00020		mg/L	1	6/5/2014 9:33:41 AM	13517
EPA METHOD 8260B: VOLATILES							Analyst: KJH
Benzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Toluene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Ethylbenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006

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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Analytical Report

Lab Order 1405C00

Date Reported: 6/24/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, MAY '14

Project: LDG T2 45-7, LDG 55-7 May '14

Collection Date: 5/28/2014 1:00:00 PM

Lab ID: 1405C00-003

Matrix: AQUEOUS

Received Date: 5/29/2014

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: KJH
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Naphthalene	ND	2.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1-Methylnaphthalene	ND	4.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
2-Methylnaphthalene	ND	4.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Acetone	10	10		µg/L	1	6/3/2014 5:17:56 PM	R19006
Bromobenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Bromodichloromethane	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Bromoform	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Bromomethane	ND	3.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
2-Butanone	ND	10		µg/L	1	6/3/2014 5:17:56 PM	R19006
Carbon disulfide	ND	10		µg/L	1	6/3/2014 5:17:56 PM	R19006
Carbon Tetrachloride	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Chlorobenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Chloroethane	ND	2.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Chloroform	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Chloromethane	ND	3.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
2-Chlorotoluene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
4-Chlorotoluene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
cis-1,2-DCE	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Dibromochloromethane	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Dibromomethane	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,2-Dichlorobenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,3-Dichlorobenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,4-Dichlorobenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Dichlorodifluoromethane	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,1-Dichloroethane	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,1-Dichloroethene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,2-Dichloropropane	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,3-Dichloropropane	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
2,2-Dichloropropane	ND	2.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,1-Dichloropropene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Hexachlorobutadiene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
2-Hexanone	ND	10		µg/L	1	6/3/2014 5:17:56 PM	R19006

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1405C00

Date Reported: 6/24/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, MAY '14

Project: LDG T2 45-7, LDG 55-7 May '14

Collection Date: 5/28/2014 1:00:00 PM

Lab ID: 1405C00-003

Matrix: AQUEOUS

Received Date: 5/29/2014

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: KJH
Isopropylbenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
4-Isopropyltoluene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
4-Methyl-2-pentanone	ND	10		µg/L	1	6/3/2014 5:17:56 PM	R19006
Methylene Chloride	ND	3.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
n-Butylbenzene	ND	3.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
n-Propylbenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
sec-Butylbenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Styrene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
tert-Butylbenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
trans-1,2-DCE	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Trichloroethene (TCE)	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Trichlorofluoromethane	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
1,2,3-Trichloropropane	ND	2.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Vinyl chloride	ND	1.0		µg/L	1	6/3/2014 5:17:56 PM	R19006
Xylenes, Total	ND	1.5		µg/L	1	6/3/2014 5:17:56 PM	R19006
Surr: 1,2-Dichloroethane-d4	92.9	70-130		%REC	1	6/3/2014 5:17:56 PM	R19006
Surr: 4-Bromofluorobenzene	94.6	70-130		%REC	1	6/3/2014 5:17:56 PM	R19006
Surr: Dibromofluoromethane	97.0	70-130		%REC	1	6/3/2014 5:17:56 PM	R19006
Surr: Toluene-d8	89.9	70-130		%REC	1	6/3/2014 5:17:56 PM	R19006
EPA METHOD 418.1: TPH							Analyst: BCN
Petroleum Hydrocarbons, TR	5.7	1.0		mg/L	1	6/4/2014	13491
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	6/16/2014	13713
SM4500-H+B: PH							Analyst: JML
pH	6.95	1.68	H	pH units	1	6/4/2014 1:49:11 PM	R19068
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1280	20.0	*	mg/L	1	6/4/2014 3:27:00 PM	13486
SM 4500 NORG C: TKN							Analyst: TMG
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	6/10/2014 12:50:00 PM	13596

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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Analytical Report

Lab Order 1405C00

Date Reported: 6/24/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Lightning Dock Geothermal

Client Sample ID: Trip Blank

Project: LDG T2 45-7, LDG 55-7 May '14

Collection Date:

Lab ID: 1405C00-004

Matrix: TRIP BLANK

Received Date: 5/29/2014

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	6/3/2014 12:54:33 PM	13485
EPA METHOD 8260B: VOLATILES							Analyst: KJH
Benzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Toluene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Ethylbenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Naphthalene	ND	2.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1-Methylnaphthalene	ND	4.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
2-Methylnaphthalene	ND	4.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Acetone	ND	10		µg/L	1	6/3/2014 6:42:15 PM	R19006
Bromobenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Bromodichloromethane	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Bromoform	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Bromomethane	ND	3.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
2-Butanone	ND	10		µg/L	1	6/3/2014 6:42:15 PM	R19006
Carbon disulfide	ND	10		µg/L	1	6/3/2014 6:42:15 PM	R19006
Carbon Tetrachloride	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Chlorobenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Chloroethane	ND	2.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Chloroform	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Chloromethane	ND	3.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
2-Chlorotoluene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
4-Chlorotoluene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
cis-1,2-DCE	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Dibromochloromethane	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Dibromomethane	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,2-Dichlorobenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,3-Dichlorobenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,4-Dichlorobenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Dichlorodifluoromethane	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,1-Dichloroethane	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,1-Dichloroethene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,2-Dichloropropane	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006

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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1405C00

Date Reported: 6/24/2014

CLIENT: Lightning Dock Geothermal**Client Sample ID:** Trip Blank**Project:** LDG T2 45-7, LDG 55-7 May '14**Collection Date:****Lab ID:** 1405C00-004**Matrix:** TRIP BLANK**Received Date:** 5/29/2014

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: KJH			
1,3-Dichloropropane	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
2,2-Dichloropropane	ND	2.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,1-Dichloropropene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Hexachlorobutadiene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
2-Hexanone	ND	10		µg/L	1	6/3/2014 6:42:15 PM	R19006
Isopropylbenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
4-Isopropyltoluene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
4-Methyl-2-pentanone	ND	10		µg/L	1	6/3/2014 6:42:15 PM	R19006
Methylene Chloride	ND	3.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
n-Butylbenzene	ND	3.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
n-Propylbenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
sec-Butylbenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Styrene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
tert-Butylbenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
trans-1,2-DCE	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Trichloroethene (TCE)	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Trichlorofluoromethane	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
1,2,3-Trichloropropane	ND	2.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Vinyl chloride	ND	1.0		µg/L	1	6/3/2014 6:42:15 PM	R19006
Xylenes, Total	ND	1.5		µg/L	1	6/3/2014 6:42:15 PM	R19006
Surr: 1,2-Dichloroethane-d4	95.3	70-130		%REC	1	6/3/2014 6:42:15 PM	R19006
Surr: 4-Bromofluorobenzene	93.6	70-130		%REC	1	6/3/2014 6:42:15 PM	R19006
Surr: Dibromofluoromethane	96.9	70-130		%REC	1	6/3/2014 6:42:15 PM	R19006
Surr: Toluene-d8	91.8	70-130		%REC	1	6/3/2014 6:42:15 PM	R19006

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

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

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
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 140530030
Project Name: 1405C00

Analytical Results Report

Sample Number 140530030-001 **Sampling Date** 5/28/2014 **Date/Time Received** 5/30/2014 12:30 PM
Client Sample ID 1405C00-001I / LDG T2 45-7, MAY '14 **Sampling Time** 12:20 PM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Lithium	0.688	mg/L	0.01	6/10/2014	ETL	EPA 200.8	
Dissolved Rubidium	0.362	mg/L	0.01	6/10/2014	ETL	EPA 200.8	
Dissolved Tungsten	0.0983	mg/L	0.05	6/10/2014	ETL	EPA 200.8	

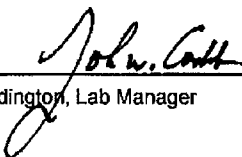
Sample Number 140530030-002 **Sampling Date** 5/28/2014 **Date/Time Received** 5/30/2014 12:30 PM
Client Sample ID 1405C00-001J / LDG T2 45-7, MAY '14 **Sampling Time** 12:20 PM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	6/9/2014	CRW	EPA 335.4	

Sample Number 140530030-003 **Sampling Date** 5/28/2014 **Date/Time Received** 5/30/2014 12:30 PM
Client Sample ID 1405C00-001L / LDG T2 45-7, MAY '14 **Sampling Time** 12:20 PM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Total P	ND	mg/L	0.01	6/10/2014	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.

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
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 140604037
Project Name: 1405C00

Analytical Results Report

Sample Number 140604037-001 **Sampling Date** 5/28/2014 **Date/Time Received** 6/4/2014 12:00 PM
Client Sample ID 1405C00-003I / LDG T2 55-7, MAY 14 **Sampling Time** 1:00 PM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Lithium	0.669	mg/L	0.01	6/10/2014	ETL	EPA 200.8	
Dissolved Rubidium	0.365	mg/L	0.01	6/10/2014	ETL	EPA 200.8	
Dissolved Tungsten	0.102	mg/L	0.05	6/10/2014	ETL	EPA 200.8	

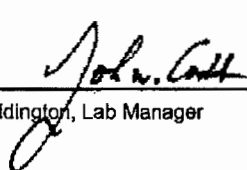
Sample Number 140604037-002 **Sampling Date** 5/28/2014 **Date/Time Received** 6/4/2014 12:00 PM
Client Sample ID 1405C00-003J / LDG T2 55-7, MAY 14 **Sampling Time** 1:00 PM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	6/9/2014	CRW	EPA 335.4	

Sample Number 140604037-003 **Sampling Date** 5/28/2014 **Date/Time Received** 6/4/2014 12:00 PM
Client Sample ID 1405C00-003L / LDG T2 55-7, MAY 14 **Sampling Time** 1:00 PM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Total P	ND	mg/L	0.01	6/5/2014	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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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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

Wednesday, June 11, 2014

Page 1 of 1

ANALYTICAL RESULTS

Project: 1405C00
Pace Project No.: 30121630

Sample: 1405C00-001KM LDG T2 **Lab ID:** 30121630001 **Collected:** 05/28/14 12:20 **Received:** 05/30/14 09:40 **Matrix:** Water
45-7, MAY

PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	2,500 ± 456 (51.3) C:NA T:NA	pCi/L	05/31/14 01:31	10043-92-2	
Radium-226	EPA 903.1	3.23 ± 1.03 (0.639) C:NA T:93%	pCi/L	06/17/14 15:16	13982-63-3	
Radium-228	EPA 904.0	0.478 ± 0.410 (0.825) C:72% T:82%	pCi/L	06/17/14 11:31	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1405C00
Pace Project No.: 30121856

Sample: 1405C00-003KM LDG T2 **Lab ID:** 30121856001 **Collected:** 05/28/14 13:00 **Received:** 06/03/14 09:30 **Matrix:** Water
55-7, MAY

PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	876 ± 181 (97.1) C:NA T:NA	pCi/L	06/03/14 19:01	10043-92-2	
Radium-226	EPA 903.1	4.34 ± 1.22 (0.650) C:NA T:84%	pCi/L	06/18/14 11:10	13982-63-3	
Radium-228	EPA 904.0	0.615 ± 0.382 (0.711) C:72% T:83%	pCi/L	06/19/14 12:31	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Date: 06/20/2014 04:28 PM

QUALITY CONTROL DATA

Project: 1405C00
Pace Project No.: 30121630

QC Batch:	RADC/19975	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30121630001		

METHOD BLANK: 737311 Matrix: Water

Associated Lab Samples: 30121630001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0758 ± 0.346 (0.704) C:NA T:92%	pCi/L	06/17/14 14:45	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Date: 06/18/2014 09:29 AM

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QUALITY CONTROL DATA

Project: 1405C00
Pace Project No.: 30121630

QC Batch:	RADC/19967	Analysis Method:	SM 7500Rn-B
QC Batch Method:	SM 7500Rn-B	Analysis Description:	7500Rn B Radon
Associated Lab Samples:	30121630001		

METHOD BLANK:	736777	Matrix:	Water
Associated Lab Samples:	30121630001		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radon	11.3 ± 19.1 (32.3) C:NA T:NA	pCi/L	05/30/14 22:22	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1405C00
Pace Project No.: 30121630

QC Batch:	RADC/19977	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30121630001		

METHOD BLANK:	737313	Matrix:	Water
Associated Lab Samples:	30121630001		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	1.20 ± 0.815 (1.39) C:76% T:33%	pCi/L	06/17/14 11:30	

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REPORT OF LABORATORY ANALYSIS

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Date: 06/18/2014 09:29 AM

QUALITY CONTROL DATA

Project: 1405C00
Pace Project No.: 30121856

QC Batch:	RADC/20024	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30121856001		

METHOD BLANK:	738952	Matrix:	Water
Associated Lab Samples:	30121856001		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.193 ± 0.379 (0.906) C:NA T:95%	pCi/L	06/18/14 10:25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Date: 06/20/2014 04:28 PM

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QUALITY CONTROL DATA

Project: 1405C00
Pace Project No.: 30121856

QC Batch:	RADC/20026	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30121856001		

METHOD BLANK:	738954	Matrix:	Water
Associated Lab Samples:	30121856001		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0435 ± 0.293 (0.652) C:80% T:81%	pCi/L	06/19/14 12:28	

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REPORT OF LABORATORY ANALYSIS

Date: 06/20/2014 04:28 PM

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QUALITY CONTROL DATA

Project: 1405C00
Pace Project No.: 30121856

QC Batch:	RADC/19999	Analysis Method:	SM 7500Rn-B
QC Batch Method:	SM 7500Rn-B	Analysis Description:	7500Rn B Radon
Associated Lab Samples:	30121856001		

METHOD BLANK: 738111 Matrix: Water
Associated Lab Samples: 30121856001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radon	3.6 ± 18.1 (31.3) C:NA T:NA	pCi/L	06/03/14 18:03	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Date: 06/20/2014 04:28 PM

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R19064	RunNo:	19064					
Prep Date:		Analysis Date:	6/5/2014	SeqNo:	550882	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								
Sodium	ND	1.0								
	ND	0.010								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R19064	RunNo:	19064					
Prep Date:		Analysis Date:	6/5/2014	SeqNo:	550883	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.57	0.020	0.5000	0	114	85	115			
Barium	0.50	0.0020	0.5000	0	99.5	85	115			
Boron	0.53	0.040	0.5000	0	106	85	115			
Cadmium	0.50	0.0020	0.5000	0	101	85	115			
Calcium	49	1.0	50.00	0	98.8	85	115			
Chromium	0.50	0.0060	0.5000	0	99.4	85	115			
Cobalt	0.48	0.0060	0.5000	0	96.6	85	115			
Copper	0.50	0.0060	0.5000	0	99.6	85	115			
Iron	0.50	0.020	0.5000	0	99.2	85	115			
Magnesium	50	1.0	50.00	0	99.1	85	115			
Manganese	0.49	0.0020	0.5000	0	97.8	85	115			
Molybdenum	0.52	0.0080	0.5000	0	103	85	115			
Nickel	0.48	0.010	0.5000	0	95.5	85	115			
Potassium	48	1.0	50.00	0	96.5	85	115			
Silver	0.10	0.0050	0.1000	0	103	85	115			
Sodium	48	1.0	50.00	0	95.9	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R19064	RunNo:	19064					
Prep Date:		Analysis Date:	6/5/2014	SeqNo:	550883	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.49	0.010	0.5000	0	98.6	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R19187		RunNo: 19187					
Prep Date:			Analysis Date: 6/11/2014		SeqNo: 554662		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	98.5	85	115			
Lead	0.025	0.0010	0.02500	0	98.3	85	115			
Selenium	0.024	0.0010	0.02500	0	96.1	85	115			
Uranium	0.026	0.0010	0.02500	0	104	85	115			

Sample ID	MB	SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals						
Client ID:	PBW	Batch ID: R19187		RunNo: 19187						
Prep Date:		Analysis Date: 6/11/2014		SeqNo: 554663		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	LCS	SampType: LCS		TestCode: EPA 200.8: Dissolved Metals						
t ID:	LCSW	Batch ID: R19187		RunNo: 19187						
Prep Date:	Analysis Date: 6/11/2014		SeqNo: 555153		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	96.5	85	115			
Lead	0.024	0.0010	0.02500	0	97.1	85	115			
Selenium	0.023	0.0010	0.02500	0	91.8	85	115			
Uranium	0.025	0.0010	0.02500	0	101	85	115			

Sample ID	MB	SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	PBW	Batch ID:	R19187		RunNo:	19187				
Prep Date:		Analysis Date:	6/11/2014		SeqNo:	555154		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.	B	Analyte detected in the associated Method Blank
Value above quantitation range	H	Holding times for preparation or analysis exceeded
Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
RSD is greater than RSDlimit	P	Sample pH greater than 2.
RPD outside accepted recovery limits	RL	Reporting Detection Limit
Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	MB-13426	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	13426	RunNo:	18949					
Prep Date:	5/29/2014	Analysis Date:	5/30/2014	SeqNo:	547482	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-13426	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	13426	RunNo:	18949					
Prep Date:	5/29/2014	Analysis Date:	5/30/2014	SeqNo:	547483	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.9	80	120			

Sample ID	MB-13517	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	13517	RunNo:	19053					
Prep Date:	6/4/2014	Analysis Date:	6/5/2014	SeqNo:	550598	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-13517	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	13517	RunNo:	19053					
Prep Date:	6/4/2014	Analysis Date:	6/5/2014	SeqNo:	550599	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.7	80	120			

Sample ID	1405C00-003GMS	SampType:	MS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LDG T2 55-7, MAY '1	Batch ID:	13517	RunNo:	19053					
Prep Date:	6/4/2014	Analysis Date:	6/5/2014	SeqNo:	550601	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	93.0	75	125			

Sample ID	1405C00-003GMSD	SampType:	MSD	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LDG T2 55-7, MAY '1	Batch ID:	13517	RunNo:	19053					
Prep Date:	6/4/2014	Analysis Date:	6/5/2014	SeqNo:	550602	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	92.5	75	125	0.479	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	A5		SampType:	CCV_5		TestCode:	EPA Method 300.0: Anions			
Client ID:	BatchQC		Batch ID:	R18947		RunNo:	18947			
Prep Date:			Analysis Date:	5/29/2014		SeqNo:	547373		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	92.1	90	110			
Chloride	7.7	0.50	8.000	0	96.8	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.0	90	110			
Bromide	7.9	0.10	8.000	0	98.7	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P)	7.6	0.50	8.000	0	95.3	90	110			
Sulfate	20	0.50	20.00	0	99.3	90	110			

Sample ID	MB		SampType:	MBLK		TestCode:	EPA Method 300.0: Anions			
Client ID:	PBW		Batch ID:	R18947		RunNo:	18947			
Prep Date:			Analysis Date:	5/29/2014		SeqNo:	547375		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								
Nitrogen, Nitrite (As N)	ND	0.10								
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			
Client ID:	LCSW		Batch ID:	R18947		RunNo:	18947			
Prep Date:			Analysis Date:	5/29/2014		SeqNo:	547376		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.46	0.10	0.5000	0	92.3	90	110			
Chloride	4.6	0.50	5.000	0	92.1	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.7	90	110			
Bromide	2.4	0.10	2.500	0	95.3	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.9	90	110			
Phosphorus, Orthophosphate (As P)	4.6	0.50	5.000	0	92.5	90	110			
Sulfate	9.4	0.50	10.00	0	94.2	90	110			

Sample ID	1405C00-001FMS		SampType:	MS		TestCode:	EPA Method 300.0: Anions			
Client ID:	LDG T2 45-7, MAY '1		Batch ID:	R18947		RunNo:	18947			
Prep Date:			Analysis Date:	5/29/2014		SeqNo:	547379		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.89	0.10	1.000	0	89.5	75.5	104			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	1405C00-001FMS	SampType:	MS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LDG T2 45-7, MAY '1	Batch ID:	R18947	RunNo:	18947					
Prep Date:		Analysis Date:	5/29/2014	SeqNo:	547379	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	2.6	0.10	2.500	0.2635	94.8	85.1	108			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.2	87.8	111			
Phosphorus, Orthophosphate (As P)	4.5	0.50	5.000	0	91.0	81.3	101			

Sample ID	1405C00-001FMSD	SampType:	MSD	TestCode:	EPA Method 300.0: Anions					
Client ID:	LDG T2 45-7, MAY '1	Batch ID:	R18947	RunNo:	18947					
Prep Date:		Analysis Date:	5/29/2014	SeqNo:	547380	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.89	0.10	1.000	0	88.9	75.5	104	0.605	20	
Bromide	2.6	0.10	2.500	0.2635	94.0	85.1	108	0.720	20	
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.4	87.8	111	0.887	20	
Phosphorus, Orthophosphate (As P)	4.5	0.50	5.000	0	90.3	81.3	101	0.742	20	

Sample ID	A6	SampType: CCV_6			TestCode: EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID: R18947			RunNo: 18947					
Prep Date:		Analysis Date: 5/29/2014			SeqNo: 547385		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	96.4	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	101	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	99.8	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID	A4	SampType: CCV_4			TestCode: EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID: R18947			RunNo: 18947					
Prep Date:		Analysis Date: 5/29/2014			SeqNo: 547397		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	96.0	90	110			
Chloride	4.8	0.50	5.000	0	95.8	90	110			
Nitrogen, Nitrite (As N)	1.9	0.10	2.000	0	97.3	90	110			
Bromide	4.9	0.10	5.000	0	98.0	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.9	90	110			
Sulfate	12	0.50	12.50	0	98.2	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R18947	RunNo:	18947					
Prep Date:		Analysis Date:	5/29/2014	SeqNo:	547409	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	96.0	90	110			
Chloride	7.8	0.50	8.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.8	90	110			
Bromide	7.9	0.10	8.000	0	98.8	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P)	7.8	0.50	8.000	0	97.1	90	110			
Sulfate	20	0.50	20.00	0	99.5	90	110			

Sample ID	A6	SampType:	CCV_6	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R18947	RunNo:	18947					
Prep Date:		Analysis Date:	5/29/2014	SeqNo:	547421	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	98.0	90	110			
Chloride	12	0.50	12.00	0	100	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	101	90	110			
Phosphate	12	0.10	12.00	0	99.8	90	110			
Nitrogen, Nitrate (As N)	7.6	0.10	7.200	0	106	90	110			
Phosphorus, Orthophosphate (As P)	12	0.50	12.00	0	100	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R18947	RunNo:	18947					
Prep Date:		Analysis Date:	5/30/2014	SeqNo:	547441	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	97.4	90	110			
Chloride	7.7	0.50	8.000	0	96.6	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.5	90	110			
Bromide	7.9	0.10	8.000	0	98.3	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			
Phosphorus, Orthophosphate (As P)	7.8	0.50	8.000	0	97.0	90	110			
Sulfate	20	0.50	20.00	0	99.1	90	110			

Sample ID	A6	SampType:	CCV_6	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R19002	RunNo:	19002					
Prep Date:		Analysis Date:	6/2/2014	SeqNo:	549165	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	99.0	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	A6	SampType:	CCV_6	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R19002	RunNo:	19002					
Prep Date:		Analysis Date:	6/2/2014	SeqNo:	549165	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Bromide	12	0.10	12.00	0	101	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	99.0	90	110			
Sulfate	31	0.50	30.00	0	102	90	110			
Nitrate+Nitrite as N	12	0.20	12.00	0	104	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R19002	RunNo:	19002					
Prep Date:		Analysis Date:	6/2/2014	SeqNo:	549167	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								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R19002	RunNo:	19002					
Prep Date:		Analysis Date:	6/2/2014	SeqNo:	549168	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	105	90	110			
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Bromide	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	98.5	90	110			
Sulfate	9.9	0.50	10.00	0	98.6	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID	A4	SampType:	CCV_4	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R19002	RunNo:	19002					
Prep Date:		Analysis Date:	6/2/2014	SeqNo:	549177	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	97.4	90	110			
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Bromide	4.9	0.10	5.000	0	97.0	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.7	90	110			
Sulfate	12	0.50	12.50	0	94.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19002		RunNo: 19002							
Prep Date:	Analysis Date: 6/2/2014		SeqNo: 549177		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	96.3	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19002		RunNo: 19002							
Prep Date:	Analysis Date: 6/2/2014		SeqNo: 549189		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	100	90	110			
Chloride	7.8	0.50	8.000	0	97.9	90	110			
Bromide	8.0	0.10	8.000	0	100	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.5	90	110			
Sulfate	20	0.50	20.00	0	99.1	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	90	110			

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19002		RunNo: 19002							
Date:	Analysis Date: 6/2/2014		SeqNo: 549201		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	101	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	101	90	110			
Sulfate	31	0.50	30.00	0	104	90	110			
Nitrate+Nitrite as N	13	0.20	12.00	0	106	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19002		RunNo: 19002							
Prep Date:	Analysis Date: 6/2/2014		SeqNo: 549213		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.98	0.10	1.000	0	98.4	90	110			
Chloride	4.7	0.50	5.000	0	93.0	90	110			
Bromide	4.8	0.10	5.000	0	97.0	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.2	90	110			
Sulfate	12	0.50	12.50	0	95.2	90	110			
Nitrate+Nitrite as N	4.8	0.20	5.000	0	97.0	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R19002	RunNo:	19002					
Prep Date:		Analysis Date:	6/2/2014	SeqNo:	549219	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								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R19002	RunNo:	19002					
Prep Date:		Analysis Date:	6/2/2014	SeqNo:	549220	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	103	90	110			
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Bromide	2.5	0.10	2.500	0	99.6	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.2	90	110			
Sulfate	9.6	0.50	10.00	0	96.1	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.3	90	110			

Sample ID	A5	SampType:	CCV_5	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R19002	RunNo:	19002					
Prep Date:		Analysis Date:	6/2/2014	SeqNo:	549225	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	99.7	90	110			
Chloride	7.8	0.50	8.000	0	97.3	90	110			
Bromide	8.0	0.10	8.000	0	99.4	90	110			
Phosphorus, Orthophosphate (As P	7.7	0.50	8.000	0	96.8	90	110			
Sulfate	20	0.50	20.00	0	99.0	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	90	110			

Sample ID	1405C00-003FMS	SampType:	MS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LDG T2 55-7, MAY '1	Batch ID:	R19002	RunNo:	19002					
Prep Date:		Analysis Date:	6/2/2014	SeqNo:	549228	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	2.8	0.10	2.500	0.2628	101	85.1	108			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.0	81.3	101			H

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	1405C00-003FMSD			SampType:	MSD		TestCode:	EPA Method 300.0: Anions			
Client ID:	LDG T2 55-7, MAY '1			Batch ID:	R19002		RunNo:	19002			
Prep Date:				Analysis Date:	6/2/2014		SeqNo:	549229		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Bromide	2.8	0.10	2.500	0.2628	102	85.1	108	0.727	20		
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.3	81.3	101	1.36	20	H	

Sample ID	A6	SampType: CCV_6			TestCode: EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID: R19002			RunNo: 19002					
Prep Date:		Analysis Date: 6/3/2014			SeqNo: 549237		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	101	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	101	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			
Nitrate+Nitrite as N	13	0.20	12.00	0	105	90	110			

Sample ID	A4	SampType: CCV_4			TestCode: EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID: R19002			RunNo: 19002					
Prep Date:		Analysis Date: 6/3/2014			SeqNo: 549249		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.98	0.10	1.000	0	97.9	90	110			
Chloride	4.7	0.50	5.000	0	93.3	90	110			
Bromide	4.9	0.10	5.000	0	97.4	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.9	90	110			
Sulfate	14	0.50	12.50	0	112	90	110			S
Nitrate+Nitrite as N	4.8	0.20	5.000	0	96.9	90	110			

Sample ID	A5	SampType: CCV_5			TestCode: EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID: R19002			RunNo: 19002					
Prep Date:		Analysis Date: 6/3/2014			SeqNo: 549258		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	101	90	110			
Chloride	7.8	0.50	8.000	0	97.4	90	110			
Bromide	8.0	0.10	8.000	0	99.5	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.1	90	110			
Sulfate	20	0.50	20.00	0	99.3	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	A6	SampType:	CCV_6	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R19002	RunNo:	19002					
Prep Date:		Analysis Date:	6/3/2014	SeqNo:	549267	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	101	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	100	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			
Nitrate+Nitrite as N	13	0.20	12.00	0	105	90	110			

Sample ID	A4	SampType:	CCV_4	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R19002	RunNo:	19002					
Prep Date:		Analysis Date:	6/3/2014	SeqNo:	549279	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.98	0.10	1.000	0	97.9	90	110			
Chloride	4.7	0.50	5.000	0	93.3	90	110			
Bromide	4.9	0.10	5.000	0	98.2	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.0	90	110			
Sulfate	12	0.50	12.50	0	95.4	90	110			
Nitrate+Nitrite as N	4.8	0.20	5.000	0	96.9	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	MB-13416	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH					
Client ID:	PBW	Batch ID:	13416	RunNo:	18913					
Prep Date:	5/29/2014	Analysis Date:	5/29/2014	SeqNo:	546423	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-13416	SampType:	LCS	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSW	Batch ID:	13416	RunNo:	18913					
Prep Date:	5/29/2014	Analysis Date:	5/29/2014	SeqNo:	546424	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	5.0	1.0	5.000	0	100	80	120			

Sample ID	LCSD-13416	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	13416	RunNo:	18913					
Prep Date:	5/29/2014	Analysis Date:	5/29/2014	SeqNo:	546425	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	5.2	1.0	5.000	0	105	80	120	4.10	20	

Sample ID	MB-13491	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH					
Client ID:	PBW	Batch ID:	13491	RunNo:	19032					
Prep Date:	6/3/2014	Analysis Date:	6/4/2014	SeqNo:	550017	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-13491	SampType:	LCS	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSW	Batch ID:	13491	RunNo:	19032					
Prep Date:	6/3/2014	Analysis Date:	6/4/2014	SeqNo:	550018	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	4.8	1.0	5.000	0	96.4	80	120			

Sample ID	LCSD-13491	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	13491	RunNo:	19032					
Prep Date:	6/3/2014	Analysis Date:	6/4/2014	SeqNo:	550019	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	4.5	1.0	5.000	0	89.2	80	120	7.76	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	MB-13431	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	13431	RunNo:	18924					
Prep Date:	5/29/2014	Analysis Date:	5/29/2014	SeqNo:	546714	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-13431	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	13431	RunNo:	18924					
Prep Date:	5/29/2014	Analysis Date:	5/29/2014	SeqNo:	546715	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.095	0.010	0.1000	0	95.0	70	130			

Sample ID	1405C00-001DMS	SampType:	MS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LDG T2 45-7, MAY '1	Batch ID:	13431	RunNo:	18924					
Prep Date:	5/29/2014	Analysis Date:	5/29/2014	SeqNo:	546733	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	0.004000	106	55.2	157			

Sample ID	1405C00-001DMSD	SampType:	MSD	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LDG T2 45-7, MAY '1	Batch ID:	13431	RunNo:	18924					
Prep Date:	5/29/2014	Analysis Date:	5/29/2014	SeqNo:	546734	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	0.004000	105	55.2	157	0.913	23.4	

Sample ID	MB-13485	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	13485	RunNo:	18998					
Prep Date:	6/3/2014	Analysis Date:	6/3/2014	SeqNo:	549354	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-13485	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	13485	RunNo:	18998					
Prep Date:	6/3/2014	Analysis Date:	6/3/2014	SeqNo:	549355	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.078	0.010	0.1000	0	78.0	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	1405C00-003DMS	SampType:	MS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LDG T2 55-7, MAY '1	Batch ID:	13485	RunNo:	18998					
Prep Date:	6/3/2014	Analysis Date:	6/3/2014	SeqNo:	549357	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.076	0.010	0.1000	0	76.0	55.2	157			

Sample ID	1405C00-003DMSD	SampType:	MSD	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LDG T2 55-7, MAY '1	Batch ID:	13485	RunNo:	18998					
Prep Date:	6/3/2014	Analysis Date:	6/3/2014	SeqNo:	549367	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.080	0.010	0.1000	0	80.0	55.2	157	5.13	23.4	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	MB-13421	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	13421	RunNo:	19001					
Prep Date:	5/29/2014	Analysis Date:	6/3/2014	SeqNo:	549317	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.59		0.5000		119	76	161			

Sample ID	LCS-13421	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	13421	RunNo:	19001					
Prep Date:	5/29/2014	Analysis Date:	6/3/2014	SeqNo:	549344	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	120	79.2	165			
Surr: DNOP	0.30		0.2500		120	76	161			

Sample ID	1405C00-001CMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LDG T2 45-7, MAY '1	Batch ID:	13421	RunNo:	19001					
Prep Date:	5/29/2014	Analysis Date:	6/3/2014	SeqNo:	549394	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.4	0.20	2.500	0	135	72.1	156			
Surr: DNOP	0.34		0.2500		138	76	161			

Sample ID	1405C00-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LDG T2 45-7, MAY '1	Batch ID:	13421	RunNo:	19001					
Prep Date:	5/29/2014	Analysis Date:	6/3/2014	SeqNo:	549395	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.5	0.20	2.500	0	101	72.1	156	29.1	20	R
Surr: DNOP	0.30		0.2500		122	76	161	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R18994	RunNo:	18994					
Prep Date:		Analysis Date:	6/2/2014	SeqNo:	548796	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		96.3	70.9	130			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R18994	RunNo:	18994					
Prep Date:		Analysis Date:	6/2/2014	SeqNo:	548797	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.0	80	120			
Surr: BFB	20		20.00		100	70.9	130			

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R19041	RunNo:	19041					
Prep Date:		Analysis Date:	6/4/2014	SeqNo:	550248	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		97.0	70.9	130			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R19041	RunNo:	19041					
Prep Date:		Analysis Date:	6/4/2014	SeqNo:	550249	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	105	80	120			
Surr: BFB	22		20.00		108	70.9	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	MB-13508	SampType:	MBLK	TestCode:	EPA Method 8082: PCB's					
Client ID:	PBW	Batch ID:	13508	RunNo:	19027					
Prep Date:	6/4/2014	Analysis Date:	6/4/2014	SeqNo:	549853	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	2.3		2.500		90.0	33.2	131			
Surr: Tetrachloro-m-xylene	1.9		2.500		76.8	34.7	138			

Sample ID	LCS-13508	SampType:	LCS	TestCode:	EPA Method 8082: PCB's					
Client ID:	LCSW	Batch ID:	13508	RunNo:	19027					
Prep Date:	6/4/2014	Analysis Date:	6/4/2014	SeqNo:	550008	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.9	1.0	5.000	0	58.0	15	134			
Aroclor 1260	4.7	1.0	5.000	0	93.8	32.1	148			
Surr: Decachlorobiphenyl	2.6		2.500		105	33.2	131			
Surr: Tetrachloro-m-xylene	2.2		2.500		87.6	34.7	138			

Sample ID	1405C00-001EMS	SampType:	MS	TestCode:	EPA Method 8082: PCB's					
Client ID:	LDG T2 45-7, MAY '1	Batch ID:	13508	RunNo:	19046					
Prep Date:	6/4/2014	Analysis Date:	6/5/2014	SeqNo:	550267	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.6	1.0	5.000	0	52.3	32	95.3			
Aroclor 1260	3.9	1.0	5.000	0	78.0	32.8	113			
Surr: Decachlorobiphenyl	2.4		2.500		97.6	33.2	131			
Surr: Tetrachloro-m-xylene	2.2		2.500		89.2	34.7	138			

Sample ID	1405C00-001EMSD	SampType:	MSD	TestCode:	EPA Method 8082: PCB's					
Client ID:	LDG T2 45-7, MAY '1	Batch ID:	13508	RunNo:	19046					
Prep Date:	6/4/2014	Analysis Date:	6/5/2014	SeqNo:	550269	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.2	1.0	5.000	0	44.9	32	95.3	15.1	20	
Aroclor 1260	3.5	1.0	5.000	0	70.4	32.8	113	10.2	27.6	
Surr: Decachlorobiphenyl	2.1		2.500		82.4	33.2	131	0	0	
Surr: Tetrachloro-m-xylene	2.1		2.500		82.8	34.7	138	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	5mL-rb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R18955			RunNo: 18955					
Prep Date:		Analysis Date: 5/30/2014			SeqNo: 547645		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								
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.	B	Analyte detected in the associated Method Blank
Value above quantitation range	H	Holding times for preparation or analysis exceeded
Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
RSD is greater than RSDlimit	P	Sample pH greater than 2.
RPD outside accepted recovery limits	RL	Reporting Detection Limit
Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	5mL-rb2	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R18955	RunNo:	18955					
Prep Date:		Analysis Date:	5/30/2014	SeqNo:	547645	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	9.7		10.00		96.6	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		91.7	70	130			
Surr: Dibromofluoromethane	9.5		10.00		94.8	70	130			
Surr: Toluene-d8	9.2		10.00		92.0	70	130			

Sample ID	100ngLcs200ngAnn	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R18955	RunNo:	18955					
Prep Date:		Analysis Date:	5/30/2014	SeqNo:	547647	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	17	1.0	20.00	0	86.8	70	130			
Toluene	17	1.0	20.00	0	85.5	80	120			
Chlorobenzene	17	1.0	20.00	0	84.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	100ngLcs200ngAnn	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R18955	RunNo:	18955					
Prep Date:		Analysis Date:	5/30/2014	SeqNo:	547647	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	17	1.0	20.00	0	84.0	90	143			S
Trichloroethene (TCE)	16	1.0	20.00	0	78.4	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.6	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.2	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.1	70	130			
Surr: Toluene-d8	9.3		10.00		93.1	70	130			

Sample ID	b2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R18955			RunNo: 18955					
Prep Date:		Analysis Date: 5/30/2014			SeqNo: 548070		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								
1,1,1-Trimethylbenzene	ND	1.0								
1,2,3-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.	B	Analyte detected in the associated Method Blank
Value above quantitation range	H	Holding times for preparation or analysis exceeded
Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
RSD is greater than RSDlimit	P	Sample pH greater than 2.
RPD outside accepted recovery limits	RL	Reporting Detection Limit
Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID b2	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R18955		RunNo: 18955							
Prep Date:	Analysis Date: 5/30/2014		SeqNo: 548070		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								
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	9.5		10.00		95.4	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID b2	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R18955		RunNo: 18955							
Prep Date:	Analysis Date: 5/30/2014		SeqNo: 548070		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	9.4		10.00		93.8	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.1	70	130			
Surr: Toluene-d8	9.2		10.00		92.1	70	130			

Sample ID 100ng lcs	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R18955		RunNo: 18955							
Prep Date:	Analysis Date: 5/30/2014		SeqNo: 548072		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	109	70	130			
Toluene	22	1.0	20.00	0	108	80	120			
Chlorobenzene	21	1.0	20.00	0	107	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	104	90	143			
Trichloroethene (TCE)	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.7	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.0	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.6	70	130			
Surr: Toluene-d8	9.2		10.00		92.1	70	130			

Sample ID 5mL-rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R19006		RunNo: 19006							
Prep Date:	Analysis Date: 6/3/2014		SeqNo: 549359		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								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID: 5mL-rb	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: R19006	RunNo: 19006								
Prep Date:	Analysis Date: 6/3/2014	SeqNo: 549359	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
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								

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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	5mL-rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R19006	RunNo:	19006					
Prep Date:		Analysis Date:	6/3/2014	SeqNo:	549359	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	9.4		10.00		94.3	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.1	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.5	70	130			
Surr: Toluene-d8	8.9		10.00		89.1	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R19006	RunNo:	19006					
Prep Date:		Analysis Date:	6/3/2014	SeqNo:	549361	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	101	80	120			
Chlorobenzene	20	1.0	20.00	0	101	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	97.7	90	143			
Trichloroethene (TCE)	19	1.0	20.00	0	95.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.4	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		90.1	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.3	70	130			
Surr: Toluene-d8	8.9		10.00		89.0	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	MB-13509	SampType:	MBLK	TestCode:	EPA Method 8310: PAHs					
Client ID:	PBW	Batch ID:	13509	RunNo:	19045					
Prep Date:	6/4/2014	Analysis Date:	6/4/2014	SeqNo:	550193	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	16		20.00		80.2	32.1	134			

Sample ID	1405C00-003EMS	SampType:	MS	TestCode:	EPA Method 8310: PAHs					
Client ID:	LDG T2 55-7, MAY '1	Batch ID:	13509	RunNo:	19045					
Prep Date:	6/4/2014	Analysis Date:	6/4/2014	SeqNo:	550199	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	47	2.0	80.00	0	58.6	25.2	109			
1-Methylnaphthalene	38	2.0	80.20	0	47.8	20.9	107			
2-Methylnaphthalene	35	2.0	80.00	0	44.2	13.9	113			
Acenaphthylene	52	2.5	80.20	0	64.2	30.1	121			
Acenaphthene	39	5.0	80.00	0	48.9	21.4	114			
Fluorene	3.9	0.80	8.020	0	48.3	22.6	117			
Phenanthrene	2.7	0.60	4.020	0	65.9	33.3	120			
Anthracene	2.4	0.60	4.020	0	60.0	32.3	116			
Fluoranthene	4.7	0.30	8.020	0	58.4	34.8	122			
Pyrene	4.9	0.30	8.020	0	61.1	30	113			
Benz(a)anthracene	0.48	0.070	0.8020	0	59.9	28.4	127			
Chrysene	2.4	0.20	4.020	0	59.2	29.3	112			
Benzo(b)fluoranthene	0.59	0.10	1.002	0	58.9	29.4	137			
Benzo(k)fluoranthene	0.31	0.070	0.5000	0	62.0	34.4	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	1405C00-003EMS		SampType:	MS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LDG T2 55-7, MAY '1		Batch ID:	13509		RunNo:	19045			
Prep Date:	6/4/2014		Analysis Date:	6/4/2014		SeqNo:	550199		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.31	0.070	0.5020	0	61.8	34.5	116			
Dibenz(a,h)anthracene	0.61	0.12	1.002	0	60.9	21.3	115			
Benzo(g,h,i)perylene	0.62	0.12	1.000	0.05000	57.0	28.2	124			
Indeno(1,2,3-cd)pyrene	1.2	0.25	2.004	0	60.4	20.3	121			
Surr: Benzo(e)pyrene	16		20.00		80.2	32.1	134			

Sample ID	1405C00-003EMSD		SampType:	MSD		TestCode:	EPA Method 8310: PAHs			
Client ID:	LDG T2 55-7, MAY '1		Batch ID:	13509		RunNo:	19045			
Prep Date:	6/4/2014		Analysis Date:	6/4/2014		SeqNo:	550200		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	25.2	109	15.3	20	
1-Methylnaphthalene	38	2.0	80.20	0	47.7	20.9	107	0.235	20	
2-Methylnaphthalene	37	2.0	80.00	0	46.2	13.9	113	4.42	20	
Acenaphthylene	45	2.5	80.20	0	55.8	30.1	121	14.1	20	
Acenaphthene	39	5.0	80.00	0	48.3	21.4	114	1.26	20	
Fluorene	3.8	0.80	8.020	0	47.5	22.6	117	1.56	20	
Fluoranthrene	2.2	0.60	4.020	0	54.5	33.3	120	19.0	20	
Anthracene	2.1	0.60	4.020	0	52.7	32.3	116	12.8	20	
Fluoranthene	4.1	0.30	8.020	0	51.4	34.8	122	12.7	20	
Pyrene	4.3	0.30	8.020	0	53.6	30	113	13.0	20	
Benz(a)anthracene	0.42	0.070	0.8020	0	52.4	28.4	127	13.3	20	
Chrysene	2.1	0.20	4.020	0	51.7	29.3	112	13.5	20	
Benzo(b)fluoranthene	0.51	0.10	1.002	0	50.9	29.4	137	14.5	20	
Benzo(k)fluoranthene	0.27	0.070	0.5000	0	54.0	34.4	130	13.8	20	
Benzo(a)pyrene	0.27	0.070	0.5020	0	53.8	34.5	116	13.8	20	
Dibenz(a,h)anthracene	0.54	0.12	1.002	0	53.9	21.3	115	12.2	20	
Benzo(g,h,i)perylene	0.54	0.12	1.000	0.05000	49.0	28.2	124	13.8	20	
Indeno(1,2,3-cd)pyrene	1.1	0.25	2.004	0	52.9	20.3	121	13.2	20	
Surr: Benzo(e)pyrene	14		20.00		70.4	32.1	134	0		

Sample ID	LCS-13509		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	13509		RunNo:	19045			
Prep Date:	6/4/2014		Analysis Date:	6/4/2014		SeqNo:	550206		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	56	2.0	80.00	0	69.5	41	76.8			
1-Methylnaphthalene	52	2.0	80.20	0	65.1	24.7	81			
2-Methylnaphthalene	49	2.0	80.00	0	61.0	17.4	81.9			
Acenaphthylene	61	2.5	80.20	0	75.6	50.3	77.5			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	LCS-13509		SampType: LCS			TestCode: EPA Method 8310: PAHs				
Client ID:	LCSW		Batch ID: 13509			RunNo: 19045				
Prep Date:	6/4/2014		Analysis Date: 6/4/2014			SeqNo: 550206		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	56	5.0	80.00	0	70.5	27.7	81.1			
Fluorene	5.8	0.80	8.020	0	72.3	34.2	75.1			
Phenanthrene	3.4	0.60	4.020	0	83.6	44.6	88.3			
Anthracene	3.3	0.60	4.020	0	81.3	41.9	85.3			
Fluoranthene	6.5	0.30	8.020	0	81.4	40.6	88			
Pyrene	6.8	0.30	8.020	0	84.9	41	86.6			
Benz(a)anthracene	0.61	0.070	0.8020	0	76.1	43.8	86.7			
Chrysene	2.9	0.20	4.020	0	72.9	44.5	80.7			
Benzo(b)fluoranthene	0.82	0.10	1.002	0	81.8	44.3	87.1			
Benzo(k)fluoranthene	0.45	0.070	0.5000	0	90.0	39.9	94.3			
Benzo(a)pyrene	0.44	0.070	0.5020	0	87.6	44	86.5			S
Dibenz(a,h)anthracene	0.86	0.12	1.002	0	85.8	48.8	83.6			S
Benzo(g,h,i)perylene	0.82	0.12	1.000	0	82.0	43.6	84.5			
Indeno(1,2,3-cd)pyrene	1.5	0.25	2.004	0	75.8	49.2	91.1			
Surr: Benzo(e)pyrene	25		20.00		124	32.1	134			

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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	MB-13713	SampType:	MBLK	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID:	13713	RunNo:	19277					
Prep Date:	6/16/2014	Analysis Date:	6/16/2014	SeqNo:	557314	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-13713	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	13713	RunNo:	19277					
Prep Date:	6/16/2014	Analysis Date:	6/16/2014	SeqNo:	557315	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	17	2.5	20.00	0	85.2	75.7	126			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Client: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	MB-13457	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	13457	RunNo:	18986					
Prep Date:	6/1/2014	Analysis Date:	6/2/2014	SeqNo:	548520	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-13457	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	13457	RunNo:	18986					
Prep Date:	6/1/2014	Analysis Date:	6/2/2014	SeqNo:	548521	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Sample ID	MB-13486	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	13486	RunNo:	19043					
Prep Date:	6/3/2014	Analysis Date:	6/4/2014	SeqNo:	550143	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-13486	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	13486	RunNo:	19043					
Prep Date:	6/3/2014	Analysis Date:	6/4/2014	SeqNo:	550144	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1405C00

24-Jun-14

Location: Lightning Dock Geothermal
Project: LDG T2 45-7, LDG 55-7 May '14

Sample ID	MB-13596	SampType:	MBLK	TestCode:	SM 4500 Norg C: TKN					
Client ID:	PBW	Batch ID:	13596	RunNo:	19162					
Prep Date:	6/10/2014	Analysis Date:	6/10/2014	SeqNo:	553802	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID	LCS-13596	SampType:	LCS	TestCode:	SM 4500 Norg C: TKN					
Client ID:	LCSW	Batch ID:	13596	RunNo:	19162					
Prep Date:	6/10/2014	Analysis Date:	6/10/2014	SeqNo:	553803	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	80	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.
- RL Reporting Detection Limit



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: LIGHTNING DOCK GEO

Work Order Number: 1405C00

RcptNo: 1

Received by/date:

Logged By:

Lindsay Mangin

5/29/2014 7:20:00 AM

Completed By:

Lindsay Mangin

5/29/2014 8:32:25 AM

Reviewed By:

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? UPS

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly 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 broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ 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.) Yes ☒ No ☐

of preserved bottles checked for pH: $9 + 10 + 1 = 2$
(<2 or >12 unless noted)
Adjusted? NO
Checked by: mg/cs

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

Cooler #s 2, 3, and 4 had temps. greater than 6 degrees. See COCs for individual cooler content.

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.4	Good	Yes			



**HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY**

*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: LIGHTNING DOCK GEO

Work Order Number: 1405C00

RcptNo: 1

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
2	8.4	Good	Yes			
3	20.9	Good	Yes			
4	14.6	Good	Yes			

PLASTICS

LIGHTNING DOCK GEOTHERMAL "TABLE 2"
 WQCC CONTAINERS FOR ONE SAMPLING EVENT
 SAMPLING EFFORT **LDG T2 45-7, MAY '14**

SAMPLE:
LDG T2 45-7, MAY '14
ICE CHEST #1
PLASTICS

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB	LABELLED AT LDG	SAMPLED AT LDG	SHIPPED TO LAB	TEST RESULTS FROM LAB
Anions, TDS, pH	1 x 500 mL unpreserved plastic 1 x 125 mL H ₂ SO ₄ plastic	X	X	X	X	
Mercury	1 x 500 mL HNO ₃ plastic	X	X	X	X	
Dissolved Metals + Li, Rb, W, Br	2 x 125 mL HNO ₃ plastics + filter ☒	X	X	X	X	
Total Cyanide	1 x 500 mL NaOH plastic amber	X	X	X	X	
Radium 226/228	2 x 1 L HNO ₃ plastics	X	X	X	X	
Phosphorous	1 x 500 mL H ₂ SO ₄ plastic	X	X	X	X	
Nitrate/Nitrite TKN	1 x 125 mL unpreserved plastic 1 x 500 mL H ₂ SO ₄ plastic	X	X	X	X	
Trip Blank		X	N/A	N/A	X	N/A

AMBERS VOAS

LIGHTNING DOCK GEOTHERMAL "TABLE 2"

WQCC CONTAINERS FOR ONE SAMPLING EVENT

SAMPLING EFFORT

LDG T2 45-7, MAY '14

SAMPLE:

LDG T2 45-7, MAY '14

ICE CHEST #2

AMBERS & VOAS

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB	LABELED AT LDG	SAMPLED AT LDG	SHIPPED TO LAB	TEST RESULTS FROM LAB
8260	3 x 40 mL HCl VOAs	X X X	X X X	X X X	X X X	
EDB-504.1	2 x 40 mL Na ₂ S ₂ O ₃ VOAs + QC	X X X	X X X	X X X	X X X	QC
8082-PCB	2 X 1 L unpreserved amber glasses + QC	X X X	X X X	X X X	X X X	QC
8310-PAH	1 x 1 L unpreserved amber glass + QC	X X X	X X X	X X X	X X X	QC
Phenols	1 x 1 L H ₂ SO ₄ amber glass + QC	X X X	X X X	X X X	X X X	QC
Radon	2 x 40 mL unpreserved VOAs	X X X	X X X	X X X	X X X	
418.1	1 x 500 mL HCl amber glass	X	X	X	X	
8015D Diesel / Motor oil range organics	1 X 500 mL unpreserved amber glass	X	X	X	X	
8015D Gasoline Range organics	2x 40 mL HCl VOAs	X X	X X	X X	X X	
Trip Blank		X	N/A	N/A	X	N/A

[Handwritten signature]

PLASTICS

LIGHTNING DOCK GEOTHERMAL "TABLE 2"
WQCC CONTAINERS FOR ONE SAMPLING EVENT

SAMPLING EFFORT

LDG T2 55-7. MAY '14

**SAMPLE:
LDG T2 55-7, MAY '14
ICE CHEST #3
PLASTICS**

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB	LABELED AT LDG	SAMPLED AT LDG	SHIPPED TO LAB	TEST RESULTS FROM LAB
Anions, TDS, pH	1 x 500 mL unpreserved plastic 1 x 125 mL H ₂ SO ₄ plastic	X	X	X	X	
Mercury	1 x 500 mL HNO ₃ plastic	X	X	X	X	
Dissolved Metals + Li, Rb, W, Br	2 x 125 mL HNO ₃ plastics + filter ~~X~~	X	X	X	X	
Total Cyanide	1 x 500 mL NaOH plastic amber	X	X	X	X	
Radium 226/228	2 x 1 L HNO ₃ plastics	X	X	X	X	
Phosphorous	1 x 500 mL H ₂ SO ₄ plastic	X	X	X	X	
Nitrate/Nitrite TKN	1 x 125 mL unpreserved plastic 1 x 500 mL H ₂ SO ₄ plastic	X	X	X	X	
Trip Blank		X	N/A	N/A	X	N/A

AMBERS VOAS

LIGHTNING DOCK GEOTHERMAL "TABLE 2"

WQCC CONTAINERS FOR ONE SAMPLING EVENT

SAMPLING EFFORT

LDG T2 55-7, MAY '14

SAMPLE:

LDG T2 55-7, MAY '14

ICE CHEST #4

AMBERS & VOAS

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB	LABELED AT LDG	SAMPLED AT LDG	SHIPPED TO LAB	TEST RESULTS FROM LAB
8260	3 x 40 mL HCl VOAs	X	X	X	X	
EDB-504.1	2 x 40 mL Na ₂ S ₂ O ₃ VOAs + QC	X	X	X	X	QC
8082-PCB	2 X 1 L unpreserved amber glasses + QC	X	X	X	X	QC
8310-PAH	1 x 1 L unpreserved amber glass + QC	X	X	X	X	QC
Phenols	1 x 1 L H ₂ SO ₄ amber glass + QC	X	X	X	X	QC
Radon	2 x 40 mL unpreserved VOAs	X	X	X	X	
418.1	1 x 500 mL HCl amber glass	X	X	X	X	
8015D Diesel / Motor oil range organics	1 X 500 mL unpreserved amber glass	X	X	X	X	
8015D Gasoline Range organics	2x 40 mL HCl VOAs	X	X	X	X	
Trip Blank		X	N/A	N/A	N/A	N/A



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

July 21, 2014

Kacie Peterson
Lightning Dock Geothermal
PO Box 86
Animas, NM 88020
TEL: (575) 548-0301
FAX

RE: LDG T2 55-7 JUN '14

OrderNo.: 1406C89

Dear Kacie Peterson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/27/2014 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 www.hallenvironmental.com 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
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406C89

Date Reported: 7/21/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, JUN '14

Project: LDG T2 55-7 JUN '14

Collection Date: 6/26/2014 9:41:00 AM

Lab ID: 1406C89-001

Matrix: AQUEOUS

Received Date: 6/27/2014 7:10:00 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	6/30/2014 10:23:27 PM	13978
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	7/1/2014 5:11:41 PM	13956
Aroclor 1221	ND	1.0		µg/L	1	7/1/2014 5:11:41 PM	13956
Aroclor 1232	ND	1.0		µg/L	1	7/1/2014 5:11:41 PM	13956
Aroclor 1242	ND	1.0		µg/L	1	7/1/2014 5:11:41 PM	13956
Aroclor 1248	ND	1.0		µg/L	1	7/1/2014 5:11:41 PM	13956
Aroclor 1254	ND	1.0		µg/L	1	7/1/2014 5:11:41 PM	13956
Aroclor 1260	ND	1.0		µg/L	1	7/1/2014 5:11:41 PM	13956
Surr: Decachlorobiphenyl	82.4	33.2-131		%REC	1	7/1/2014 5:11:41 PM	13956
Surr: Tetrachloro-m-xylene	71.2	34.7-138		%REC	1	7/1/2014 5:11:41 PM	13956
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	7/1/2014 1:26:16 AM	13970
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	7/1/2014 1:26:16 AM	13970
Surr: DNOP	130	76-161		%REC	1	7/1/2014 1:26:16 AM	13970
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/30/2014 1:52:27 PM	R19588
Surr: BFB	99.4	70.9-130		%REC	1	6/30/2014 1:52:27 PM	R19588
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	7/1/2014 2:13:06 PM	13957
1-Methylnaphthalene	ND	2.0		µg/L	1	7/1/2014 2:13:06 PM	13957
2-Methylnaphthalene	ND	2.0		µg/L	1	7/1/2014 2:13:06 PM	13957
Acenaphthylene	ND	2.5		µg/L	1	7/1/2014 2:13:06 PM	13957
Acenaphthene	ND	5.0		µg/L	1	7/1/2014 2:13:06 PM	13957
Fluorene	ND	0.80		µg/L	1	7/1/2014 2:13:06 PM	13957
Phenanthrene	ND	0.60		µg/L	1	7/1/2014 2:13:06 PM	13957
Anthracene	ND	0.60		µg/L	1	7/1/2014 2:13:06 PM	13957
Fluoranthene	ND	0.30		µg/L	1	7/1/2014 2:13:06 PM	13957
Pyrene	ND	0.30		µg/L	1	7/1/2014 2:13:06 PM	13957
Benz(a)anthracene	ND	0.070		µg/L	1	7/1/2014 2:13:06 PM	13957
Chrysene	ND	0.20		µg/L	1	7/1/2014 2:13:06 PM	13957
Benzo(b)fluoranthene	ND	0.10		µg/L	1	7/1/2014 2:13:06 PM	13957
Benzo(k)fluoranthene	ND	0.070		µg/L	1	7/1/2014 2:13:06 PM	13957
Benzo(a)pyrene	ND	0.070		µg/L	1	7/1/2014 2:13:06 PM	13957
Dibenz(a,h)anthracene	ND	0.12		µg/L	1	7/1/2014 2:13:06 PM	13957
Benzo(g,h,i)perylene	ND	0.12		µg/L	1	7/1/2014 2:13:06 PM	13957
Indeno(1,2,3-cd)pyrene	ND	0.25		µg/L	1	7/1/2014 2:13:06 PM	13957

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406C89

Date Reported: 7/21/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, JUN '14

Project: LDG T2 55-7 JUN '14

Collection Date: 6/26/2014 9:41:00 AM

Lab ID: 1406C89-001

Matrix: AQUEOUS

Received Date: 6/27/2014 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8310: PAHS							Analyst: SCC
Surr: Benzo(e)pyrene	117	32.1-134		%REC	1	7/1/2014 2:13:06 PM	13957
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	12	2.0	*	mg/L	20	6/28/2014 4:48:51 AM	R19577
Chloride	81	10		mg/L	20	6/28/2014 4:48:51 AM	R19577
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	6/28/2014 4:36:27 AM	R19577
Bromide	0.27	0.10		mg/L	1	6/28/2014 4:36:27 AM	R19577
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	6/28/2014 4:36:27 AM	R19577
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	6/28/2014 4:36:27 AM	R19577
Sulfate	510	10	*	mg/L	20	6/28/2014 4:48:51 AM	R19577
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF
Aluminum	0.23	0.020	*	mg/L	1	7/3/2014 5:39:22 PM	R19670
Barium	0.065	0.0020		mg/L	1	7/2/2014 6:31:52 PM	R19650
Boron	0.44	0.040		mg/L	1	7/3/2014 5:39:22 PM	R19670
Cadmium	ND	0.0020		mg/L	1	7/2/2014 6:31:52 PM	R19650
Calcium	22	1.0		mg/L	1	7/2/2014 6:31:52 PM	R19650
Chromium	ND	0.0060		mg/L	1	7/2/2014 6:31:52 PM	R19650
Cobalt	ND	0.0060		mg/L	1	7/2/2014 6:31:52 PM	R19650
Copper	ND	0.0060		mg/L	1	7/2/2014 6:31:52 PM	R19650
Iron	0.085	0.020		mg/L	1	7/2/2014 6:31:52 PM	R19650
Magnesium	ND	1.0		mg/L	1	7/2/2014 6:31:52 PM	R19650
Manganese	0.023	0.0020		mg/L	1	7/2/2014 6:31:52 PM	R19650
Molybdenum	0.026	0.0080		mg/L	1	7/2/2014 6:31:52 PM	R19650
Nickel	ND	0.010		mg/L	1	7/2/2014 6:31:52 PM	R19650
Potassium	31	1.0		mg/L	1	7/3/2014 5:39:22 PM	R19670
Silver	ND	0.0050		mg/L	1	7/2/2014 6:31:52 PM	R19650
Sodium	320	10		mg/L	10	7/3/2014 5:45:11 PM	R19670
Zinc	ND	0.010		mg/L	1	7/3/2014 5:39:22 PM	R19670
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	0.013	0.0010	*	mg/L	1	7/16/2014 4:14:50 PM	R19928
Lead	ND	0.0010		mg/L	1	7/16/2014 4:14:50 PM	R19928
Selenium	0.0027	0.0010		mg/L	1	7/16/2014 4:14:50 PM	R19928
Uranium	ND	0.0010		mg/L	1	7/16/2014 4:14:50 PM	R19928
EPA METHOD 245.1: MERCURY							Analyst: MMD
Mercury	ND	0.00020		mg/L	1	7/17/2014 2:19:43 PM	14269
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Toluene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406C89

Date Reported: 7/21/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, JUN '14

Project: LDG T2 55-7 JUN '14

Collection Date: 6/26/2014 9:41:00 AM

Lab ID: 1406C89-001

Matrix: AQUEOUS

Received Date: 6/27/2014 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Ethylbenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Naphthalene	ND	2.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
2-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Acetone	ND	10		µg/L	1	7/2/2014 9:47:54 PM	R19663
Bromobenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Bromodichloromethane	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Bromoform	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Bromomethane	ND	3.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
2-Butanone	ND	10		µg/L	1	7/2/2014 9:47:54 PM	R19663
Carbon disulfide	ND	10		µg/L	1	7/2/2014 9:47:54 PM	R19663
Carbon Tetrachloride	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Chlorobenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Chloroethane	ND	2.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Chloroform	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Chloromethane	ND	3.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
2-Chlorotoluene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
4-Chlorotoluene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
cis-1,2-DCE	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Dibromochloromethane	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Dibromomethane	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,1-Dichloroethane	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,1-Dichloroethene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,2-Dichloropropane	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,3-Dichloropropane	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
2,2-Dichloropropane	ND	2.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,1-Dichloropropene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Hexachlorobutadiene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663

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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406C89

Date Reported: 7/21/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 55-7, JUN '14

Project: LDG T2 55-7 JUN '14

Collection Date: 6/26/2014 9:41:00 AM

Lab ID: 1406C89-001

Matrix: AQUEOUS

Received Date: 6/27/2014 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
2-Hexanone	ND	10		µg/L	1	7/2/2014 9:47:54 PM	R19663
Isopropylbenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
4-Isopropyltoluene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
4-Methyl-2-pentanone	ND	10		µg/L	1	7/2/2014 9:47:54 PM	R19663
Methylene Chloride	ND	3.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
n-Butylbenzene	ND	3.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
n-Propylbenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
sec-Butylbenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Styrene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
tert-Butylbenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
trans-1,2-DCE	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Trichlorofluoromethane	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Vinyl chloride	ND	1.0		µg/L	1	7/2/2014 9:47:54 PM	R19663
Xylenes, Total	ND	1.5		µg/L	1	7/2/2014 9:47:54 PM	R19663
Surr: 1,2-Dichloroethane-d4	86.0	70-130		%REC	1	7/2/2014 9:47:54 PM	R19663
Surr: 4-Bromofluorobenzene	90.6	70-130		%REC	1	7/2/2014 9:47:54 PM	R19663
Surr: Dibromofluoromethane	85.5	70-130		%REC	1	7/2/2014 9:47:54 PM	R19663
Surr: Toluene-d8	96.2	70-130		%REC	1	7/2/2014 9:47:54 PM	R19663
EPA METHOD 418.1: TPH							Analyst: BCN
Petroleum Hydrocarbons, TR	ND	1.0		mg/L	1	6/30/2014	13971
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	7/3/2014	14049
SM4500-H+B: PH							Analyst: SRM
pH	6.99	1.68	H	pH units	1	7/2/2014 3:43:52 PM	R19680
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1300	20.0	*	mg/L	1	7/2/2014 5:09:00 PM	14000
SM 4500 NORG C: TKN							Analyst: SRM

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

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

Analytical ReportLab Order **1406C89**Date Reported: **7/21/2014****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Lightning Dock Geothermal**Client Sample ID:** LDG T2 55-7, JUN '14**Project:** LDG T2 55-7 JUN '14**Collection Date:** 6/26/2014 9:41:00 AM**Lab ID:** 1406C89-001**Matrix:** AQUEOUS**Received Date:** 6/27/2014 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM 4500 NORG C: TKN							Analyst: SRM
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	7/16/2014 2:43:00 PM	14221

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 5 of 34
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406C89

Date Reported: 7/21/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: Trip Blank

Project: LDG T2 55-7 JUN '14

Collection Date:

Lab ID: 1406C89-002

Matrix: TRIP BLANK

Received Date: 6/27/2014 7:10:00 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	6/30/2014 11:09:28 PM	13978
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Toluene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Ethylbenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Naphthalene	ND	2.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
2-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Acetone	ND	10		µg/L	1	7/2/2014 10:17:26 PM	R19663
Bromobenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Bromodichloromethane	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Bromoform	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Bromomethane	ND	3.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
2-Butanone	ND	10		µg/L	1	7/2/2014 10:17:26 PM	R19663
Carbon disulfide	ND	10		µg/L	1	7/2/2014 10:17:26 PM	R19663
Carbon Tetrachloride	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Chlorobenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Chloroethane	ND	2.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Chloroform	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Chloromethane	ND	3.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
2-Chlorotoluene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
4-Chlorotoluene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
cis-1,2-DCE	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Dibromochloromethane	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Dibromomethane	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,1-Dichloroethane	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,1-Dichloroethene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,2-Dichloropropane	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406C89

Date Reported: 7/21/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: Trip Blank

Project: LDG T2 55-7 JUN '14

Collection Date:

Lab ID: 1406C89-002

Matrix: TRIP BLANK

Received Date: 6/27/2014 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
2,2-Dichloropropane	ND	2.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,1-Dichloropropene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Hexachlorobutadiene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
2-Hexanone	ND	10		µg/L	1	7/2/2014 10:17:26 PM	R19663
Isopropylbenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
4-Isopropyltoluene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
4-Methyl-2-pentanone	ND	10		µg/L	1	7/2/2014 10:17:26 PM	R19663
Methylene Chloride	ND	3.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
n-Butylbenzene	ND	3.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
n-Propylbenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
sec-Butylbenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Styrene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
tert-Butylbenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
trans-1,2-DCE	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Trichlorofluoromethane	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Vinyl chloride	ND	1.0		µg/L	1	7/2/2014 10:17:26 PM	R19663
Xylenes, Total	ND	1.5		µg/L	1	7/2/2014 10:17:26 PM	R19663
Surr: 1,2-Dichloroethane-d4	92.0	70-130		%REC	1	7/2/2014 10:17:26 PM	R19663
Surr: 4-Bromofluorobenzene	97.0	70-130		%REC	1	7/2/2014 10:17:26 PM	R19663
Surr: Dibromofluoromethane	90.6	70-130		%REC	1	7/2/2014 10:17:26 PM	R19663
Surr: Toluene-d8	97.9	70-130		%REC	1	7/2/2014 10:17:26 PM	R19663

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

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

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
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 140702014
Project Name: 1406C89

Analytical Results Report

Sample Number 140702014-001 **Sampling Date** 6/26/2014 **Date/Time Received** 7/1/2014 1:00 PM
Client Sample ID 1406C89-001I / LDG T2 55-7, JUN 14 **Sampling Time** 9:41 AM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Lithium	0.663	mg/L	0.01	7/15/2014	ETL	EPA 200.8	
Dissolved Rubidium	0.350	mg/L	0.01	7/15/2014	ETL	EPA 200.8	
Dissolved Tungsten	0.0823	mg/L	0.05	7/15/2014	ETL	EPA 200.8	

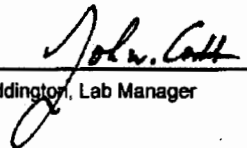
Sample Number 140702014-002 **Sampling Date** 6/26/2014 **Date/Time Received** 7/1/2014 1:00 PM
Client Sample ID 1406C89-001J / LDG T2 55-7, JUN 14 **Sampling Time** 9:41 AM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	7/7/2014	CRW	EPA 335.4	

Sample Number 140702014-003 **Sampling Date** 6/26/2014 **Date/Time Received** 7/1/2014 1:00 PM
Client Sample ID 1406C89-001L / LDG T2 55-7, JUN 14 **Sampling Time** 9:41 AM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Total P	ND	mg/L	0.01	7/9/2014	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.

Certifications held by Anatek Labs ID: EPA-ID00013; AZ-0701; CO-ID00013; FL(NELAP):E87893; ID-ID00013; MT-CERT0028; NM: ID00013; OR-ID00001-002; WA-CS95
Certifications held by Anatek Labs WA: EPA-WA00169; ID-WA00169; WA-C585; MT-Cert0095; FL(NELAP): E871099

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
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 140702014
Project Name: 1406C89

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Dissolved Tungsten	0.0495	mg/L	0.05	99.0	85-115	7/15/2014	7/15/2014
Dissolved Rubidium	0.0918	mg/L	0.1	91.8	85-115	7/15/2014	7/15/2014
Dissolved Lithium	0.0460	mg/L	0.05	92.0	85-115	7/15/2014	7/15/2014
Total P	1.04	mg/L	1	104.0	80-120	7/9/2014	7/9/2014
Cyanide	0.490	mg/L	0.5	98.0	80-120	7/7/2014	7/7/2014

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
140702013-003	Total P	ND	1.02	mg/L	1	102.0	70-130	7/9/2014	7/9/2014
140702013-001	Dissolved Tungsten	0.0867	0.589	mg/L	0.5	100.5	70-130	7/15/2014	7/15/2014
140702013-001	Dissolved Rubidium	0.355	1.28	mg/L	1	92.5	70-130	7/15/2014	7/15/2014
140702013-001	Dissolved Lithium	0.653	1.15	mg/L	0.5	99.4	70-130	7/15/2014	7/15/2014
140703022-001	Cyanide	ND	0.459	mg/L	0.5	91.8	70-130	7/7/2014	7/7/2014

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Total P	1.04	mg/L	1	104.0	1.9	0-20	7/9/2014	7/9/2014
Dissolved Tungsten	0.593	mg/L	0.5	101.3	0.7	0-20	7/15/2014	7/15/2014
Dissolved Rubidium	1.24	mg/L	1	88.5	3.2	0-20	7/15/2014	7/15/2014
Dissolved Lithium	1.12	mg/L	0.5	93.4	2.6	0-20	7/15/2014	7/15/2014
Cyanide	0.469	mg/L	0.5	93.8	2.2	0-20	7/7/2014	7/7/2014

Comments:

Certifications held by Anatek Labs ID: EPA-ID00013; AZ:0701; CO-ID00013; FL(NELAP):E87893; ID-ID00013; MT:CE00028; NM: ID00013; OR-ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:CE00095; FL(NELAP): E871099

ANALYTICAL RESULTS

Project: 1406C89-001

Pace Project No.: 30124104

Sample: 1406C89-001KM Lab ID: 30124104001 Collected: 06/26/14 09:41 Received: 07/02/14 10:30 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Comments: • Sample 30124104001 was received and analyzed for radon content outside of the method recommended four day hold time.
Radon results have been decay corrected to the collection date and time supplied by the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	2,313 ± 144 (112) C:NA T:NA	pCi/L	07/03/14 20:42	10043-92-2	
Radium-226	EPA 903.1	5.15 ± 1.06 (0.577) C:NA T:91%	pCi/L	07/17/14 13:32	13982-63-3	
Radium-228	EPA 904.0	0.781 ± 0.409 (0.790) C:74% T:88%	pCi/L	07/17/14 11:48	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Date: 07/18/2014 09:47 AM

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
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 140702014
Project Name: 1406C89

Analytical Results Report Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	7/7/2014	7/7/2014
Dissolved Lithium	ND	mg/L	0.001	7/15/2014	7/15/2014
Dissolved Rubidium	ND	mg/L	0.001	7/15/2014	7/15/2014
Dissolved Tungsten	ND	mg/L	0.01	7/15/2014	7/15/2014
Total P	ND	mg/L	0.01	7/9/2014	7/9/2014

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

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:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

QUALITY CONTROL DATA

Project: 1406C89-001

Pace Project No.: 30124104

QC Batch: RADC/20407

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 30124104001

METHOD BLANK: 754115

Matrix: Water

Associated Lab Samples: 30124104001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.523 ± 0.366 (0.708) C:74% T:91%	pCi/L	07/17/14 11:45	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Date: 07/18/2014 09:47 AM

QUALITY CONTROL DATA

Project: 1408C89-001

Pace Project No.: 30124104

QC Batch: RADC/20406

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 30124104001

METHOD BLANK: 754114

Matrix: Water

Associated Lab Samples: 30124104001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.050 ± 0.227 (0.536) C:NA T:100%	pCi/L	07/17/14 13:27	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Date: 07/18/2014 09:47 AM

QUALITY CONTROL DATA

Project: 1406C89-001

Pace Project No.: 30124104

QC Batch: RADC/20377

Analysis Method: SM 7500Rn-B

QC Batch Method: SM 7500Rn-B

Analysis Description: 7500Rn B Radon

Associated Lab Samples: 30124104001

METHOD BLANK: 752576

Matrix: Water

Associated Lab Samples: 30124104001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radon	16.2 ± 17.6 (28.8) C:NA T:NA	pCi/L	07/03/14 19:44	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Date: 07/18/2014 09:47 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R19650	RunNo:	19650					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	570374	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
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								
Silver	ND	0.0050								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R19650	RunNo:	19650					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	570375	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	100	85	115			
Cadmium	0.50	0.0020	0.5000	0	100	85	115			
Calcium	49	1.0	50.00	0	98.0	85	115			
Chromium	0.49	0.0060	0.5000	0	97.1	85	115			
Cobalt	0.49	0.0060	0.5000	0	98.4	85	115			
Copper	0.49	0.0060	0.5000	0	97.4	85	115			
Iron	0.51	0.020	0.5000	0	101	85	115			
Magnesium	49	1.0	50.00	0	97.2	85	115			
Manganese	0.50	0.0020	0.5000	0	101	85	115			
Molybdenum	0.50	0.0080	0.5000	0	100	85	115			
Nickel	0.48	0.010	0.5000	0	95.8	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			

Sample ID	1407014-002BMS	SampType:	MS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R19650	RunNo:	19650					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	570435	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.99	0.0080	0.5000	0.4469	109	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	1407014-002BMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID:	R19650		RunNo:	19650				
Prep Date:			Analysis Date:	7/2/2014		SeqNo:	570436		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Molybdenum	0.96	0.0080	0.5000	0.4469	103	70	130	2.64	20		

Sample ID	1406C89-001NMS		SampType:	MS		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	LDG T2 55-7, JUN '1		Batch ID:	R19650		RunNo:	19650				
Prep Date:			Analysis Date:	7/2/2014		SeqNo:	570454		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Barium	0.55	0.0020	0.5000	0.06485	97.0	70	130				
Cadmium	0.49	0.0020	0.5000	0	97.4	70	130				
Calcium	71	1.0	50.00	22.46	97.4	70	130				
Chromium	0.47	0.0060	0.5000	0.002160	93.6	70	130				
Cobalt	0.47	0.0060	0.5000	0	94.7	70	130				
Copper	0.49	0.0060	0.5000	0	97.2	70	130				
Iron	0.59	0.020	0.5000	0.08476	100	70	130				
Magnesium	47	1.0	50.00	0.1488	93.9	70	130				
Manganese	0.51	0.0020	0.5000	0.02256	98.2	70	130				
lybdenum	0.50	0.0080	0.5000	0.02640	94.6	70	130				
ckel	0.46	0.010	0.5000	0	91.1	70	130				
Silver	0.082	0.0050	0.1000	0	81.8	70	130				

Sample ID	1406C89-001NMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	LDG T2 55-7, JUN '1		Batch ID:	R19650		RunNo:	19650				
Prep Date:			Analysis Date:	7/2/2014		SeqNo:	570455		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Barium	0.56	0.0020	0.5000	0.06485	98.9	70	130	1.72	20		
Cadmium	0.49	0.0020	0.5000	0	98.8	70	130	1.46	20		
Calcium	74	1.0	50.00	22.46	103	70	130	3.86	20		
Chromium	0.48	0.0060	0.5000	0.002160	96.4	70	130	2.92	20		
Cobalt	0.48	0.0060	0.5000	0	96.5	70	130	1.83	20		
Copper	0.49	0.0060	0.5000	0	98.8	70	130	1.66	20		
Iron	0.60	0.020	0.5000	0.08476	102	70	130	1.79	20		
Magnesium	49	1.0	50.00	0.1488	98.3	70	130	4.64	20		
Manganese	0.52	0.0020	0.5000	0.02256	100	70	130	1.74	20		
Molybdenum	0.52	0.0080	0.5000	0.02640	98.1	70	130	3.47	20		
Nickel	0.47	0.010	0.5000	0	94.8	70	130	3.99	20		
Silver	0.083	0.0050	0.1000	0	83.5	70	130	2.00	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R19670	RunNo:	19670					
Prep Date:		Analysis Date:	7/3/2014	SeqNo:	571063	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Aluminum	ND	0.020								
Boron	ND	0.040								
Potassium	ND	1.0								
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R19670	RunNo:	19670					
Prep Date:		Analysis Date:	7/3/2014	SeqNo:	571064	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Aluminum	0.57	0.020	0.5000	0	115	85	115			
Boron	0.53	0.040	0.5000	0	107	85	115			
Potassium	50	1.0	50.00	0	100	85	115			
Sodium	51	1.0	50.00	0	103	85	115			
Zinc	0.50	0.010	0.5000	0	101	85	115			

Sample ID	1407014-002BMS	SampType:	MS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R19670	RunNo:	19670					
Prep Date:		Analysis Date:	7/3/2014	SeqNo:	572033	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	3.9	0.20	2.500	1.415	97.6	70	130			

Sample ID	1407014-002BMSD	SampType:	MSD	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R19670	RunNo:	19670					
Prep Date:		Analysis Date:	7/3/2014	SeqNo:	572034	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Boron	4.0	0.20	2.500	1.415	102	70	130	3.12	20	

Sample ID	1406C89-001NMS	SampType:	MS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LDG T2 55-7, JUN '1	Batch ID:	R19670	RunNo:	19670					
Prep Date:		Analysis Date:	7/3/2014	SeqNo:	572053	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Aluminum	0.81	0.020	0.5000	0.2291	116	70	130			
Boron	0.95	0.040	0.5000	0.4366	102	70	130			
Potassium	83	1.0	50.00	31.30	102	70	130			
Zinc	0.48	0.010	0.5000	0	95.7	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	1406C89-001NMSD	SampType:	MSD	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LDG T2 55-7, JUN '1	Batch ID:	R19670	RunNo:	19670					
Prep Date:		Analysis Date:	7/3/2014	SeqNo:	572054	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.81	0.020	0.5000	0.2291	116	70	130	0.515	20	
Boron	0.94	0.040	0.5000	0.4366	100	70	130	0.982	20	
Potassium	83	1.0	50.00	31.30	104	70	130	0.686	20	
Zinc	0.48	0.010	0.5000	0	96.8	70	130	1.10	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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R19928		RunNo: 19928					
Prep Date:			Analysis Date: 7/16/2014		SeqNo: 579312		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	97.5	85	115			
Lead	0.024	0.0010	0.02500	0	96.4	85	115			
Selenium	0.024	0.0010	0.02500	0	95.9	85	115			
Uranium	0.024	0.0010	0.02500	0	97.0	85	115			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R19928			RunNo: 19928					
Prep Date:		Analysis Date: 7/16/2014			SeqNo: 579314		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.
- 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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	MB-14269	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	14269	RunNo:	19954					
Prep Date:	7/17/2014	Analysis Date:	7/17/2014	SeqNo:	579861	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-14269		SampType:	LCS		TestCode:	EPA Method 245.1: Mercury				
Client ID:	LCSW		Batch ID:	14269		RunNo:	19954				
Prep Date:	7/17/2014		Analysis Date:	7/17/2014		SeqNo:	579862		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0048	0.00020	0.005000	0	96.0	80	120				

Sample ID	1407631-004AMS	SampType:	MS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	BatchQC	Batch ID:	14269	RunNo:	19954					
Prep Date:	7/17/2014	Analysis Date:	7/17/2014	SeqNo:	579875	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.3	75	125			

Sample ID	1407631-004AMSD			SampType:	MSD		TestCode:	EPA Method 245.1: Mercury				
Client ID:	BatchQC			Batch ID:	14269		RunNo:	19954				
Prep Date:	7/17/2014			Analysis Date:	7/17/2014		SeqNo:	579876			Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Mercury	0.0049	0.00020	0.005000	0	97.7	75	125	2.50	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	A6		SampType: CCV_6		TestCode: EPA Method 300.0: Anions					
Client ID:	BatchQC		Batch ID: R19577		RunNo: 19577					
Prep Date:			Analysis Date: 6/27/2014		SeqNo: 567447		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	101	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	102	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	101	90	110			
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID	MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions						
Client ID:	PBW	Batch ID: R19577		RunNo: 19577						
Prep Date:		Analysis Date: 6/27/2014		SeqNo: 567449		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								
Nitrogen, Nitrite (As N)	ND	0.10								
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					
Client ID:	LCSW		Batch ID: R19577		RunNo: 19577					
Prep Date:			Analysis Date: 6/27/2014		SeqNo: 567450		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			
Chloride	4.6	0.50	5.000	0	91.9	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	96.0	90	110			
Bromide	2.4	0.10	2.500	0	97.6	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.7	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.5	90	110			
Sulfate	9.5	0.50	10.00	0	94.7	90	110			

Sample ID	1406C84-001FMS		SampType:	MS		TestCode:	EPA Method 300.0: Anions				
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577				
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567452		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.8	75.5	104				

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	1406C84-001FMS			SampType:	MS		TestCode:	EPA Method 300.0: Anions			
Client ID:	BatchQC			Batch ID:	R19577		RunNo:	19577			
Prep Date:				Analysis Date:	6/27/2014		SeqNo:	567452		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Bromide	2.7	0.10	2.500	0.3010	97.2	85.1	108				
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.3	87.8	111				
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.9	81.3	101				

Sample ID	1406C84-001FMSD		SampType:	MSD		TestCode:	EPA Method 300.0: Anions				
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577				
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567453		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.5	75.5	104	1.38	20		
Bromide	2.7	0.10	2.500	0.3010	96.5	85.1	108	0.635	20		
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.1	87.8	111	1.16	20		
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	81.3	101	1.11	20		

Sample ID	1406C67-001AMS	SampType:	MS	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R19577	RunNo:	19577					
Prep Date:		Analysis Date:	6/27/2014	SeqNo:	567456	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.0	0.10	0.5000	0.5643	95.2	72.7	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.0	75.5	104			
Bromide	2.5	0.10	2.500	0.1222	96.4	85.1	108			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.6	87.8	111			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.2	81.3	101			

Sample ID	1406C67-001AMSD		SampType:	MSD		TestCode:	EPA Method 300.0: Anions				
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577				
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567457		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Fluoride	1.0	0.10	0.5000	0.5643	95.6	72.7	110	0.163	20		
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.9	75.5	104	0.113	20		
Bromide	2.5	0.10	2.500	0.1222	96.6	85.1	108	0.221	20		
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.5	87.8	111	0.0952	20		
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.0	81.3	101	0.132	20		

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- T 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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	A4		SampType:	CCV_4		TestCode:	EPA Method 300.0: Anions			
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577			
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567459		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.99	0.10	1.000	0	99.1	90	110			
Chloride	4.6	0.50	5.000	0	92.7	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	99.2	90	110			
Bromide	4.9	0.10	5.000	0	97.7	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.8	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	96.9	90	110			
Sulfate	12	0.50	12.50	0	94.3	90	110			

Sample ID	A5		SampType:	CCV_5		TestCode:	EPA Method 300.0: Anions			
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577			
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567471		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	102	90	110			
Chloride	7.8	0.50	8.000	0	97.2	90	110			
Nitrogen, Nitrite (As N)	3.1	0.10	3.200	0	96.6	90	110			
Bromide	8.0	0.10	8.000	0	100	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P)	8.0	0.50	8.000	0	100	90	110			
Sulfate	20	0.50	20.00	0	98.6	90	110			

Sample ID	A6		SampType:	CCV_6		TestCode:	EPA Method 300.0: Anions			
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577			
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567484		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.5	0.10	2.400	0	103	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.8	0.10	4.800	0	99.3	90	110			
Bromide	12	0.10	12.00	0	102	90	110			
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Phosphorus, Orthophosphate (As P)	12	0.50	12.00	0	103	90	110			
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID	A4		SampType:	CCV_4		TestCode:	EPA Method 300.0: Anions			
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577			
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567496		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.0	0.10	1.000	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19577		RunNo: 19577							
Prep Date:	Analysis Date: 6/27/2014		SeqNo: 567496		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			
Nitrogen, Nitrite (As N)	1.9	0.10	2.000	0	94.7	90	110			
Bromide	4.9	0.10	5.000	0	98.6	90	110			
Nitrogen, Nitrate (As N)	3.1	0.10	3.000	0	102	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.8	90	110			
Sulfate	12	0.50	12.50	0	95.6	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19577		RunNo: 19577							
Prep Date:	Analysis Date: 6/27/2014		SeqNo: 567508		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	101	90	110			
Chloride	7.7	0.50	8.000	0	96.3	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	98.5	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	102	90	110			
Phosphorus, Orthophosphate (As P	8.0	0.50	8.000	0	99.7	90	110			
Sulfate	20	0.50	20.00	0	97.9	90	110			

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19577		RunNo: 19577							
Prep Date:	Analysis Date: 6/28/2014		SeqNo: 567519		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.5	0.10	2.400	0	102	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.8	0.10	4.800	0	100	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			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	103	90	110			
Sulfate	30	0.50	30.00	0	101	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19577		RunNo: 19577							
Prep Date:	Analysis Date: 6/28/2014		SeqNo: 567531		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.99	0.10	1.000	0	99.4	90	110			
Chloride	4.6	0.50	5.000	0	92.8	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- U 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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID A4	SampType: CCV_4	TestCode: EPA Method 300.0: Anions								
Client ID: BatchQC	Batch ID: R19577	RunNo: 19577								
Prep Date:	Analysis Date: 6/28/2014	SeqNo: 567531	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	97.7	90	110			
Bromide	4.9	0.10	5.000	0	98.2	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.6	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	97.0	90	110			
Sulfate	12	0.50	12.50	0	94.7	90	110			

Sample ID A5	SampType: CCV_5	TestCode: EPA Method 300.0: Anions								
Client ID: BatchQC	Batch ID: R19577	RunNo: 19577								
Prep Date:	Analysis Date: 6/28/2014	SeqNo: 567537	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	102	90	110			
Chloride	7.8	0.50	8.000	0	97.3	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	101	90	110			
Bromide	8.0	0.10	8.000	0	100	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P)	8.0	0.50	8.000	0	100	90	110			
Sulfate	20	0.50	20.00	0	98.5	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	MB-13971		SampType:	MBLK		TestCode:	EPA Method 418.1: TPH				
Client ID:	PBW		Batch ID:	13971		RunNo:	19579				
Prep Date:	6/30/2014		Analysis Date:	6/30/2014		SeqNo:	567685		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-13971		SampType:	LCS		TestCode:	EPA Method 418.1: TPH				
Client ID:	LCSW		Batch ID:	13971		RunNo:	19579				
Prep Date:	6/30/2014		Analysis Date:	6/30/2014		SeqNo:	567686		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-13971	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	13971	RunNo:	19579					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	567687	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Petroleum Hydrocarbons, TR 5.1 1.0 5.000 0 101 80 120 9.98 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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	MB-13978	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	13978	RunNo:	19565					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	567952	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-13978	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	13978	RunNo:	19565					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	567953	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.095	0.010	0.1000	0	95.0	70	130			

Sample ID	1406C89-001DMS	SampType:	MS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LDG T2 55-7, JUN '1	Batch ID:	13978	RunNo:	19565					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	567979	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	0.005000	100	55.2	157			

Sample ID	1406C89-001DMSD	SampType:	MSD	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LDG T2 55-7, JUN '1	Batch ID:	13978	RunNo:	19565					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	567980	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.097	0.010	0.1000	0.005000	92.0	55.2	157	7.92	23.4	

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	1406C84-001CMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	BatchQC	Batch ID:	13970	RunNo:	19585					
Prep Date:	6/30/2014	Analysis Date:	7/1/2014	SeqNo:	568145	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.4	0.20	2.500	0	136	64.4	178			
Surr: DNOP	0.30		0.2500		120	76	161			

Sample ID	1406C84-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	BatchQC	Batch ID:	13970	RunNo:	19585					
Prep Date:	6/30/2014	Analysis Date:	7/1/2014	SeqNo:	568146	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.9	0.20	2.500	0	156	64.4	178	13.9	20	
Surr: DNOP	0.32		0.2500		126	76	161	0	0	

Sample ID	MB-13970	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	13970	RunNo:	19585					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	568158	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
for Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.44		0.5000		88.6	76	161			

Sample ID	LCS-13970	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	13970	RunNo:	19585					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	568159	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	116	65.8	162			
Surr: DNOP	0.25		0.2500		99.4	76	161			

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R19588	RunNo:	19588					
Prep Date:		Analysis Date:	6/30/2014	SeqNo:	567746	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

ND

0.050

Surr: BFB

19

20.00

94.1

70.9

130

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R19588	RunNo:	19588					
Prep Date:		Analysis Date:	6/30/2014	SeqNo:	567747	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

0.46

0.050

0.5000

0

92.6

80

120

Surr: BFB

21

20.00

106

70.9

130

Sample ID	1406C76-016AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	BatchQC	Batch ID:	R19588	RunNo:	19588					
Prep Date:		Analysis Date:	6/30/2014	SeqNo:	567758	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

13

0.50

5.000

8.224

96.6

79

121

Surr: BFB

240

200.0

118

70.9

130

Sample ID	1406C76-016AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	BatchQC	Batch ID:	R19588	RunNo:	19588					
Prep Date:		Analysis Date:	6/30/2014	SeqNo:	567759	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)

13

0.50

5.000

8.224

88.4

79

121

Surr: BFB

230

200.0

117

70.9

130

3.18

20

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	MB-13956		SampType:	MBLK		TestCode:	EPA Method 8082: PCB's				
Client ID:	PBW		Batch ID:	13956		RunNo:	19593				
Prep Date:	6/29/2014		Analysis Date:	7/1/2014		SeqNo:	567988		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	2.6		2.500		106	33.2	131				
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	34.7	138				

Sample ID	LCS-13956		SampType:	LCS		TestCode:	EPA Method 8082: PCB's				
Client ID:	LCSW		Batch ID:	13956		RunNo:	19593				
Prep Date:	6/29/2014		Analysis Date:	7/1/2014		SeqNo:	567990		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	3.6	1.0	5.000	0	72.5	15	134				
Aroclor 1260	4.6	1.0	5.000	0	92.3	32.1	148				
Surr: Decachlorobiphenyl	2.6		2.500		104	33.2	131				
Surr: Tetrachloro-m-xylene	2.2		2.500		87.6	34.7	138				

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	5mL-rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	PBW	Batch ID: R19663		RunNo: 19663						
Prep Date:		Analysis Date: 7/2/2014		SeqNo: 570821		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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID: 5mL-rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R19663		RunNo: 19663							
Prep Date:	Analysis Date: 7/2/2014		SeqNo: 570821		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	8.6		10.00		86.4	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		90.7	70	130			
Surr: Dibromofluoromethane	8.7		10.00		87.1	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R19663	RunNo:	19663					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	570824	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	101	80	120			
Chlorobenzene	20	1.0	20.00	0	101	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R19663	RunNo:	19663					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	570824	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	24	1.0	20.00	0	119	82.6	131			
Trichloroethene (TCE)	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.1	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.2	70	130			
Surr: Dibromofluoromethane	9.2		10.00		92.2	70	130			
Surr: Toluene-d8	9.9		10.00		98.9	70	130			

Sample ID	1406c97-001a msd			SampType:	MSD		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	BatchQC		Batch ID:		R19663		RunNo:	19663			
Prep Date:			Analysis Date:		7/2/2014		SeqNo:	570833		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	40	2.0	40.00	0	100	70	130	4.92	20		
Toluene	38	2.0	40.00	0.4200	94.6	67.5	123	8.40	20		
Chlorobenzene	37	2.0	40.00	0	93.4	70	130	12.5	20		
1,1-Dichloroethene	47	2.0	40.00	0	116	81.9	134	3.56	20		
Trichloroethene (TCE)	40	2.0	40.00	0	100	70	130	7.43	20		
Surr: 1,2-Dichloroethane-d4	19		20.00		95.4	70	130	0	0		
Surr: 4-Bromofluorobenzene	18		20.00		89.7	70	130	0	0		
Surr: Dibromofluoromethane	18		20.00		91.7	70	130	0	0		
Surr: Toluene-d8	20		20.00		102	70	130	0	0		

Sample ID	b3	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R19663			RunNo: 19663					
Prep Date:		Analysis Date: 7/3/2014			SeqNo: 570853		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								

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID: b3	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: R19663	RunNo: 19663								
Prep Date:	Analysis Date: 7/3/2014	SeqNo: 570853	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Bromomethane	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								

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID b3	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: R19663	RunNo: 19663								
Prep Date:	Analysis Date: 7/3/2014	SeqNo: 570853 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	9.2		10.00		92.0	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		91.6	70	130			
Surr: Dibromofluoromethane	9.0		10.00		89.6	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID 100ng lcs2	SampType: LCS	TestCode: EPA Method 8260B: VOLATILES								
Client ID: LCSW	Batch ID: R19663	RunNo: 19663								
Prep Date:	Analysis Date: 7/3/2014	SeqNo: 570854 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	70	130			
Toluene	21	1.0	20.00	0	105	80	120			
Chlorobenzene	21	1.0	20.00	0	104	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	117	82.6	131			
Trichloroethene (TCE)	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.4	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.0	70	130			
Surr: Dibromofluoromethane	8.7		10.00		87.0	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	MB-13957		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs				
Client ID:	PBW		Batch ID:	13957		RunNo:	19586				
Prep Date:	6/29/2014		Analysis Date:	7/1/2014		SeqNo:	567939		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	19		20.00		95.4	32.1	134				

Sample ID	LCS-13957		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 13957		RunNo: 19586					
Prep Date:	6/29/2014		Analysis Date: 7/1/2014		SeqNo: 567950		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	60	2.0	80.00	0	74.8	41	76.8			
1-Methylnaphthalene	64	2.0	80.20	0	79.9	24.7	81			
2-Methylnaphthalene	62	2.0	80.00	0	77.2	17.4	81.9			
Acenaphthylene	64	2.5	80.20	0	79.3	50.3	77.5			S
Acenaphthene	64	5.0	80.00	0	80.5	27.7	81.1			
Fluorene	5.9	0.80	8.020	0	74.1	34.2	75.1			
Phenanthrene	3.4	0.60	4.020	0	85.6	44.6	88.3			
Anthracene	3.3	0.60	4.020	0	81.6	41.9	85.3			
Fluoranthene	6.9	0.30	8.020	0	86.0	40.6	88			
Pyrene	6.9	0.30	8.020	0	85.5	41	86.6			
Benz(a)anthracene	0.63	0.070	0.8020	0	78.6	43.8	86.7			
Chrysene	3.2	0.20	4.020	0	79.9	44.5	80.7			
Benzo(b)fluoranthene	0.82	0.10	1.002	0	81.8	44.3	87.1			
Benzo(k)fluoranthene	0.45	0.070	0.5000	0	90.0	39.9	94.3			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- U Value above quantitation range
- f 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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	LCS-13957		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	13957		RunNo:	19586			
Prep Date:	6/29/2014		Analysis Date:	7/1/2014		SeqNo:	567950		Units: µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.43	0.070	0.5020	0	85.7	44	86.5			
Dibenz(a,h)anthracene	0.83	0.12	1.002	0	82.8	48.8	83.6			
Benzo(g,h,i)perylene	0.82	0.12	1.000	0	82.0	43.6	84.5			
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	77.8	49.2	91.1			
Surr. Benzo(e)pyrene	17		20.00		85.8	32.1	134			

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	MB-14049	SampType:	MBLK	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID:	14049	RunNo:	19645					
Prep Date:	7/3/2014	Analysis Date:	7/3/2014	SeqNo:	569882	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-14049	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	14049	RunNo:	19645					
Prep Date:	7/3/2014	Analysis Date:	7/3/2014	SeqNo:	569883	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	25	2.5	20.00	0	125	75.7	126			

Sample ID	1406C21-002BMS	SampType:	MS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	BatchQC	Batch ID:	14049	RunNo:	19645					
Prep Date:	7/3/2014	Analysis Date:	7/3/2014	SeqNo:	569886	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	19	2.5	20.00	0	94.7	70.5	133			

Sample ID	1406C21-002BMDS	SampType:	MSD	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	BatchQC	Batch ID:	14049	RunNo:	19645					
Prep Date:	7/3/2014	Analysis Date:	7/3/2014	SeqNo:	569887	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	112	70.5	133	17.2	23.4	

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	1407056-001d dup	SampType:	DUP	TestCode:	SM4500-H+B: pH					
Client ID:	BatchQC	Batch ID:	R19680	RunNo:	19680					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	571375	Units:	pH units			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.21	1.68								H

Sample ID	1407092-002d dup	SampType:	DUP	TestCode:	SM4500-H+B: pH					
Client ID:	BatchQC	Batch ID:	R19680	RunNo:	19680					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	571390	Units:	pH units			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.50	1.68								H

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	MB-14000	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	14000	RunNo:	19641					
Prep Date:	7/1/2014	Analysis Date:	7/2/2014	SeqNo:	569831	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-14000	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	14000	RunNo:	19641					
Prep Date:	7/1/2014	Analysis Date:	7/2/2014	SeqNo:	569832	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	960	20.0	1000	0	96.0	80	120			

Sample ID	1406C90-001DMS	SampType:	MS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	BatchQC	Batch ID:	14000	RunNo:	19641					
Prep Date:	7/1/2014	Analysis Date:	7/2/2014	SeqNo:	569837	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2670	20.0	1000	1717	95.3	80	120			

Sample ID	1406C90-001DMSD	SampType:	MSD	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	BatchQC	Batch ID:	14000	RunNo:	19641					
Prep Date:	7/1/2014	Analysis Date:	7/2/2014	SeqNo:	569838	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2690	20.0	1000	1717	97.1	80	120	0.672	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C89

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 55-7 JUN '14

Sample ID	MB-14221	SampType:	MBLK	TestCode:	SM 4500 Norg C: TKN					
Client ID:	PBW	Batch ID:	14221	RunNo:	19930					
Prep Date:	7/15/2014	Analysis Date:	7/16/2014	SeqNo:	579210	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID	LCS-14221	SampType:	LCS	TestCode:	SM 4500 Norg C: TKN					
Client ID:	LCSW	Batch ID:	14221	RunNo:	19930					
Prep Date:	7/15/2014	Analysis Date:	7/16/2014	SeqNo:	579211	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	104	80	120			

Sample ID	1407312-002AMS	SampType:	MS	TestCode:	SM 4500 Norg C: TKN					
Client ID:	BatchQC	Batch ID:	14221	RunNo:	19930					
Prep Date:	7/15/2014	Analysis Date:	7/16/2014	SeqNo:	579214	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	20	2.0	20.00	1.400	91.0	75	125			

Sample ID	1407312-002AMSD	SampType:	MSD	TestCode:	SM 4500 Norg C: TKN					
Client ID:	BatchQC	Batch ID:	14221	RunNo:	19930					
Prep Date:	7/15/2014	Analysis Date:	7/16/2014	SeqNo:	579215	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	20	2.0	20.00	1.400	95.2	75	125	4.20	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.
- RL Reporting Detection Limit



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: LIGHTNING DOCK GEO

Work Order Number: 1406C89

RcptNo: 1

Received by/date:	CS	06/27/14
Logged By:	Michelle Garcia	6/27/2014 7:10:00 AM
Completed By:	Michelle Garcia	6/27/2014 10:04:12 AM
Reviewed By:	[Signature]	06/27/14

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? UPS

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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) properly 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 broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ 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.) Yes ☒ No ☐

of preserved bottles checked for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with 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	14.7	Good	Yes			
2	14.7	Good	Yes			

AMBERS VOAS

LIGHTNING DOCK GEOTHERMAL "TABLE 2"

WQCC CONTAINERS FOR ONE SAMPLING EVENT

SAMPLING EFFORT

LDG T2 55-7 JUN '14

10/23/14

SAMPLE:
LDG T2 55-7, JUN '14
ICE CHEST #4
AMBERS & VOAS

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB	LABELED AT LDG 10/25/14	SAMPLED AT LDG	SHIPPED TO LAB	TEST RESULTS FROM LAB
8260	3 x 40 mL HCl VOAs	X	X	X	X	
EDB-504.1	2 x 40 mL Na ₂ S ₂ O ₃ VOAs + QC	X	X	X	X	QC
8082-PCB	2 X 1 L unpreserved amber glasses + QC	X	X	X	X	QC
8310-PAH	1 x 1 L unpreserved amber glass + QC	X	X	X	X	QC
Phenols	1 x 1 L H ₂ SO ₄ amber glass + QC	X	X	X	X	QC
Radon	2 x 40 mL unpreserved VOAs	X	X	X	X	
418.1	1 x 500 mL HCl amber glass	X	X	X	X	
8015D Diesel / Motor oil range organics	1 X 500 mL unpreserved amber glass	X	X	X	X	
8015D Gasoline Range organics	2x 40 mL HCl VOAs	X	X	X	X	
Trip Blank		-	N/A	N/A	N/A	N/A

PLASTICS

LIGHTNING DOCK GEOTHERMAL "TABLE 2"

WQCC CONTAINERS FOR ONE SAMPLING EVENT

SAMPLING EFFORT

LDG T2 55-7 JUN '14

SAMPLE:
LDG T2 55-7, JUN '14
ICE CHEST #3
PLASTICS

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB 6/23/14	LABELED AT LDG 6/25/14	SAMPLED AT LDG	SHIPPED TO LAB	TEST RESULTS FROM LAB
Anions, TDS, pH	1 x 500 mL unpreserved plastic 1 x 125 mL H ₂ SO ₄ plastic	X	X	X	X	
Mercury	1 x 500 mL HNO ₃ plastic	X	X	X	X	
Dissolved Metals + Li, Rb, W, Br	2 x 125 mL HNO ₃ plastics + filter ☒	X	X	X	X	
Total Cyanide	1 x 500 mL NaOH plastic amber	X	X	X	X	
Radium 226/228	2 x 1 L HNO ₃ plastics	X	X	X	X	
Phosphorous	1 x 500 mL H ₂ SO ₄ plastic	X	X	X	X	
Nitrate/Nitrite TKN	1 x 125 mL unpreserved plastic 1 x 500 mL H ₂ SO ₄ plastic	X	X	X	X	
Trip Blank		X	N/A	N/A	X	N/A



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

July 21, 2014

Kacie Peterson
Lightning Dock Geothermal
PO Box 86
Animas, NM 88020
TEL: (575) 548-0301
FAX

RE: LDG T2 45-7 JUN '14

OrderNo.: 1406C84

Dear Kacie Peterson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/27/2014 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 www.hallenvironmental.com 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
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406C84

Date Reported: 7/21/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 45-7, JUN '14

Project: LDG T2 45-7 JUN '14

Collection Date: 6/26/2014 9:12:00 AM

Lab ID: 1406C84-001

Matrix: AQUEOUS

Received Date: 6/27/2014 7:10:00 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	6/30/2014 9:52:42 PM	13978
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	7/1/2014 4:26:01 PM	13956
Aroclor 1221	ND	1.0		µg/L	1	7/1/2014 4:26:01 PM	13956
Aroclor 1232	ND	1.0		µg/L	1	7/1/2014 4:26:01 PM	13956
Aroclor 1242	ND	1.0		µg/L	1	7/1/2014 4:26:01 PM	13956
Aroclor 1248	ND	1.0		µg/L	1	7/1/2014 4:26:01 PM	13956
Aroclor 1254	ND	1.0		µg/L	1	7/1/2014 4:26:01 PM	13956
Aroclor 1260	ND	1.0		µg/L	1	7/1/2014 4:26:01 PM	13956
Surr: Decachlorobiphenyl	88.0	33.2-131		%REC	1	7/1/2014 4:26:01 PM	13956
Surr: Tetrachloro-m-xylene	78.0	34.7-138		%REC	1	7/1/2014 4:26:01 PM	13956
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/30/2014 11:53:11 PM	13970
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/30/2014 11:53:11 PM	13970
Surr: DNOP	125	76-161		%REC	1	6/30/2014 11:53:11 PM	13970
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/30/2014 1:22:07 PM	R19588
Surr: BFB	95.8	70.9-130		%REC	1	6/30/2014 1:22:07 PM	R19588
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	7/1/2014 1:43:55 PM	13957
1-Methylnaphthalene	ND	2.0		µg/L	1	7/1/2014 1:43:55 PM	13957
2-Methylnaphthalene	ND	2.0		µg/L	1	7/1/2014 1:43:55 PM	13957
Acenaphthylene	ND	2.5		µg/L	1	7/1/2014 1:43:55 PM	13957
Acenaphthene	ND	5.0		µg/L	1	7/1/2014 1:43:55 PM	13957
Fluorene	ND	0.80		µg/L	1	7/1/2014 1:43:55 PM	13957
Phenanthrene	ND	0.60		µg/L	1	7/1/2014 1:43:55 PM	13957
Anthracene	ND	0.60		µg/L	1	7/1/2014 1:43:55 PM	13957
Fluoranthene	ND	0.30		µg/L	1	7/1/2014 1:43:55 PM	13957
Pyrene	ND	0.30		µg/L	1	7/1/2014 1:43:55 PM	13957
Benz(a)anthracene	ND	0.070		µg/L	1	7/1/2014 1:43:55 PM	13957
Chrysene	ND	0.20		µg/L	1	7/1/2014 1:43:55 PM	13957
Benzo(b)fluoranthene	ND	0.10		µg/L	1	7/1/2014 1:43:55 PM	13957
Benzo(k)fluoranthene	ND	0.070		µg/L	1	7/1/2014 1:43:55 PM	13957
Benzo(a)pyrene	ND	0.070		µg/L	1	7/1/2014 1:43:55 PM	13957
Dibenz(a,h)anthracene	ND	0.12		µg/L	1	7/1/2014 1:43:55 PM	13957
Benzo(g,h,i)perylene	ND	0.12		µg/L	1	7/1/2014 1:43:55 PM	13957
Indeno(1,2,3-cd)pyrene	ND	0.25		µg/L	1	7/1/2014 1:43:55 PM	13957

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
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406C84

Date Reported: 7/21/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 45-7, JUN '14

Project: LDG T2 45-7 JUN '14

Collection Date: 6/26/2014 9:12:00 AM

Lab ID: 1406C84-001

Matrix: AQUEOUS

Received Date: 6/27/2014 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8310: PAHS							Analyst: SCC
Surr: Benzo(e)pyrene	77.8	32.1-134		%REC	1	7/1/2014 1:43:55 PM	13957
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	12	2.0	*	mg/L	20	6/27/2014 12:28:32 PM	R19577
Chloride	79	10		mg/L	20	6/27/2014 12:28:32 PM	R19577
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	6/27/2014 11:51:17 AM	R19577
Bromide	0.30	0.10		mg/L	1	6/27/2014 11:51:17 AM	R19577
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	6/27/2014 11:51:17 AM	R19577
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	6/27/2014 11:51:17 AM	R19577
Sulfate	490	10	*	mg/L	20	6/27/2014 12:28:32 PM	R19577
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF
Aluminum	0.21	0.020	*	mg/L	1	7/3/2014 4:48:25 PM	R19670
Barium	0.064	0.0020		mg/L	1	7/2/2014 5:42:14 PM	R19650
Boron	0.47	0.040		mg/L	1	7/3/2014 4:48:25 PM	R19670
Cadmium	ND	0.0020		mg/L	1	7/2/2014 5:42:14 PM	R19650
Calcium	22	1.0		mg/L	1	7/2/2014 5:42:14 PM	R19650
Chromium	ND	0.0060		mg/L	1	7/2/2014 5:42:14 PM	R19650
Cobalt	ND	0.0060		mg/L	1	7/2/2014 5:42:14 PM	R19650
Copper	ND	0.0060		mg/L	1	7/2/2014 5:42:14 PM	R19650
Iron	0.041	0.020		mg/L	1	7/2/2014 5:42:14 PM	R19650
Magnesium	ND	1.0		mg/L	1	7/2/2014 5:42:14 PM	R19650
Manganese	0.020	0.0020		mg/L	1	7/2/2014 5:42:14 PM	R19650
Molybdenum	0.028	0.0080		mg/L	1	7/2/2014 5:42:14 PM	R19650
Nickel	ND	0.010		mg/L	1	7/2/2014 5:42:14 PM	R19650
Potassium	31	1.0		mg/L	1	7/2/2014 5:42:14 PM	R19650
Silver	ND	0.0050		mg/L	1	7/2/2014 5:42:14 PM	R19650
Sodium	320	5.0		mg/L	5	7/3/2014 4:50:18 PM	R19670
Zinc	ND	0.010		mg/L	1	7/2/2014 5:42:14 PM	R19650
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	0.013	0.0010	*	mg/L	1	7/8/2014 6:27:55 PM	R19751
Lead	ND	0.0010		mg/L	1	7/8/2014 6:27:55 PM	R19751
Selenium	0.0014	0.0010		mg/L	1	7/8/2014 6:27:55 PM	R19751
Uranium	ND	0.0010		mg/L	1	7/8/2014 6:27:55 PM	R19751
EPA METHOD 245.1: MERCURY							Analyst: MMD
Mercury	ND	0.00020		mg/L	1	7/14/2014 3:20:42 PM	14201
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Toluene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629

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

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

Analytical Report

Lab Order 1406C84

Date Reported: 7/21/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Lightning Dock Geothermal**Client Sample ID:** LDG T2 45-7, JUN '14**Project:** LDG T2 45-7 JUN '14**Collection Date:** 6/26/2014 9:12:00 AM**Lab ID:** 1406C84-001**Matrix:** AQUEOUS**Received Date:** 6/27/2014 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Ethylbenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Naphthalene	ND	2.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
2-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Acetone	ND	10		µg/L	1	7/2/2014 2:32:27 AM	R19629
Bromobenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Bromodichloromethane	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Bromoform	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Bromomethane	ND	3.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
2-Butanone	ND	10		µg/L	1	7/2/2014 2:32:27 AM	R19629
Carbon disulfide	ND	10		µg/L	1	7/2/2014 2:32:27 AM	R19629
Carbon Tetrachloride	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Chlorobenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Chloroethane	ND	2.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Chloroform	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Chloromethane	ND	3.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
2-Chlorotoluene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
4-Chlorotoluene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
cis-1,2-DCE	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Dibromochloromethane	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Dibromomethane	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,1-Dichloroethane	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,1-Dichloroethene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,2-Dichloropropane	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,3-Dichloropropane	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
2,2-Dichloropropane	ND	2.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,1-Dichloropropene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Hexachlorobutadiene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406C84

Date Reported: 7/21/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: LDG T2 45-7, JUN '14

Project: LDG T2 45-7 JUN '14

Collection Date: 6/26/2014 9:12:00 AM

Lab ID: 1406C84-001

Matrix: AQUEOUS

Received Date: 6/27/2014 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
2-Hexanone	ND	10		µg/L	1	7/2/2014 2:32:27 AM	R19629
Isopropylbenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
4-Isopropyltoluene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
4-Methyl-2-pentanone	ND	10		µg/L	1	7/2/2014 2:32:27 AM	R19629
Methylene Chloride	ND	3.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
n-Butylbenzene	ND	3.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
n-Propylbenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
sec-Butylbenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Styrene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
tert-Butylbenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
trans-1,2-DCE	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Trichlorofluoromethane	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Vinyl chloride	ND	1.0		µg/L	1	7/2/2014 2:32:27 AM	R19629
Xylenes, Total	ND	1.5		µg/L	1	7/2/2014 2:32:27 AM	R19629
Surr: 1,2-Dichloroethane-d4	87.5	70-130		%REC	1	7/2/2014 2:32:27 AM	R19629
Surr: 4-Bromofluorobenzene	99.4	70-130		%REC	1	7/2/2014 2:32:27 AM	R19629
Surr: Dibromofluoromethane	84.0	70-130		%REC	1	7/2/2014 2:32:27 AM	R19629
Surr: Toluene-d8	100	70-130		%REC	1	7/2/2014 2:32:27 AM	R19629
EPA METHOD 418.1: TPH							Analyst: BCN
Petroleum Hydrocarbons, TR	1.3	1.0		mg/L	1	6/30/2014	13971
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	7/3/2014	14049
SM4500-H+B: PH							Analyst: JRR
pH	6.80	1.68	H	pH units	1	6/30/2014 4:02:54 PM	R19635
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1300	20.0	*	mg/L	1	7/2/2014 5:09:00 PM	14000
SM 4500 NORG C: TKN							Analyst: SRM

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

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

Analytical ReportLab Order **1406C84**

Date Reported: 7/21/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Lightning Dock Geothermal**Client Sample ID:** LDG T2 45-7, JUN '14**Project:** LDG T2 45-7 JUN '14**Collection Date:** 6/26/2014 9:12:00 AM**Lab ID:** 1406C84-001**Matrix:** AQUEOUS**Received Date:** 6/27/2014 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM 4500 NORG C: TKN							Analyst: SRM
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	7/17/2014 9:19:00 AM	14257

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 5 of 35
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406C84

Date Reported: 7/21/2014

CLIENT: Lightning Dock Geothermal

Client Sample ID: Trip Blank

Project: LDG T2 45-7 JUN '14

Collection Date:

Lab ID: 1406C84-002

Matrix: TRIP BLANK

Received Date: 6/27/2014 7:10:00 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	6/30/2014 10:08:08 PM	13978
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Toluene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Ethylbenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Naphthalene	ND	2.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1-Methylnaphthalene	ND	4.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
2-Methylnaphthalene	ND	4.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Acetone	ND	10		µg/L	1	7/1/2014 10:07:14 PM	R19629
Bromobenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Bromodichloromethane	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Bromoform	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Bromomethane	ND	3.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
2-Butanone	ND	10		µg/L	1	7/1/2014 10:07:14 PM	R19629
Carbon disulfide	ND	10		µg/L	1	7/1/2014 10:07:14 PM	R19629
Carbon Tetrachloride	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Chlorobenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Chloroethane	ND	2.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Chloroform	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Chloromethane	ND	3.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
2-Chlorotoluene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
4-Chlorotoluene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
cis-1,2-DCE	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Dibromochloromethane	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Dibromomethane	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,1-Dichloroethane	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,1-Dichloroethene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,2-Dichloropropane	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629

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

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

Analytical Report

Lab Order 1406C84

Date Reported: 7/21/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Lightning Dock Geothermal**Client Sample ID:** Trip Blank**Project:** LDG T2 45-7 JUN '14**Collection Date:****Lab ID:** 1406C84-002**Matrix:** TRIP BLANK**Received Date:** 6/27/2014 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
2,2-Dichloropropane	ND	2.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,1-Dichloropropene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Hexachlorobutadiene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
2-Hexanone	ND	10		µg/L	1	7/1/2014 10:07:14 PM	R19629
Isopropylbenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
4-Isopropyltoluene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
4-Methyl-2-pentanone	ND	10		µg/L	1	7/1/2014 10:07:14 PM	R19629
Methylene Chloride	ND	3.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
n-Butylbenzene	ND	3.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
n-Propylbenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
sec-Butylbenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Styrene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
tert-Butylbenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
trans-1,2-DCE	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Trichlorofluoromethane	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Vinyl chloride	ND	1.0		µg/L	1	7/1/2014 10:07:14 PM	R19629
Xylenes, Total	ND	1.5		µg/L	1	7/1/2014 10:07:14 PM	R19629
Surr: 1,2-Dichloroethane-d4	85.7	70-130		%REC	1	7/1/2014 10:07:14 PM	R19629
Surr: 4-Bromofluorobenzene	98.4	70-130		%REC	1	7/1/2014 10:07:14 PM	R19629
Surr: Dibromofluoromethane	86.2	70-130		%REC	1	7/1/2014 10:07:14 PM	R19629
Surr: Toluene-d8	100	70-130		%REC	1	7/1/2014 10:07:14 PM	R19629

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
P	Sample pH greater than 2.
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
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 140702013
Project Name: 1406C84

Analytical Results Report

Sample Number 140702013-001 **Sampling Date** 6/26/2014 **Date/Time Received** 7/1/2014 1:00 PM
Client Sample ID 1406C84-001I / LDG T2 45-7, JUN 14 **Sampling Time** 9:12 AM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Lithium	0.653	mg/L	0.01	7/15/2014	ETL	EPA 200.8	
Dissolved Rubidium	0.355	mg/L	0.01	7/15/2014	ETL	EPA 200.8	
Dissolved Tungsten	0.0867	mg/L	0.05	7/15/2014	ETL	EPA 200.8	

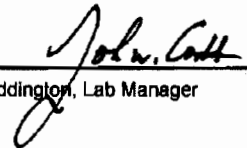
Sample Number 140702013-002 **Sampling Date** 6/26/2014 **Date/Time Received** 7/1/2014 1:00 PM
Client Sample ID 1406C84-001J / LDG T2 45-7, JUN 14 **Sampling Time** 9:12 AM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	7/7/2014	CRW	EPA 335.4	

Sample Number 140702013-003 **Sampling Date** 6/26/2014 **Date/Time Received** 7/1/2014 1:00 PM
Client Sample ID 1406C84-001L / LDG T2 45-7, JUN 14 **Sampling Time** 9:12 AM
Matrix Water **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Total P	ND	mg/L	0.01	7/9/2014	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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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CE00028; NM:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00168; ID:WA00168; WA:C585; MT:CE00095; FL(NELAP):E871099

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
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 140702013
Project Name: 1406C84

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Dissolved Tungsten	0.0495	mg/L	0.05	99.0	85-115	7/15/2014	7/15/2014
Dissolved Rubidium	0.0918	mg/L	0.1	91.8	85-115	7/15/2014	7/15/2014
Dissolved Lithium	0.0460	mg/L	0.05	92.0	85-115	7/15/2014	7/15/2014
Total P	1.04	mg/L	1	104.0	80-120	7/9/2014	7/9/2014
Cyanide	0.490	mg/L	0.5	98.0	80-120	7/7/2014	7/7/2014

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
140702013-003	Total P	ND	1.02	mg/L	1	102.0	70-130	7/9/2014	7/9/2014
140702013-001	Dissolved Tungsten	0.0867	0.589	mg/L	0.5	100.5	70-130	7/15/2014	7/15/2014
140702013-001	Dissolved Rubidium	0.355	1.28	mg/L	1	92.5	70-130	7/15/2014	7/15/2014
140702013-001	Dissolved Lithium	0.653	1.15	mg/L	0.5	99.4	70-130	7/15/2014	7/15/2014
140703022-001	Cyanide	ND	0.459	mg/L	0.5	91.8	70-130	7/7/2014	7/7/2014

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Total P	1.04	mg/L	1	104.0	1.9	0-20	7/9/2014	7/9/2014
Dissolved Tungsten	0.593	mg/L	0.5	101.3	0.7	0-20	7/15/2014	7/15/2014
Dissolved Rubidium	1.24	mg/L	1	88.5	3.2	0-20	7/15/2014	7/15/2014
Dissolved Lithium	1.12	mg/L	0.5	93.4	2.6	0-20	7/15/2014	7/15/2014
Cyanide	0.469	mg/L	0.5	93.8	2.2	0-20	7/7/2014	7/7/2014

Comments:

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

Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 140702013
Project Name: 1406C84

Analytical Results Report Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	7/7/2014	7/7/2014
Dissolved Lithium	ND	mg/L	0.001	7/15/2014	7/15/2014
Dissolved Rubidium	ND	mg/L	0.001	7/15/2014	7/15/2014
Dissolved Tungsten	ND	mg/L	0.01	7/15/2014	7/15/2014
Total P	ND	mg/L	0.01	7/9/2014	7/9/2014

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

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:Cert0085; FL(NELAP): E871099



Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5800

ANALYTICAL RESULTS

Project: 1406C84

Pace Project No.: 30124106

Sample: 1406C84-01KM LDG T2 45- Lab ID: 30124106001 Collected: 06/26/14 09:12 Received: 07/02/14 10:30 Matrix: Drinking Water
7, JUN

PWS: Site ID: Sample Type:

Comments: • Sample 30124106001 was received and analyzed for radon content outside of the method recommended four day hold time.
Radon results have been decay corrected to the collection date and time supplied by the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	2,765 ± 155 (112) C:NA T:NA	pCi/L	07/03/14 21:15	10043-92-2	
Radium-226	EPA 903.1	5.14 ± 1.13 (0.651) C:NA T:84%	pCi/L	07/17/14 13:47	13982-83-3	
Radium-228	EPA 904.0	0.293 ± 0.365 (0.782) C:76% T:80%	pCi/L	07/17/14 11:49	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Date: 07/18/2014 09:48 AM



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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: 1406C84
Pace Project No.: 30124106

QC Batch:	RADC/20407	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30124106001		

METHOD BLANK:	754115	Matrix:	Water
Associated Lab Samples:	30124106001		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.523 ± 0.366 (0.708) C:74% T:91%	pCi/L	07/17/14 11:45	

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QUALITY CONTROL DATA

Project: 1406C84
Pace Project No.: 30124106

QC Batch:	RADC/20406	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30124106001		

METHOD BLANK:	754114	Matrix:	Water
Associated Lab Samples:	30124106001		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.050 ± 0.227 (0.536) C:NA T:100%	pCi/L	07/17/14 13:27	

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QUALITY CONTROL DATA

Project: 1406C84
Pace Project No.: 30124106

QC Batch:	RADC/20377	Analysis Method:	SM 7500Rn-B
QC Batch Method:	SM 7500Rn-B	Analysis Description:	7500Rn B Radon
Associated Lab Samples:	30124106001		

METHOD BLANK: 752576 Matrix: Water

Associated Lab Samples: 30124106001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radon	16.2 ± 17.6 (28.8) C:NA T:NA	pCi/L	07/03/14 19:44	

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REPORT OF LABORATORY ANALYSIS

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R19650	RunNo:	19650					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	570374	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
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								
Zinc	ND	0.010								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R19650	RunNo:	19650					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	570375	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	100	85	115			
Cadmium	0.50	0.0020	0.5000	0	100	85	115			
Calcium	49	1.0	50.00	0	98.0	85	115			
Chromium	0.49	0.0060	0.5000	0	97.1	85	115			
Cobalt	0.49	0.0060	0.5000	0	98.4	85	115			
Copper	0.49	0.0060	0.5000	0	97.4	85	115			
Iron	0.51	0.020	0.5000	0	101	85	115			
Magnesium	49	1.0	50.00	0	97.2	85	115			
Manganese	0.50	0.0020	0.5000	0	101	85	115			
Molybdenum	0.50	0.0080	0.5000	0	100	85	115			
Nickel	0.48	0.010	0.5000	0	95.8	85	115			
Potassium	48	1.0	50.00	0	96.6	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.51	0.010	0.5000	0	102	85	115			

Sample ID	1407014-002BMS	SampType:	MS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R19650	RunNo:	19650					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	570435	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	1407014-002BMS		SampType:	MS		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID:	R19650		RunNo:	19650				
Prep Date:			Analysis Date:	7/2/2014		SeqNo:	570435		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Molybdenum	0.99	0.0080	0.5000	0.4469	109	70	130				

Sample ID	1407014-002BMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID:	R19650		RunNo:	19650				
Prep Date:			Analysis Date:	7/2/2014		SeqNo:	570436		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Molybdenum	0.96	0.0080	0.5000	0.4469	103	70	130	2.64	20		

Sample ID	1406C89-001NMS		SampType: MS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: R19650		RunNo: 19650					
Prep Date:			Analysis Date: 7/2/2014		SeqNo: 570454		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.55	0.0020	0.5000	0.06485	97.0	70	130			
Cadmium	0.49	0.0020	0.5000	0	97.4	70	130			
Calcium	71	1.0	50.00	22.46	97.4	70	130			
Chromium	0.47	0.0060	0.5000	0.002160	93.6	70	130			
Cobalt	0.47	0.0060	0.5000	0	94.7	70	130			
Copper	0.49	0.0060	0.5000	0	97.2	70	130			
Iron	0.59	0.020	0.5000	0.08476	100	70	130			
Magnesium	47	1.0	50.00	0.1488	93.9	70	130			
Manganese	0.51	0.0020	0.5000	0.02256	98.2	70	130			
Molybdenum	0.50	0.0080	0.5000	0.02640	94.6	70	130			
Nickel	0.46	0.010	0.5000	0	91.1	70	130			
Silver	0.082	0.0050	0.1000	0	81.8	70	130			

Sample ID	1406C89-001NMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID:	R19650		RunNo:	19650				
Prep Date:			Analysis Date:	7/2/2014		SeqNo:	570455		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Barium	0.56	0.0020	0.5000	0.06485	98.9	70	130	1.72	20		
Cadmium	0.49	0.0020	0.5000	0	98.8	70	130	1.46	20		
Calcium	74	1.0	50.00	22.46	103	70	130	3.86	20		
Chromium	0.48	0.0060	0.5000	0.002160	96.4	70	130	2.92	20		
Cobalt	0.48	0.0060	0.5000	0	96.5	70	130	1.83	20		
Copper	0.49	0.0060	0.5000	0	98.8	70	130	1.66	20		
Iron	0.60	0.020	0.5000	0.08476	102	70	130	1.79	20		
Magnesium	49	1.0	50.00	0.1488	98.3	70	130	4.64	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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	1406C89-001NMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID:	R19650		RunNo:	19650				
Prep Date:			Analysis Date:	7/2/2014		SeqNo:	570455		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Manganese	0.52	0.0020	0.5000	0.02256	100	70	130	1.74	20		
Molybdenum	0.52	0.0080	0.5000	0.02640	98.1	70	130	3.47	20		
Nickel	0.47	0.010	0.5000	0	94.8	70	130	3.99	20		
Silver	0.083	0.0050	0.1000	0	83.5	70	130	2.00	20		

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R19670	RunNo:	19670					
Prep Date:		Analysis Date:	7/3/2014	SeqNo:	571063	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Boron	ND	0.040								
Sodium	ND	1.0								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R19670	RunNo:	19670					
Prep Date:		Analysis Date:	7/3/2014	SeqNo:	571064	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.57	0.020	0.5000	0	115	85	115			
Boron	0.53	0.040	0.5000	0	107	85	115			
Sodium	51	1.0	50.00	0	103	85	115			

Sample ID	1407014-002BMS	SampType:	MS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R19670	RunNo:	19670					
Prep Date:		Analysis Date:	7/3/2014	SeqNo:	572033	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	3.9	0.20	2.500	1.415	97.6	70	130			

Sample ID	1407014-002BMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID:	R19670		RunNo:	19670				
Prep Date:			Analysis Date:	7/3/2014		SeqNo:	572034		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Boron	4.0	0.20	2.500	1.415	102	70	130	3.12	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	1406C89-001NMS		SampType:	MS		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID:	R19670		RunNo:	19670				
Prep Date:			Analysis Date:	7/3/2014		SeqNo:	572053		Units:		mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Aluminum	0.81	0.020	0.5000	0.2291	116	70	130			
Boron	0.95	0.040	0.5000	0.4366	102	70	130			

Sample ID	1406C89-001NMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID:	R19670		RunNo:	19670				
Prep Date:			Analysis Date:	7/3/2014		SeqNo:	572054		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Aluminum	0.81	0.020	0.5000	0.2291	116	70	130	0.515	20	
Boron	0.94	0.040	0.5000	0.4366	100	70	130	0.982	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	LCS		SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	LCSW		Batch ID:	R19751		RunNo:	19751			
Prep Date:			Analysis Date:	7/8/2014		SeqNo:	573741		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.7	85	115			
Lead	0.026	0.0010	0.02500	0	102	85	115			
Selenium	0.021	0.0010	0.02500	0	85.2	85	115			
Uranium	0.026	0.0010	0.02500	0	103	85	115			

Sample ID	MB		SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	PBW		Batch ID:	R19751		RunNo:	19751			
Prep Date:			Analysis Date:	7/8/2014		SeqNo:	573742		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	1407013-001GMS		SampType:	MS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	R19751		RunNo:	19751			
Prep Date:			Analysis Date:	7/8/2014		SeqNo:	573744		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.028	0.0010	0.02500	0.004459	94.9	70	130			
Lead	0.026	0.0010	0.02500	0	105	70	130			
Selenium	0.028	0.0010	0.02500	0.006986	84.8	70	130			
Uranium	0.043	0.0010	0.02500	0.01492	111	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	MB-14201	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	14201	RunNo:	19864					
Prep Date:	7/14/2014	Analysis Date:	7/14/2014	SeqNo:	577396	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-14201	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	14201	RunNo:	19864					
Prep Date:	7/14/2014	Analysis Date:	7/14/2014	SeqNo:	577397	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	101	80	120			

Sample ID	1406C84-001GMS	SampType:	MS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LDG T2 45-7, JUN '1	Batch ID:	14201	RunNo:	19864					
Prep Date:	7/14/2014	Analysis Date:	7/14/2014	SeqNo:	577401	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0054	0.00020	0.005000	0	108	75	125			

Sample ID	1406C84-001GMSD	SampType:	MSD	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LDG T2 45-7, JUN '1	Batch ID:	14201	RunNo:	19864					
Prep Date:	7/14/2014	Analysis Date:	7/14/2014	SeqNo:	577402	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	75	125	7.15	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
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	A6		SampType: CCV_6		TestCode: EPA Method 300.0: Anions					
Client ID:	BatchQC		Batch ID: R19577		RunNo: 19577					
Prep Date:			Analysis Date: 6/27/2014		SeqNo: 567447		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	101	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	102	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	101	90	110			
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID	MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions						
Client ID:	PBW	Batch ID: R19577		RunNo: 19577						
Prep Date:		Analysis Date: 6/27/2014		SeqNo: 567449		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								
Nitrogen, Nitrite (As N)	ND	0.10								
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					
Client ID:	LCSW		Batch ID: R19577		RunNo: 19577					
Prep Date:			Analysis Date: 6/27/2014		SeqNo: 567450		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			
Chloride	4.6	0.50	5.000	0	91.9	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	96.0	90	110			
Bromide	2.4	0.10	2.500	0	97.6	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.7	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.5	90	110			
Sulfate	9.5	0.50	10.00	0	94.7	90	110			

Sample ID	1406C84-001FMS		SampType:	MS		TestCode:	EPA Method 300.0: Anions				
Client ID:	LDG T2 45-7, JUN '1		Batch ID:	R19577		RunNo:	19577				
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567452		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.8	75.5	104				

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	1406C84-001FMS		SampType:	MS		TestCode:	EPA Method 300.0: Anions				
Client ID:	LDG T2 45-7, JUN '1		Batch ID:	R19577		RunNo:	19577				
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567452		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Bromide	2.7	0.10	2.500	0.3010	97.2	85.1	108				
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.3	87.8	111				
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.9	81.3	101				

Sample ID	1406C84-001FMSD		SampType:	MSD		TestCode:	EPA Method 300.0: Anions				
Client ID:	LDG T2 45-7, JUN '1		Batch ID:	R19577		RunNo:	19577				
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567453		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.5	75.5	104	1.38	20		
Bromide	2.7	0.10	2.500	0.3010	96.5	85.1	108	0.635	20		
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.1	87.8	111	1.16	20		
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	94.8	81.3	101	1.11	20		

Sample ID	1406C67-001AMS	SampType:	MS	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R19577	RunNo:	19577					
Prep Date:		Analysis Date:	6/27/2014	SeqNo:	567456	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.0	0.10	0.5000	0.5643	95.2	72.7	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.0	75.5	104			
Bromide	2.5	0.10	2.500	0.1222	96.4	85.1	108			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.6	87.8	111			
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	94.2	81.3	101			

Sample ID	1406C67-001AMSD			SampType:	MSD		TestCode:	EPA Method 300.0: Anions			
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577				
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567457		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Fluoride	1.0	0.10	0.5000	0.5643	95.6	72.7	110	0.163	20		
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.9	75.5	104	0.113	20		
Bromide	2.5	0.10	2.500	0.1222	96.6	85.1	108	0.221	20		
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.5	87.8	111	0.0952	20		
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.0	81.3	101	0.132	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	A4		SampType:	CCV_4		TestCode:	EPA Method 300.0: Anions			
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577			
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567459		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.99	0.10	1.000	0	99.1	90	110			
Chloride	4.6	0.50	5.000	0	92.7	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	99.2	90	110			
Bromide	4.9	0.10	5.000	0	97.7	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.8	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	96.9	90	110			
Sulfate	12	0.50	12.50	0	94.3	90	110			

Sample ID	A5		SampType:	CCV_5		TestCode:	EPA Method 300.0: Anions			
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577			
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567471		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	102	90	110			
Chloride	7.8	0.50	8.000	0	97.2	90	110			
Nitrogen, Nitrite (As N)	3.1	0.10	3.200	0	96.6	90	110			
Bromide	8.0	0.10	8.000	0	100	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P)	8.0	0.50	8.000	0	100	90	110			
Sulfate	20	0.50	20.00	0	98.6	90	110			

Sample ID	A6		SampType:	CCV_6		TestCode:	EPA Method 300.0: Anions			
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577			
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567484		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.5	0.10	2.400	0	103	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.8	0.10	4.800	0	99.3	90	110			
Bromide	12	0.10	12.00	0	102	90	110			
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Phosphorus, Orthophosphate (As P)	12	0.50	12.00	0	103	90	110			
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID	A4		SampType:	CCV_4		TestCode:	EPA Method 300.0: Anions			
Client ID:	BatchQC		Batch ID:	R19577		RunNo:	19577			
Prep Date:			Analysis Date:	6/27/2014		SeqNo:	567496		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.0	0.10	1.000	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19577		RunNo: 19577							
Prep Date:	Analysis Date: 6/27/2014		SeqNo: 567496		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			
Nitrogen, Nitrite (As N)	1.9	0.10	2.000	0	94.7	90	110			
Bromide	4.9	0.10	5.000	0	98.6	90	110			
Nitrogen, Nitrate (As N)	3.1	0.10	3.000	0	102	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.8	90	110			
Sulfate	12	0.50	12.50	0	95.6	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19577		RunNo: 19577							
Prep Date:	Analysis Date: 6/27/2014		SeqNo: 567508		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	101	90	110			
Chloride	7.7	0.50	8.000	0	96.3	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	98.5	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	102	90	110			
Phosphorus, Orthophosphate (As P	8.0	0.50	8.000	0	99.7	90	110			
Sulfate	20	0.50	20.00	0	97.9	90	110			

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19577		RunNo: 19577							
Prep Date:	Analysis Date: 6/28/2014		SeqNo: 567519		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.5	0.10	2.400	0	102	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.8	0.10	4.800	0	100	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			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	103	90	110			
Sulfate	30	0.50	30.00	0	101	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19577		RunNo: 19577							
Prep Date:	Analysis Date: 6/28/2014		SeqNo: 567531		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.99	0.10	1.000	0	99.4	90	110			
Chloride	4.6	0.50	5.000	0	92.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19577		RunNo: 19577							
Prep Date:	Analysis Date: 6/28/2014		SeqNo: 567531		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	97.7	90	110			
Bromide	4.9	0.10	5.000	0	98.2	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.6	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	97.0	90	110			
Sulfate	12	0.50	12.50	0	94.7	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R19577		RunNo: 19577							
Prep Date:	Analysis Date: 6/28/2014		SeqNo: 567537		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	102	90	110			
Chloride	7.8	0.50	8.000	0	97.3	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	101	90	110			
Bromide	8.0	0.10	8.000	0	100	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P)	8.0	0.50	8.000	0	100	90	110			
Sulfate	20	0.50	20.00	0	98.5	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	MB-13971	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH					
Client ID:	PBW	Batch ID:	13971	RunNo:	19579					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	567685	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-13971		SampType:	LCS		TestCode:	EPA Method 418.1: TPH				
Client ID:	LCSW		Batch ID:	13971		RunNo:	19579				
Prep Date:	6/30/2014		Analysis Date:	6/30/2014		SeqNo:	567686		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-13971	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	13971	RunNo:	19579					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	567687	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	5.1	1.0	5.000	0	101	80	120	9.98	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	MB-13978	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	13978	RunNo:	19565					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	567952	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-13978	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	13978	RunNo:	19565					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	567953	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.095	0.010	0.1000	0	95.0	70	130			

Sample ID	1406C89-001DMS	SampType:	MS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	BatchQC	Batch ID:	13978	RunNo:	19565					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	567979	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	0.005000	100	55.2	157			

Sample ID	1406C89-001DMSD	SampType:	MSD	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	BatchQC	Batch ID:	13978	RunNo:	19565					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	567980	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.097	0.010	0.1000	0.005000	92.0	55.2	157	7.92	23.4	

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	1406C84-001CMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LDG T2 45-7, JUN '1	Batch ID:	13970	RunNo:	19585					
Prep Date:	6/30/2014	Analysis Date:	7/1/2014	SeqNo:	568145	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.4	0.20	2.500	0	136	64.4	178			
Surr: DNOP	0.30		0.2500		120	76	161			

Sample ID	1406C84-001CMSD			SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range			
Client ID:	LDG T2 45-7, JUN '1		Batch ID:	13970		RunNo:	19585				
Prep Date:	6/30/2014		Analysis Date:	7/1/2014		SeqNo:	568146		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	3.9	0.20	2.500	0	156	64.4	178	13.9	20		
Surr: DNOP	0.32		0.2500		126	76	161	0	0		

Sample ID	MB-13970	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	13970	RunNo:	19585					
Prep Date:	6/30/2014	Analysis Date:	6/30/2014	SeqNo:	568158	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Gasoline or Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.44		0.5000		88.6	76	161			

Sample ID	LCS-13970		SampType:	LCS		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID:	13970		RunNo:	19585				
Prep Date:	6/30/2014		Analysis Date:	6/30/2014		SeqNo:	568159		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	116	65.8	162				
Surr: DNOP	0.25		0.2500		99.4	76	161				

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R19588	RunNo:	19588					
Prep Date:		Analysis Date:	6/30/2014	SeqNo:	567746	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		94.1	70.9	130			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R19588	RunNo:	19588					
Prep Date:		Analysis Date:	6/30/2014	SeqNo:	567747	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.6	80	120			
Surr: BFB	21		20.00		106	70.9	130			

Sample ID	1406C76-016AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	BatchQC	Batch ID:	R19588	RunNo:	19588					
Prep Date:		Analysis Date:	6/30/2014	SeqNo:	567758	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	13	0.50	5.000	8.224	96.6	79	121			
Surr: BFB	240		200.0		118	70.9	130			

Sample ID	1406C76-016AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	BatchQC	Batch ID:	R19588	RunNo:	19588					
Prep Date:		Analysis Date:	6/30/2014	SeqNo:	567759	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	13	0.50	5.000	8.224	88.4	79	121	3.18	20	
Surr: BFB	230		200.0		117	70.9	130	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Wall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	MB-13956	SampType: MBLK		TestCode: EPA Method 8082: PCB's						
Client ID:	PBW	Batch ID: 13956		RunNo: 19593						
Prep Date:	6/29/2014	Analysis Date: 7/1/2014		SeqNo: 567988			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	2.6		2.500		106	33.2	131			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	34.7	138			

Sample ID	LCS-13956		SampType:	LCS		TestCode:	EPA Method 8082: PCB's				
Client ID:	LCSW		Batch ID:	13956		RunNo:	19593				
Prep Date:	6/29/2014		Analysis Date:	7/1/2014		SeqNo:	567990		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	3.6	1.0	5.000	0	72.5	15	134				
Aroclor 1260	4.6	1.0	5.000	0	92.3	32.1	148				
Surr: Decachlorobiphenyl	2.6		2.500		104	33.2	131				
Surr: Tetrachloro-m-xylene	2.2		2.500		87.6	34.7	138				

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	5mL-rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R19629			RunNo: 19629					
Prep Date:		Analysis Date: 7/1/2014			SeqNo: 569066		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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	5mL-rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	PBW	Batch ID: R19629		RunNo: 19629						
Prep Date:		Analysis Date: 7/1/2014		SeqNo: 569066		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								
cis-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	8.5		10.00		84.6	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		90.7	70	130			
Surr: Dibromofluoromethane	8.3		10.00		83.3	70	130			
Surr: Toluene-d8	11		10.00		111	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R19629	RunNo:	19629					
Prep Date:		Analysis Date:	7/1/2014	SeqNo:	569069	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.8	70	130			
Toluene	19	1.0	20.00	0	95.1	80	120			
Chlorobenzene	19	1.0	20.00	0	96.3	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R19629	RunNo:	19629					
Prep Date:		Analysis Date:	7/1/2014	SeqNo:	569069	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	22	1.0	20.00	0	111	82.6	131			
Trichloroethene (TCE)	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		90.8	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.2	70	130			
Surr: Dibromofluoromethane	8.7		10.00		87.2	70	130			
Surr: Toluene-d8	9.9		10.00		99.5	70	130			

Sample ID	1406c45-007a.ms	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	BatchQC	Batch ID:	R19629	RunNo:	19629					
Prep Date:		Analysis Date:	7/1/2014	SeqNo:	569077	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	210	10	200.0	10.80	100	70	130			
Toluene	210	10	200.0	3.040	103	67.5	123			
Chlorobenzene	200	10	200.0	0	99.4	70	130			
1,1-Dichloroethene	220	10	200.0	0	109	81.9	134			
Trichloroethene (TCE)	190	10	200.0	0	94.1	70	130			
Surr: 1,2-Dichloroethane-d4	95		100.0		95.2	70	130			
Surr: 4-Bromofluorobenzene	100		100.0		99.8	70	130			
Surr: Dibromofluoromethane	86		100.0		86.2	70	130			
Surr: Toluene-d8	100		100.0		102	70	130			

Sample ID	1406c45-007a msd	SampType:	MSD	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	BatchQC	Batch ID:	R19629	RunNo:	19629					
Prep Date:		Analysis Date:	7/1/2014	SeqNo:	569078	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	210	10	200.0	10.80	101	70	130	0.245	20	
Toluene	200	10	200.0	3.040	96.2	67.5	123	7.08	20	
Chlorobenzene	190	10	200.0	0	97.2	70	130	2.20	20	
1,1-Dichloroethene	220	10	200.0	0	110	81.9	134	1.62	20	
Trichloroethene (TCE)	190	10	200.0	0	96.0	70	130	2.02	20	
Surr: 1,2-Dichloroethane-d4	98		100.0		98.4	70	130	0	0	
Surr: 4-Bromofluorobenzene	100		100.0		104	70	130	0	0	
Surr: Dibromofluoromethane	87		100.0		87.4	70	130	0	0	
Surr: Toluene-d8	100		100.0		102	70	130	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.
RL Reporting Detection Limit

QC SUMMARY REPORT

Wall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID: b5	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R19629		RunNo: 19629							
Prep Date:	Analysis Date: 7/1/2014		SeqNo: 569227		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								
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.	B Analyte detected in the associated Method Blank
Q Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH greater than 2.
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID b5	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R19629		RunNo: 19629							
Prep Date:	Analysis Date: 7/1/2014		SeqNo: 569227		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	9.1		10.00		90.9	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.5	70	130			
Surr: Dibromofluoromethane	8.3		10.00		83.2	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID 100ng lcs2	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R19629		RunNo: 19629							
Prep Date:	Analysis Date: 7/2/2014		SeqNo: 569228		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	21	1.0	20.00	0	103	80	120			
Chlorobenzene	20	1.0	20.00	0	99.1	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Full Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	100ng lcs2	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R19629	RunNo:	19629					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	569228	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	24	1.0	20.00	0	118	82.6	131			
Trichloroethene (TCE)	21	1.0	20.00	0	107	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.3	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		90.7	70	130			
Surr: Dibromofluoromethane	8.9		10.00		88.6	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID	1406c95-003a.ms	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	BatchQC	Batch ID:	R19629	RunNo:	19629					
Prep Date:		Analysis Date:	7/2/2014	SeqNo:	569232	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	2.694	108	70	130			
Toluene	23	1.0	20.00	2.274	102	67.5	123			
Chlorobenzene	19	1.0	20.00	0	97.0	70	130			
1,1-Dichloroethene	24	1.0	20.00	0	121	81.9	134			
Trichloroethene (TCE)	20	1.0	20.00	0	99.5	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.4	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.0	70	130			
Surr: Dibromofluoromethane	8.9		10.00		88.7	70	130			
Surr: Toluene-d8	10		10.00		99.7	70	130			

Sample ID	1406c95-003a msd			SampType:	MSD		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	BatchQC			Batch ID:	R19629		RunNo:	19629			
Prep Date:				Analysis Date:	7/2/2014		SeqNo:	569233		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	23	1.0	20.00	2.694	102	70	130	4.89	20		
Toluene	23	1.0	20.00	2.274	102	67.5	123	0.776	20		
Chlorobenzene	19	1.0	20.00	0	95.5	70	130	1.58	20		
1,1-Dichloroethene	22	1.0	20.00	0	109	81.9	134	9.67	20		
Trichloroethene (TCE)	20	1.0	20.00	0	98.6	70	130	0.908	20		
Surr: 1,2-Dichloroethane-d4	8.8		10.00		87.7	70	130	0	0		
Surr: 4-Bromofluorobenzene	9.5		10.00		94.8	70	130	0	0		
Surr: Dibromofluoromethane	8.3		10.00		83.0	70	130	0	0		
Surr: Toluene-d8	10		10.00		104	70	130	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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	MB-13957		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	13957		RunNo:	19586			
Prep Date:	6/29/2014		Analysis Date:	7/1/2014		SeqNo:	567939		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	19		20.00		95.4	32.1	134			

Sample ID	LCS-13957		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	13957		RunNo:	19586			
Prep Date:	6/29/2014		Analysis Date:	7/1/2014		SeqNo:	567950		Units: µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	60	2.0	80.00	0	74.8	41	76.8			
1-Methylnaphthalene	64	2.0	80.20	0	79.9	24.7	81			
2-Methylnaphthalene	62	2.0	80.00	0	77.2	17.4	81.9			
Acenaphthylene	64	2.5	80.20	0	79.3	50.3	77.5			S
Acenaphthene	64	5.0	80.00	0	80.5	27.7	81.1			
Fluorene	5.9	0.80	8.020	0	74.1	34.2	75.1			
Phenanthrene	3.4	0.60	4.020	0	85.6	44.6	88.3			
Anthracene	3.3	0.60	4.020	0	81.6	41.9	85.3			
Fluoranthene	6.9	0.30	8.020	0	86.0	40.6	88			
Pyrene	6.9	0.30	8.020	0	85.5	41	86.6			
Benz(a)anthracene	0.63	0.070	0.8020	0	78.6	43.8	86.7			
Chrysene	3.2	0.20	4.020	0	79.9	44.5	80.7			
Benzo(b)fluoranthene	0.82	0.10	1.002	0	81.8	44.3	87.1			
Benzo(k)fluoranthene	0.45	0.070	0.5000	0	90.0	39.9	94.3			

Qualifiers:

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- 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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Wall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	LCS-13957		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	13957		RunNo:	19586			
Prep Date:	6/29/2014		Analysis Date:	7/1/2014		SeqNo:	567950		Units: µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.43	0.070	0.5020	0	85.7	44	86.5			
Dibenz(a,h)anthracene	0.83	0.12	1.002	0	82.8	48.8	83.6			
Benzo(g,h,i)perylene	0.82	0.12	1.000	0	82.0	43.6	84.5			
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	77.8	49.2	91.1			
Surr. Benzo(e)pyrene	17		20.00		85.8	32.1	134			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	MB-14049	SampType:	MBLK	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID:	14049	RunNo:	19645					
Prep Date:	7/3/2014	Analysis Date:	7/3/2014	SeqNo:	569882	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-14049	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	14049	RunNo:	19645					
Prep Date:	7/3/2014	Analysis Date:	7/3/2014	SeqNo:	569883	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	25	2.5	20.00	0	125	75.7	126			

Sample ID	1406C21-002BMS	SampType:	MS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	BatchQC	Batch ID:	14049	RunNo:	19645					
Prep Date:	7/3/2014	Analysis Date:	7/3/2014	SeqNo:	569886	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	19	2.5	20.00	0	94.7	70.5	133			

Sample ID	1406C21-002BMSD	SampType:	MSD	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	BatchQC	Batch ID:	14049	RunNo:	19645					
Prep Date:	7/3/2014	Analysis Date:	7/3/2014	SeqNo:	569887	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	112	70.5	133	17.2	23.4	

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Wall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	1406c65-001c dup		SampType:	DUP		TestCode:	SM4500-H+B: pH				
Client ID:	BatchQC		Batch ID:	R19635		RunNo:	19635				
Prep Date:			Analysis Date:	6/30/2014		SeqNo:	569296		Units: pH units		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
pH	8.77	1.68								*H	

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	MB-14000	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	14000	RunNo:	19641					
Prep Date:	7/1/2014	Analysis Date:	7/2/2014	SeqNo:	569831	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-14000	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	14000	RunNo:	19641					
Prep Date:	7/1/2014	Analysis Date:	7/2/2014	SeqNo:	569832	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	960	20.0	1000	0	96.0	80	120			

Sample ID	1406C90-001DMS	SampType:	MS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	BatchQC	Batch ID:	14000	RunNo:	19641					
Prep Date:	7/1/2014	Analysis Date:	7/2/2014	SeqNo:	569837	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2670	20.0	1000	1717	95.3	80	120			

Sample ID	1406C90-001DMSD	SampType:	MSD	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	BatchQC	Batch ID:	14000	RunNo:	19641					
Prep Date:	7/1/2014	Analysis Date:	7/2/2014	SeqNo:	569838	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2690	20.0	1000	1717	97.1	80	120	0.672	5	

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.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Wall Environmental Analysis Laboratory, Inc.

WO#: 1406C84

21-Jul-14

Client: Lightning Dock Geothermal

Project: LDG T2 45-7 JUN '14

Sample ID	MB-14257	SampType:	MBLK	TestCode:	SM 4500 Norg C: TKN					
Client ID:	PBW	Batch ID:	14257	RunNo:	19965					
Prep Date:	7/16/2014	Analysis Date:	7/17/2014	SeqNo:	580029	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID	LCS-14257	SampType:	LCS	TestCode:	SM 4500 Norg C: TKN					
Client ID:	LCSW	Batch ID:	14257	RunNo:	19965					
Prep Date:	7/16/2014	Analysis Date:	7/17/2014	SeqNo:	580030	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	11	1.0	10.00	0	106	80	120			

Sample ID	1407168-002AMS	SampType:	MS	TestCode:	SM 4500 Norg C: TKN					
Client ID:	BatchQC	Batch ID:	14257	RunNo:	19965					
Prep Date:	7/16/2014	Analysis Date:	7/17/2014	SeqNo:	580032	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	31	1.0	10.00	21.56	95.2	75	125			

Sample ID	1407168-002AMSD	SampType:	MSD	TestCode:	SM 4500 Norg C: TKN					
Client ID:	BatchQC	Batch ID:	14257	RunNo:	19965					
Prep Date:	7/16/2014	Analysis Date:	7/17/2014	SeqNo:	580033	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	31	1.0	10.00	21.56	98.0	75	125	0.897	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.
- RL Reporting Detection Limit



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: LIGHTNING DOCK GEO

Work Order Number: 1406C84

RcptNo: 1

Received by/date:	CS	06/27/14	
Logged By:	Michelle Garcia	6/27/2014 7:10:00 AM	Michelle Garcia
Completed By:	Michelle Garcia	6/27/2014 9:39:46 AM	Michelle Garcia
Reviewed By:	CS	06/27/14	

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? UPS

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 5.0°C ? Yes ☐ No ☒ NA ☐
approved by client
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) properly 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 broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ 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.) Yes ☒ No ☐

of preserved
bottles checked
for pH: 10
(<2 or >12 unless noted)
Adjusted? NO
Checked by: [Signature]

Special Handling (if applicable)

16. Was client notified of all discrepancies with 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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	10.1	Good	Yes			
2	10.1	Good	Yes			

Chain-of-Custody Record

Client: LIGHTNING DOCK GEOTHERMAL

Mailing Address: 18 GREENHOUSE DR

ANIMAS, NM 88020

Phone #: 575-548-0301

email or Fax#: KACIE.PETERSON@NEWMEX.CO

QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation)

Accreditation ☐ NELAP ☐ Other

☐ EDD (Type)

Project Manager: KACIE PETERSON

Sampler: KACIE PETERSON

On location? ☒ Yes ☐ No

Sample preserved? ☒ Yes ☐ No

Container Type and #

Preservative Type

Sample Request ID

Date

Time

Matrix

LDG T2 45-7 JUN '14

(Attached)

6/20/14

14:20

Relinquished by: Kacie Peterson

Relinquished by:

6/20/14

14:20

Received by: Kacie Peterson

Received by:

6/20/14

0710

Time

Date

Time

Date

Time

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

LDG T2 45-7 JUN '14

Project #:

LDG T2 45-7 JUN '14

Project Manager:

KACIE PETERSON

Sampler:

KACIE PETERSON

On location? ☒ Yes ☐ No

Sample preserved? ☒ Yes ☐ No

Container Type and #

Preservative Type

Sample Request ID

Date

Time

Matrix

LDG T2 45-7 JUN '14

(Attached)

6/20/14

14:20

Relinquished by: Kacie Peterson

Relinquished by:

6/20/14

0710

Time

Date

Time

Date

Time

Date

Time

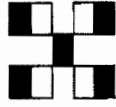
Date

Time

Date

Time

Date



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

BTEX + MTBE + TMB's (8021)	
BTEX + MTBE + TPH (Gas only)	
TPH 8015B (GRO / DRO / MRO)	
TPH (Method 418.1)	
EDB (Method 504.1)	
PAH's (8310 or 8270 SIMS)	
RCRA 8 Metals	
Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	
8081 Pesticides / 8082 PCB's	
8260B (VOA)	
8270 (Semi-VOA)	
See Attached List	X
6/20/14	
Air Bubbles (Y or N)	

Remarks:

SAMPLE:
LDG T2 45-7, JUN '14
ICE CHEST #2
AMBERS & VOAS

AMBERS VOAS

09-048

LIGHTNING DOCK GEOTHERMAL "TABLE 2"

WQCC CONTAINERS FOR ONE SAMPLING EVENT

SAMPLING EFFORT

LDG T2 45-7 JUN '14

SAMPLE:

LDG T2 45-7, JUN '14

ICE CHEST #2

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB	LABELED AT LDG	SAMPLED AT LDG	SHIPPED TO LAB	TEST RESULTS FROM LAB
8260	3 x 40 mL HCl VOAs	X X X	X X X	X X X	X X X	
EDB-504.1	2 x 40 mL Na ₂ S ₂ O ₃ VOAs + QC	X X X	X X X	X X X	X X X	QC
8082-PCB	2 X 1 L unpreserved amber glasses + QC	X X X	X X X	X X X	X X X	QC
8310-PAH	1 x 1 L unpreserved amber glass + QC	X	X	X	X X	QC
Phenols	1 x 1 L H ₂ SO ₄ amber glass + QC	X X	X X	X X	X X	QC
Radon	2 x 40 mL unpreserved VOAs	X X	X X	X X	X X	
418.1	1 x 500 mL HCl amber glass	X	X	X	X	
8015D Diesel / Motor oil range organics	1 X 500 mL unpreserved amber glass	X	X	X	X	
8015D Gasoline Range organics	2x 40 mL HCl VOAs	X X	X X	X X	X X	
Trip Blank			N/A	N/A		N/A

PLASTICS

09-024

LIGHTNING DOCK GEOTHERMAL "TABLE 2"
WQCC CONTAINERS FOR ONE SAMPLING EVENT
SAMPLING EFFORT **LDG T2 45-7 JUN '14**

SAMPLE:
LDG T2 45-7, JUN '14
ICE CHEST #1
PLASTICS

TEST	BOTTLE TYPE / PRESERVATIVE	SHIPPED FROM LAB 6/23/14	LABELLED AT LDG 6/25/14	SAMPLED AT LDG 6/26/14	SHIPPED TO LAB 6/26/14	TEST RESULTS FROM LAB
Anions, TDS, pH	1 x 500 mL unpreserved plastic 1 x 125 mL H ₂ SO ₄ plastic	X	X	X	X	
Mercury	1 x 500 mL HNO ₃ plastic	X	X	X	X	
Dissolved Metals + Li, Rb, W, Br	2 x 125 mL HNO ₃ plastics + filter ~~+~~	X	X	X	X	
Total Cyanide	1 x 500 mL NaOH plastic amber	X	X	X	X	
Radium 226/228	2 x 1 L HNO ₃ plastics	X	X	X	X	
Phosphorous	1 x 500 mL H ₂ SO ₄ plastic	X	X	X	X	
Nitrate/Nitrite TKN	1 x 125 mL unpreserved plastic 1 x 500 mL H ₂ SO ₄ plastic	X	X	X	X	
Trip Blank		X	N/A	N/A	N/A	N/A

Appendix C

ProUCL Output Results

Production and Injection Formation	NMAC 20.6.2 Std. (mg/L)	Number of Observations	Maximum (mg/L)	Minimum (mg/L)	Median (mg/L)	BTV	Method	Distribution
Arsenic	0.1	14	0.42	0.0074	0.0175	0.42	95% UPL	Nonparametric
Boron	0.75	14	2.6	0.12	0.464	2.6	95% UPL	Nonparametric
Barium	1	15	0.13	0.014	3.378	0.111	95% UPL (t)	Normal
Chloride	250	15	140	67	86.9	140	95% UPL	Nonparametric
Fluoride	1.6	15	17	8.93	11.1	15.43	95% UPL (t)	Normal
Iron	1	6	0.4	0.021	0.165	0.558	95% UPL (t)	Lognormal
Manganese	0.2	14	0.183	0.002	0.017	0.249	95% UPL (t)	Lognormal
Selenium	0.05	4	0.0038	0.0017	0.00275	0.0054	95% UPL (t)	Normal
Sulfate	600	16	630	120	506.5	630	95% UPL	Nonparametric
Zinc	10	4	0.3	0.022	0.0995	0.411	95% Percentile	Gamma
TDS	1000	16	1572	321	1177	1572	95% UPL	Nonparametric
pH	6-9 pH units	13	9.51	6.6	7.33	9.809	95% UPL (t)	Normal

Notes:

At least 9 samples are recommended

BTV = Background Threshold Value

Geothermal System Water Analysis Results with Outliers

Location	Date	Arsenic	Boron	Barium	Chloride	Fluoride	Iron	Manganese	Selenium	Sulfate	TDS	pH	Zinc
LDG 45-7 Single Phase	12/19/2013	0.012	0.46	0.065	97	14		0.018	0.0017	540	1270	6.82	
LDG 45-7 Single Phase Fluid	1/26/2012	0.018	0.441	0.076	86.9	11.1	0.026	0.027		507	1370	6.64	
LDG 45-7 Flashed Fluid	1/26/2012	0.015	0.432	0.061	90.1	11.6	0.021	0.0082		526	1390	8.37	
LDG 45-7 Single Phase Fluid	12/8/2011	0.0098	0.46	0.054	86	10			0.0034	510	1200	6.7	
LDG 45-7 Total Fluid	1/26/2012	0.014	0.411	0.05861	85.8	11		0.0078		501	1324		
LDG 53-7 Single Phase Fluid	12/13/2013		0.12	0.038	33	1.4		0.067		120	321	7.53	0.049
LDG 53-7 Single Phase Fluid	1/26/2012	0.016	0.482	0.042	79	11.6	0.04	0.002		453	1200	9.51	
LDG 55-7 Single Phase Fluid	11/27/2013	0.0074	0.65	0.094	140	9.5	0.4	0.13	0.0038	630	842	6.89	
LDG 55-7 Flashed Fluid	8/5/2010	0.02	0.469	0.071	90.2	10.8		0.016		531	1370	6.97	
LDG 55-7 Total Fluid	8/5/2010	0.019	0.447	0.071	86	10.3		0.015		506	1306		
LDG 55-7 Flashed Fluid	8/5/2010	0.018	0.467	0.068	89.8	9.37		0.0069		526	1360	6.6	
LDG 55-7 Total Fluid	8/5/2010	0.017		0.05	85.6	8.93		0.0066		501	1296		
LDG 63-7 Single Phase Fluid	12/20/2013	3.2	2	0.051	67	17	0.29	0.028	0.0021	250	800	8.41	0.027
LDG 63-7 Single Phase Fluid	8/28/2012	0.056	2.09	0.014	78.1	14.2	3.91	0.183		303	1020	9.45	
LDG 52-7 Single Phase	11/5/2003	0.07	10.10	53.1	111	11.82		0.474		545	1572	9.26	0.30
LDG 47-7	12/21/2013	0.42	2.6	0.13	130	12	0.32	0.14		250	1190	7.33	0.022

Geothermal System Water Analysis Results without Outliers

Location	Date	Arsenic	Boron	Barium	Chloride	Fluoride	Iron	Manganese	Selenium	Sulfate	TDS	pH	Zinc
LDG 45-7 Single Phase	12/19/2013	0.012	0.46	0.065	97	14		0.018	0.0017	540	1270	6.82	
LDG 45-7 Single Phase Fluid	1/26/2012	0.018	0.441	0.076	86.9	11.1	0.026	0.027		507	1370	6.64	
LDG 45-7 Flashed Fluid	1/26/2012	0.015	0.432	0.061	90.1	11.6	0.021	0.0082		526	1390	8.37	
LDG 45-7 Single Phase Fluid	12/8/2011	0.0098	0.46	0.054	86	10			0.0034	510	1200	6.7	
LDG 45-7 Total Fluid	1/26/2012	0.014	0.411	0.05861	85.8	11		0.0078		501	1324		
LDG 53-7 Single Phase Fluid	12/13/2013		0.12	0.038				0.067		120	321	7.53	0.049
LDG 53-7 Single Phase Fluid	1/26/2012	0.016	0.482	0.042	79	11.6	0.04	0.002		453	1200	9.51	
LDG 55-7 Single Phase Fluid	11/27/2013	0.0074	0.65	0.094	140	9.5	0.4	0.13	0.0038	630	842	6.89	
LDG 55-7 Flashed Fluid	8/5/2010	0.02	0.469	0.071	90.2	10.8		0.016		531	1370	6.97	
LDG 55-7 Total Fluid	8/5/2010	0.019	0.447	0.071	86	10.3		0.015		506	1306		
LDG 55-7 Flashed Fluid	8/5/2010	0.018	0.467	0.068	89.8	9.37		0.0069		526	1360	6.6	
LDG 55-7 Total Fluid	8/5/2010	0.017		0.05	85.6	8.93		0.0066		501	1296		
LDG 63-7 Single Phase Fluid	12/19/2013		2	0.051	67	17	0.29	0.028	0.0021	250	800	8.41	0.027
LDG 63-7 Single Phase Fluid	8/28/2012	0.056	2.09	0.014	78.1	14.2		0.183		303	1020	9.45	
LDG 52-7 Single Phase	11/5/2003	0.07			111	11.82				545	1572	9.26	
LDG 47-7	12/21/2013	0.42	2.6	0.13	130	12	0.32	0.14		250	1190	7.33	0.022

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File C:\Users\Riplee\Desktop\LD1.wst
Full Precision ON
Confidence Coefficient 95%
Coverage 90%
Different or Future K Values 1
Number of Bootstrap Operations 2000

Fluoride

General Statistics

Total Number of Observations 7.0000000 Number of Distinct Observations 7.0000000
Tolerance Factor 2.7550000

Raw Statistics

Minimum 9.3600000
Maximum 14.200000
Second Largest 13.900000
First Quartile 10.400000
Median 11.100000
Third Quartile 12.750000
Mean 11.565714
Geometric Mean 11.443017
SD 1.8488452
Coefficient of Variation 0.1598557
Skewness 0.5863223

Log-Transformed Statistics

Minimum 2.2364453
Maximum 2.6532420
Second Largest 2.6318888
First Quartile 2.3410656
Median 2.4069451
Third Quartile 2.5414470
Mean 2.4373796
SD 0.1567542

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic 0.9061331
Shapiro Wilk Critical Value 0.8030000
Data appear Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic 0.9266260
Shapiro Wilk Critical Value 0.8030000
Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage 16.659283
95% UPL (t) 15.406407
90% Percentile (z) 13.935105

Assuming Lognormal Distribution

95% UTL with 90% Coverage 17.623572
95% UPL (t) 15.847511
90% Percentile (z) 13.988956

95% Percentile (z) 14.606794

99% Percentile (z) 15.866771

95% Percentile (z) 14.808736

99% Percentile (z) 16.478299

Gamma Distribution Test

k star 26.979007

Theta Star 0.4286931

MLE of Mean 11.565714

MLE of Standard Deviation 2.2266886

nu star 377.70610

Data Distribution Test

Data appear Normal at 5% Significance Level

A-D Test Statistic 0.3486671

5% A-D Critical Value 0.7075725

K-S Test Statistic 0.1969974

5% K-S Critical Value 0.3114059

Nonparametric Statistics

90% Percentile 14.020000

95% Percentile 14.110000

99% Percentile 14.182000

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile 14.495313

95% Percentile 15.455362

99% Percentile 17.365792

95% UTL with 90% Coverage 14.200000

95% Percentile Bootstrap UTL with 90% Coverage 14.200000

95% BCA Bootstrap UTL with 90% Coverage 14.200000

95% UPL 14.200000

95% Chebyshev UPL 20.181072

Upper Threshold Limit Based upon IQR 16.275000

95% WH Approx. Gamma UPL 15.676631

95% HW Approx. Gamma UPL 15.716728

95% WH Approx. Gamma UTL with 90% Coverage 17.237738

95% HW Approx. Gamma UTL with 90% Coverage 17.326761

Iron

General Statistics

Number of Valid Data 7.0000000

Number of Distinct Detected Data 4.0000000

Tolerance Factor 2.7550000

Number of Detected Data 4.0000000

Number of Non-Detect Data 3.0000000

Percent Non-Detects 42.86%

Raw Statistics

Minimum Detected 0.0260000

Maximum Detected 11.200000

Mean of Detected 3.8210000

SD of Detected 5.2392912

Minimum Non-Detect 0.0500000

Maximum Non-Detect 0.0500000

Log-transformed Statistics

Minimum Detected -3.649659

Maximum Detected 2.4159138

Mean of Detected -0.445188

SD of Detected 2.8209507

Minimum Non-Detect -2.995732

Maximum Non-Detect -2.995732

Warning: There are only 4 Distinct Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

- It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only										Lognormal Distribution Test with Detected Values Only									
Shapiro Wilk Test Statistic 0.8384945										Shapiro Wilk Test Statistic 0.9321360									
5% Shapiro Wilk Critical Value 0.7480000										5% Shapiro Wilk Critical Value 0.7480000									
Data appear Normal at 5% Significance Level										Data appear Lognormal at 5% Significance Level									
Assuming Normal Distribution										Assuming Lognormal Distribution									
DL/2 Substitution Method										DL/2 Substitution Method									
Mean 2.1941429										Mean (Log Scale) -1.835341									
SD 4.2239933										SD (Log Scale) 2.6429216									
95% UTL 90% Coverage 13.831244										95% UTL 90% Coverage 231.80763									
95% UPL (t) 10.968843										95% UPL (t) 38.664594									
90% Percentile (z) 7.6074080										90% Percentile (z) 4.7194821									
95% Percentile (z) 9.1419935										95% Percentile (z) 12.328060									
99% Percentile (z) 12.020621										99% Percentile (z) 74.665180									
Maximum Likelihood Estimate(MLE) Method										Log ROS Method									
Mean -1.486487										Mean in Original Scale 2.1955848									
SD 7.3585540										SD in Original Scale 4.2231712									
95% UTL with 90% Coverage 18.786329										95% UTL with 90% Coverage 452.99489									
										95% BCA UTL with 90% Coverage 11.200000									
										95% Bootstrap (%) UTL with 90% Coverage 11.200000									
95% UPL (t) 13.799784										95% UPL (t) 60.714723									
90% Percentile (z) 7.9438793										90% Percentile (z) 5.7323161									
95% Percentile (z) 10.617257										95% Percentile (z) 16.836574									
99% Percentile (z) 15.632069										99% Percentile (z) 127.05757									
Gamma Distribution Test with Detected Values Only										Data Distribution Test with Detected Values Only									
k star (bias corrected) 0.2598504										Data appear Normal at 5% Significance Level									
Theta Star 14.704617																			
nu star 2.0788028																			
A-D Test Statistic 0.3018501										Nonparametric Statistics									
5% A-D Critical Value 0.6956855										Kaplan-Meier (KM) Method									
K-S Test Statistic 0.2691496										Mean 2.1945714									
5% K-S Critical Value 0.4152297										SD 3.9104202									
Data appear Gamma Distributed at 5% Significance Level										SE of Mean 1.7066473									
Assuming Gamma Distribution										95% KM UTL with 90% Coverage 12.967779									
Gamma ROS Statistics with Extrapolated Data										95% KM Chebyshev UPL 20.416578									
Mean 2.1834290										95% KM UPL (t) 10.317871									
Median 0.0260000										90% Percentile (z) 7.2059765									
SD 4.2304284										95% Percentile (z) 8.6266402									
k star 0.1607778										99% Percentile (z) 11.291569									
Theta star 13.580413										Gamma ROS Limits with Extrapolated Data									
Nu star 2.2508893										95% Wilson Hilferty (WH) Approx. Gamma UPL 15.884740									
95% Percentile of Chisquare (2k) 1.7449966										95% Hawkins Wixley (HW) Approx. Gamma UPL 20.621257									
90% Percentile 6.5288908										95% WH Approx. Gamma UTL with 90% Coverage 30.262303									
95% Percentile 11.848887										95% HW Approx. Gamma UTL with 90% Coverage 47.358089									
99% Percentile 27.074879																			
Note: DL/2 is not a recommended method.																			

TDS

General Statistics

Total Number of Observations 7.0000000

Number of Distinct Observations 7.0000000

Tolerance Factor 2.7550000

Raw Statistics

Minimum 1020.0000

Maximum 1450.0000

Second Largest 1440.0000

First Quartile 1263.5000

Median 1360.0000

Third Quartile 1405.0000

Mean 1309.5714

Geometric Mean 1301.3001

SD 152.25402

Coefficient of Variation 0.1162625

Skewness -1.339019

Log-Transformed Statistics

Minimum 6.9275579

Maximum 7.2793188

Second Largest 7.2723984

First Quartile 7.1403764

Median 7.2152400

Third Quartile 7.2474822

Mean 7.1711191

SD 0.1243855

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics**Normal Distribution Test**

Shapiro Wilk Test Statistic 0.8646445

Shapiro Wilk Critical Value 0.8030000

Data appear Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic 0.8384204

Shapiro Wilk Critical Value 0.8030000

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage 1729.0312

95% UPL (t) 1625.8559

90% Percentile (z) 1504.6928

95% Percentile (z) 1560.0070

99% Percentile (z) 1663.7672

Assuming Lognormal Distribution

95% UTL with 90% Coverage 1833.1685

95% UPL (t) 1684.9834

90% Percentile (z) 1526.1837

95% Percentile (z) 1596.7332

99% Percentile (z) 1737.9874

Gamma Distribution Test

k star 45.283601

Theta Star 28.919330

MLE of Mean 1309.5714

MLE of Standard Deviation 194.60711

Data Distribution Test

Data appear Normal at 5% Significance Level

nu star 633.97042

A-D Test Statistic 0.5458228
5% A-D Critical Value 0.7076584
K-S Test Statistic 0.2759863
5% K-S Critical Value 0.3113535

Nonparametric Statistics

90% Percentile 1444.0000
95% Percentile 1447.0000
99% Percentile 1449.4000

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile 1564.3404
95% Percentile 1645.2510
99% Percentile 1804.3037

95% UTL with 90% Coverage 1450.0000
95% Percentile Bootstrap UTL with 90% Coverage 1450.0000
95% BCA Bootstrap UTL with 90% Coverage 1450.0000
95% UPL 1450.0000

95% Chebyshev UPL 2019.0537

Upper Threshold Limit Based upon IQR 1617.2500

95% WH Approx. Gamma UPL 1662.1736

95% HW Approx. Gamma UPL 1667.5334

95% WH Approx. Gamma UTL with 90% Coverage 1791.7591

95% HW Approx. Gamma UTL with 90% Coverage 1801.3405

pH

General Statistics

Total Number of Observations 7.0000000
Tolerance Factor 2.7550000

Number of Distinct Observations 7.0000000

Raw Statistics

Minimum 6.6000000
Maximum 9.4500000
Second Largest 9.3500000
First Quartile 6.6700000
Median 6.7900000
Third Quartile 9.0200000
Mean 7.7457143
Geometric Mean 7.6482129
SD 1.3485901
Coefficient of Variation 0.1741079
Skewness 0.4803344

Log-Transformed Statistics

Minimum 1.8870696
Maximum 2.2460147
Second Largest 2.2353763
First Quartile 1.8976097
Median 1.9154509
Third Quartile 2.1987746
Mean 2.0344720
SD 0.1706931

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic 0.7583144

Shapiro Wilk Critical Value 0.8030000

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic 0.7575215

Shapiro Wilk Critical Value 0.8030000

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage 11.461080

95% UPL (t) 10.547204

90% Percentile (z) 9.4740020

95% Percentile (z) 9.9639476

99% Percentile (z) 10.883004

Assuming Lognormal Distribution

95% UTL with 90% Coverage 12.240274

95% UPL (t) 10.903250

90% Percentile (z) 9.5183744

95% Percentile (z) 10.127325

99% Percentile (z) 11.376657

Gamma Distribution Test

k star 22.744658

Theta Star 0.3405509

MLE of Mean 7.7457143

MLE of Standard Deviation 1.6241337

nu star 318.42521

Data Distribution Test

Data do not follow a Discernable Distribution (0.05)

A-D Test Statistic 0.9145497

5% A-D Critical Value 0.7073280

K-S Test Statistic 0.3471232

5% K-S Critical Value 0.3114207

Data not Gamma Distributed at 5% Significance Level

Nonparametric Statistics

90% Percentile 9.3900000

95% Percentile 9.4200000

99% Percentile 9.4440000

Assuming Gamma Distribution

90% Percentile 9.8863602

95% Percentile 10.596349

99% Percentile 12.015685

95% WH Approx. Gamma UPL 10.766722

95% HW Approx. Gamma UPL 10.798894

95% WH Approx. Gamma UTL with 90% Coverage 11.928229

95% HW Approx. Gamma UTL with 90% Coverage 12.000155

95% UTL with 90% Coverage 9.4500000

95% Percentile Bootstrap UTL with 90% Coverage 9.4500000

95% BCA Bootstrap UTL with 90% Coverage 9.4500000

95% UPL 9.4500000

95% Chebyshev UPL 14.029954

Upper Threshold Limit Based upon IQR 12.545000

	A	B	C	D	E	F	G	H	I	J	K	L
1					Outlier Tests for Selected Uncensored Variables							
2	User Selected Options											
3	Date/Time of Computation		6/19/2014 2:58:10 PM									
4			From File	WorkSheet.xls								
5			Full Precision	OFF								
6												
7												
8	Dixon's Outlier Test for Arsenic											
9												
10	Number of Observations = 15											
11	10% critical value: 0.472											
12	5% critical value: 0.525											
13	1% critical value: 0.616											
14												
15	1. Observation Value 3.2 is a Potential Outlier (Upper Tail)?											
16												
17	Test Statistic: 0.982											
18												
19	For 10% significance level, 3.2 is an outlier.											
20	For 5% significance level, 3.2 is an outlier.											
21	For 1% significance level, 3.2 is an outlier.											
22												
23	2. Observation Value 0.0074 is a Potential Outlier (Lower Tail)?											
24												
25	Test Statistic: 0.073											
26												
27	For 10% significance level, 0.0074 is not an outlier.											
28	For 5% significance level, 0.0074 is not an outlier.											
29	For 1% significance level, 0.0074 is not an outlier.											
30												
31												
32	Dixon's Outlier Test for Boron											
33												
34	Number of Observations = 15											
35	10% critical value: 0.472											
36	5% critical value: 0.525											
37	1% critical value: 0.616											
38												
39	1. Observation Value 10.1 is a Potential Outlier (Upper Tail)?											
40												
41	Test Statistic: 0.829											
42												
43	For 10% significance level, 10.1 is an outlier.											
44	For 5% significance level, 10.1 is an outlier.											
45	For 1% significance level, 10.1 is an outlier.											
46												
47	2. Observation Value 0.12 is a Potential Outlier (Lower Tail)?											
48												
49	Test Statistic: 0.158											
50												
51	For 10% significance level, 0.12 is not an outlier.											
52	For 5% significance level, 0.12 is not an outlier.											
53	For 1% significance level, 0.12 is not an outlier.											
54												
55												
56	Dixon's Outlier Test for Barium											
57												
58	Number of Observations = 16											
59	10% critical value: 0.454											
60	5% critical value: 0.507											
61	1% critical value: 0.595											
62												

	A	B	C	D	E	F	G	H	I	J	K	L
63	1. Observation Value 53.1 is a Potential Outlier (Upper Tail)?											
64												
65	Test Statistic: 0.999											
66												
67	For 10% significance level, 53.1 is an outlier.											
68	For 5% significance level, 53.1 is an outlier.											
69	For 1% significance level, 53.1 is an outlier.											
70												
71	2. Observation Value 0.014 is a Potential Outlier (Lower Tail)?											
72												
73	Test Statistic: 0.350											
74												
75	For 10% significance level, 0.014 is not an outlier.											
76	For 5% significance level, 0.014 is not an outlier.											
77	For 1% significance level, 0.014 is not an outlier.											
78												
79												
80	Dixon's Outlier Test for Chloride											
81												
82	Number of Observations = 16											
83	10% critical value: 0.454											
84	5% critical value: 0.507											
85	1% critical value: 0.595											
86												
87	1. Observation Value 140 is a Potential Outlier (Upper Tail)?											
88												
89	Test Statistic: 0.468											
90												
91	For 10% significance level, 140 is an outlier.											
92	For 5% significance level, 140 is not an outlier.											
93	For 1% significance level, 140 is not an outlier.											
94												
95	2. Observation Value 33 is a Potential Outlier (Lower Tail)?											
96												
97	Test Statistic: 0.578											
98												
99	For 10% significance level, 33 is an outlier.											
100	For 5% significance level, 33 is an outlier.											
101	For 1% significance level, 33 is not an outlier.											
102												
103												
104	Dixon's Outlier Test for Fluoride											
105												
106	Number of Observations = 16											
107	10% critical value: 0.454											
108	5% critical value: 0.507											
109	1% critical value: 0.595											
110												
111	1. Observation Value 17 is a Potential Outlier (Upper Tail)?											
112												
113	Test Statistic: 0.393											
114												
115	For 10% significance level, 17 is not an outlier.											
116	For 5% significance level, 17 is not an outlier.											
117	For 1% significance level, 17 is not an outlier.											
118												
119	2. Observation Value 1.4 is a Potential Outlier (Lower Tail)?											
120												
121	Test Statistic: 0.633											
122												
123	For 10% significance level, 1.4 is an outlier.											
124	For 5% significance level, 1.4 is an outlier.											

	A	B	C	D	E	F	G	H	I	J	K	L
187	For 10% significance level, 0.0038 is not an outlier.											
188	For 5% significance level, 0.0038 is not an outlier.											
189	For 1% significance level, 0.0038 is not an outlier.											
190												
191	2. Observation Value 0.0017 is a Potential Outlier (Lower Tail)?											
192												
193	Test Statistic: 0.190											
194												
195	For 10% significance level, 0.0017 is not an outlier.											
196	For 5% significance level, 0.0017 is not an outlier.											
197	For 1% significance level, 0.0017 is not an outlier.											
198												
199												
200	Dixon's Outlier Test for Sulfate											
201												
202	Number of Observations = 16											
203	10% critical value: 0.454											
204	5% critical value: 0.507											
205	1% critical value: 0.595											
206												
207	1. Observation Value 630 is a Potential Outlier (Upper Tail)?											
208												
209	Test Statistic: 0.237											
210												
211	For 10% significance level, 630 is not an outlier.											
212	For 5% significance level, 630 is not an outlier.											
213	For 1% significance level, 630 is not an outlier.											
214												
215	2. Observation Value 120 is a Potential Outlier (Lower Tail)?											
216												
217	Test Statistic: 0.310											
218												
219	For 10% significance level, 120 is not an outlier.											
220	For 5% significance level, 120 is not an outlier.											
221	For 1% significance level, 120 is not an outlier.											
222												
223												
224	Dixon's Outlier Test for TDS											
225												
226	Number of Observations = 16											
227	10% critical value: 0.454											
228	5% critical value: 0.507											
229	1% critical value: 0.595											
230												
231	1. Observation Value 1572 is a Potential Outlier (Upper Tail)?											
232												
233	Test Statistic: 0.277											
234												
235	For 10% significance level, 1572 is not an outlier.											
236	For 5% significance level, 1572 is not an outlier.											
237	For 1% significance level, 1572 is not an outlier.											
238												
239	2. Observation Value 321 is a Potential Outlier (Lower Tail)?											
240												
241	Test Statistic: 0.497											
242												
243	For 10% significance level, 321 is an outlier.											
244	For 5% significance level, 321 is not an outlier.											
245	For 1% significance level, 321 is not an outlier.											
246												
247												
248	Dixon's Outlier Test for pH											

	A	B	C	D	E	F	G	H	I	J	K	L
249												
250	Number of Observations = 13											
251	10% critical value: 0.467											
252	5% critical value: 0.521											
253	1% critical value: 0.615											
254												
255	1. Observation Value 9.51 is a Potential Outlier (Upper Tail)?											
256												
257	Test Statistic: 0.087											
258												
259	For 10% significance level, 9.51 is not an outlier.											
260	For 5% significance level, 9.51 is not an outlier.											
261	For 1% significance level, 9.51 is not an outlier.											
262												
263	2. Observation Value 6.6 is a Potential Outlier (Lower Tail)?											
264												
265	Test Statistic: 0.035											
266												
267	For 10% significance level, 6.6 is not an outlier.											
268	For 5% significance level, 6.6 is not an outlier.											
269	For 1% significance level, 6.6 is not an outlier.											
270												
271												
272	Dixon's Outlier Test for Zinc											
273												
274	Number of Observations = 4											
275	10% critical value: 0.679											
276	5% critical value: 0.765											
277	1% critical value: 0.889											
278												
279	1. Observation Value 0.3 is a Potential Outlier (Upper Tail)?											
280												
281	Test Statistic: 0.903											
282												
283	For 10% significance level, 0.3 is an outlier.											
284	For 5% significance level, 0.3 is an outlier.											
285	For 1% significance level, 0.3 is an outlier.											
286												
287	2. Observation Value 0.022 is a Potential Outlier (Lower Tail)?											
288												
289	Test Statistic: 0.018											
290												
291	For 10% significance level, 0.022 is not an outlier.											
292	For 5% significance level, 0.022 is not an outlier.											
293	For 1% significance level, 0.022 is not an outlier.											
294												

Outlier Tests for Selected Uncensored Variables

User Selected Options
Date/Time of Computation
From File
Full Precision

6/19/2014 14:58

WorkSheet.xls
OFF

Dixon's Outlier Test for Arsenic

Number of Observations = 15
10% critical value: 0.472
5% critical value: 0.525
1% critical value: 0.616

1. Observation Value 3.2 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.982

For 10% significance level, 3.2 is an outlier.
For 5% significance level, 3.2 is an outlier.
For 1% significance level, 3.2 is an outlier.

2. Observation Value 0.0074 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.073

For 10% significance level, 0.0074 is not an outlier.
For 5% significance level, 0.0074 is not an outlier.
For 1% significance level, 0.0074 is not an outlier.

Dixon's Outlier Test for Boron

Number of Observations = 15
10% critical value: 0.472
5% critical value: 0.525
1% critical value: 0.616

1. Observation Value 10.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.829

For 10% significance level, 10.1 is an outlier.
For 5% significance level, 10.1 is an outlier.
For 1% significance level, 10.1 is an outlier.

2. Observation Value 0.12 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.158

For 10% significance level, 0.12 is not an outlier.
For 5% significance level, 0.12 is not an outlier.
For 1% significance level, 0.12 is not an outlier.

Dixon's Outlier Test for Barium

Number of Observations = 16

10% critical value: 0.454

5% critical value: 0.507

1% critical value: 0.595

1. Observation Value 53.1 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.999

For 10% significance level, 53.1 is an outlier.

For 5% significance level, 53.1 is an outlier.

For 1% significance level, 53.1 is an outlier.

2. Observation Value 0.014 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.350

For 10% significance level, 0.014 is not an outlier.

For 5% significance level, 0.014 is not an outlier.

For 1% significance level, 0.014 is not an outlier.

Dixon's Outlier Test for Chloride

Number of Observations = 16

10% critical value: 0.454

5% critical value: 0.507

1% critical value: 0.595

1. Observation Value 140 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.468

For 10% significance level, 140 is an outlier.

For 5% significance level, 140 is not an outlier.

For 1% significance level, 140 is not an outlier.

2. Observation Value 33 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.578

For 10% significance level, 33 is an outlier.

For 5% significance level, 33 is an outlier.

For 1% significance level, 33 is not an outlier.

Dixon's Outlier Test for Fluoride

Number of Observations = 16

10% critical value: 0.454

5% critical value: 0.507

1% critical value: 0.595

1. Observation Value 17 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.393

For 10% significance level, 17 is not an outlier.

For 5% significance level, 17 is not an outlier.

For 1% significance level, 17 is not an outlier.

2. Observation Value 1.4 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.633

For 10% significance level, 1.4 is an outlier.

For 5% significance level, 1.4 is an outlier.

For 1% significance level, 1.4 is an outlier.

Dixon's Outlier Test for Iron

Number of Observations = 7

10% critical value: 0.434

5% critical value: 0.507

1% critical value: 0.637

1. Observation Value 3.91 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.903

For 10% significance level, 3.91 is an outlier.

For 5% significance level, 3.91 is an outlier.

For 1% significance level, 3.91 is an outlier.

2. Observation Value 0.021 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.001

For 10% significance level, 0.021 is not an outlier.

For 5% significance level, 0.021 is not an outlier.

For 1% significance level, 0.021 is not an outlier.

Dixon's Outlier Test for Manganese

Number of Observations = 15

10% critical value: 0.472

5% critical value: 0.525

1% critical value: 0.616

1. Observation Value 0.474 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.715

For 10% significance level, 0.474 is an outlier.

For 5% significance level, 0.474 is an outlier.

For 1% significance level, 0.474 is an outlier.

2. Observation Value 0.002 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.036

For 10% significance level, 0.002 is not an outlier.

For 5% significance level, 0.002 is not an outlier.

For 1% significance level, 0.002 is not an outlier.

Dixon's Outlier Test for Selenium

Number of Observations = 4

10% critical value: 0.679

5% critical value: 0.765

1% critical value: 0.889

1. Observation Value 0.0038 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.190

For 10% significance level, 0.0038 is not an outlier.

For 5% significance level, 0.0038 is not an outlier.

For 1% significance level, 0.0038 is not an outlier.

2. Observation Value 0.0017 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.190

For 10% significance level, 0.0017 is not an outlier.

For 5% significance level, 0.0017 is not an outlier.

For 1% significance level, 0.0017 is not an outlier.

Dixon's Outlier Test for Sulfate

Number of Observations = 16

10% critical value: 0.454

5% critical value: 0.507

1% critical value: 0.595

1. Observation Value 630 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.237

For 10% significance level, 630 is not an outlier.

For 5% significance level, 630 is not an outlier.

For 1% significance level, 630 is not an outlier.

2. Observation Value 120 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.310

For 10% significance level, 120 is not an outlier.

For 5% significance level, 120 is not an outlier.