April 15, 2019 Reference No. 088210-35

Mr. Mike Bratcher
New Mexico Oil Conservation Division
Energy, Minerals and Natural Resources Department
811 South First Street
Artesia, New Mexico 88240

Ms. Kari Vasenden
Bureau of Land Management
620 E Greene Street
Carlsbad, New Mexico 88220

Dear Mr. Bratcher and Ms. Vasenden

Re: Closure Request
Livingston Ridge #2 SWD Water Line
2RP-2044
EOG Resources, Inc.
Site Location: Sec. 1, T 22-S, R 31-E
(Lat 32.41751°, Long -103.73427°)
Eddy County, New Mexico

GHD Services Inc. (GHD), on behalf of EOG Resources (EOG) is requesting that no further action (NFA) status be granted for the Livingston Ridge SWD water line release (hereafter referred to as the "Site"). The Site is located within Section 1, Township 22 South, Range 31 East, in Eddy County, New Mexico (**Figure 1**).

In an Assessment Summary Report dated October 16, 2017 (**Attachment 1**) GHD recommended the following scope items be completed following delineation of the soil impacts in order to achieve NFA:

- Excavate the spill area to a depth of 4 feet below ground surface (ft bgs) and stockpile the soil to be used for future backfill at the Site. Collect soil samples and submit for chloride analysis to determine if the excavated soil can be used as backfill. See **Table 1** and **Attachment 2** laboratory reports for stockpile and confirmation sample results.
- Place a 20-mil polyethylene liner in the bottom of the excavation (see **Figure 2** for the excavation area) at a depth of 4 ft bgs.
- Backfill the excavation with clean fill material and wheel compact to grade.
- Fertilize and reseed the disturbed area with a BLM-approved seed mix.

The work scope was approved by Mr. Mike Bratcher with the New Mexico Oil Conservation Division on November 28, 2017. Ms. Shelly Tucker with the Bureau of Land Management approved the work scope on January 19, 2018 (**Attachment 3**). As of the date of this letter, the approved scope of work outlined above was completed and is documented in the attached completion photos (**Attachment 4**) and final C-141 (**Attachment 5**) for the Site; therefore, NFA is being requested.

GHD
6121 Indian School Road NE Suite 200 Albuquerque New Mexico 87110 USA
T 505 884 0672 F 505 884 4932 W www.ghd.com

Your timely response to this request is greatly appreciated. Should you have any questions, or require additional information regarding this submittal, please feel free to contact our Midland office at (432) 686-0086.

Sincerely,

GHD

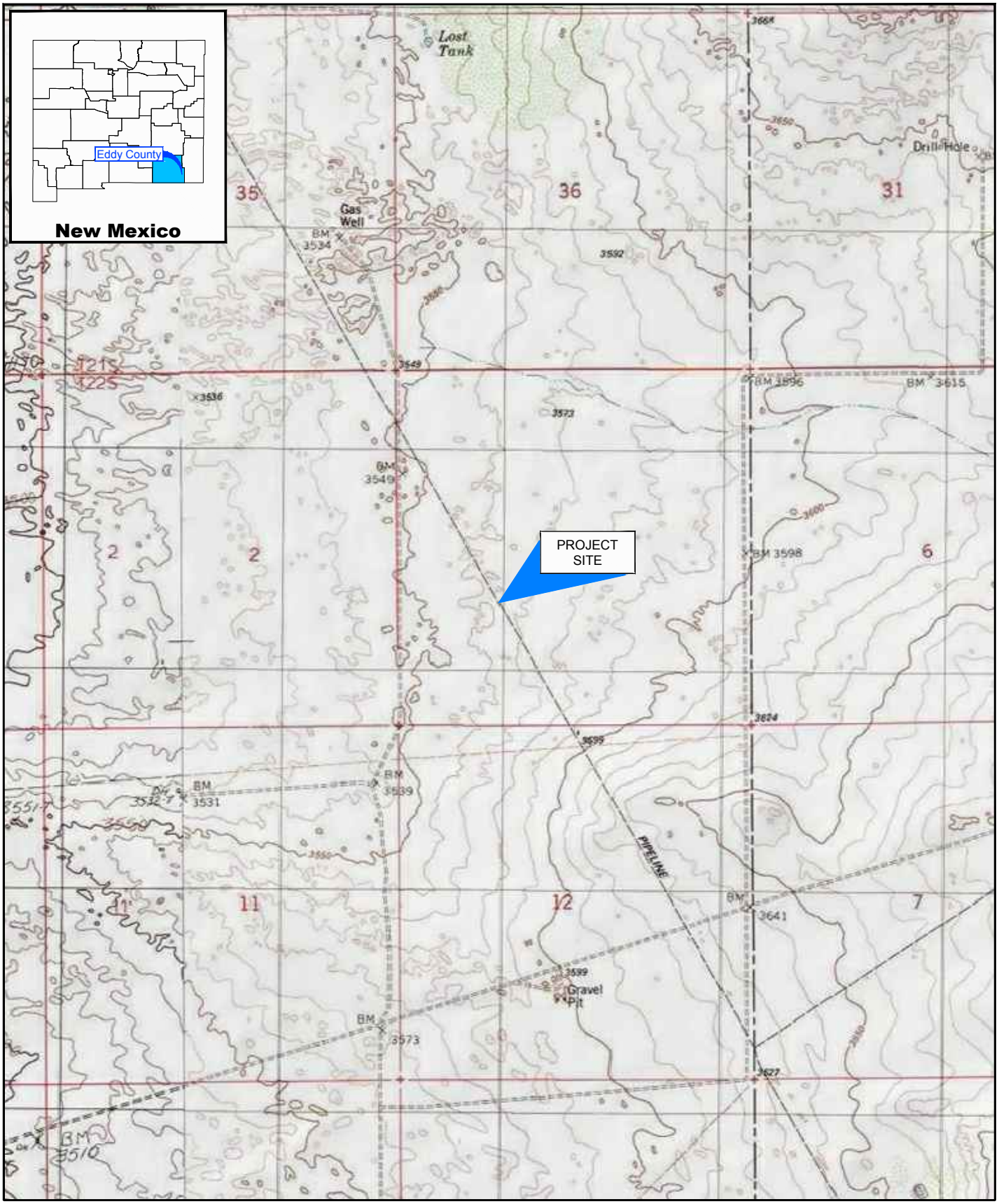
Nate Reece
Environmental Scientist

J.T. Murrey
Senior Project Manager

JW/mk/01

Encl. Figure 1 – Site Location Map
Figure 2 – Sample Location Map
Table 1 – Summary of Soil Analytical Data
Attachment 1 – Assessment Summary Report
Attachment 2 – Laboratory Reports
Attachment 3 – Work Plan Approvals
Attachment 4 – Photo Log
Attachment 5 – Final C-141

Figures



Source: USGS 7.5 Minute Quad "The Divide and Livingston Ridge, New Mexico" Lat/Long: 32.41827° North, 103.73503° West

0 1000 2000ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

EOG RESOURCES
EDDY COUNTY, NEW MEXICO
LIVINGSTON RIDGE SWD No.2

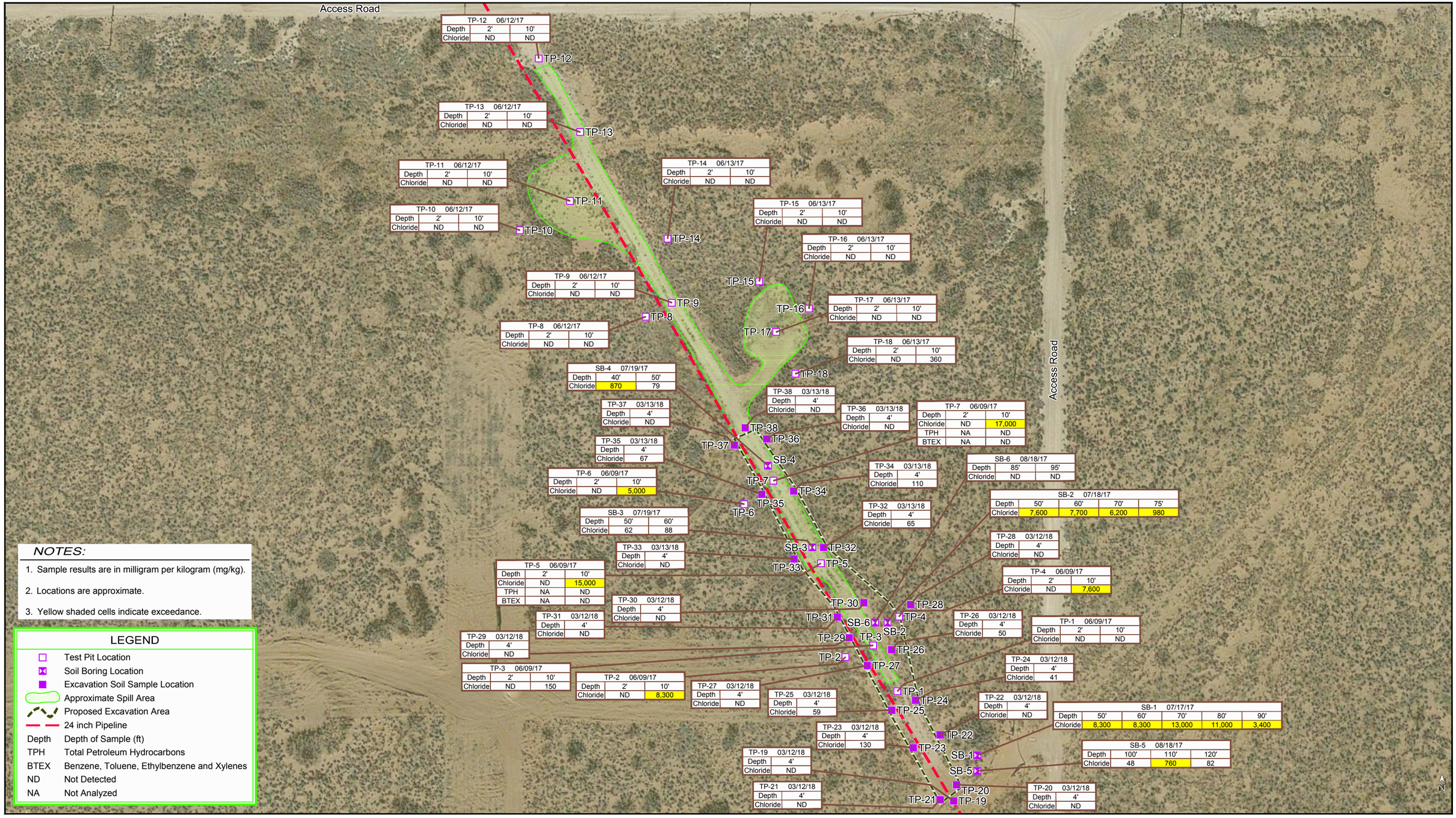
088210-35

Jun 21, 2017

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\08-...\088-...\088210-EOG-Madera Ridge 25-1\088210-35(000)GN-DL001.dwg



NOTES:

1. Sample results are in milligram per kilogram (mg/kg).
2. Locations are approximate.
3. Yellow shaded cells indicate exceedance.

LEGEND

□	Test Pit Location
⊠	Soil Boring Location
■	Excavation Soil Sample Location
	Approximate Spill Area
	Proposed Excavation Area
	24 inch Pipeline
Depth	Depth of Sample (ft)
TPH	Total Petroleum Hydrocarbons
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
ND	Not Detected
NA	Not Analyzed

Source: Image © 2016 Google - Imagery Date: February 1, 2017

Lat/Long: 32.41827° North, 103.73503° West

0 40 80ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

GHD

EOG RESOURCES
EDDY COUNTY, NEW MEXICO
LIVINGSTON RIDGE SWD No.2

088210-35

Nov 6, 2018

SAMPLE LOCATION MAP

FIGURE 2

CAD File: I:\CAD\Files\08 - \088 - 088210 EOG Madera Ridge 25-1\088210-35(000)\GN-DL001.dwg

Tables

Table 1
Summary of Soil Analytical Data
Livingston Ridge SWD #2 Water Line

Sample ID	Depth (feet)	Date	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH (GRO)	TPH (DRO)	TPH (MRO)	Total TPH	Chloride
Assessment Soil Sample Results												
088210-35-060917-MG-TP-1-2	2	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-1-10	10	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-060917-MG-TP-2-2	2	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-2-10	10	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	8300
088210-35-060917-MG-TP-3-2	2	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-3-10	10	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	150
088210-35-060917-MG-TP-4-2	2	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-4-10	10	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	7600
088210-35-060917-MG-TP-5-2	2	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-5-10	10	6/9/2017	<0.024	<0.048	<0.048	<0.097	<0.217	<4.8	<9.6	<48	<62.4	15000
088210-35-060917-MG-TP-6-2	2	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-6-10	10	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	5000
088210-35-060917-MG-TP-7-2	2	6/9/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-7-10	10	6/9/2017	<0.024	<0.049	<0.049	<0.097	<0.219	<4.9	<10	<50	<64.9	17000
088210-35-061217-MG-TP-8-2	2	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-8-10	10	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061217-MG-TP-9-2	2	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-9-10	10	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061217-MG-TP-10-2	2	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-10-10	10	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061217-MG-TP-11-2	2	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-11-10	10	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061217-MG-TP-12-2	2	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-12-10	10	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061217-MG-TP-13-2	2	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-13-10	10	6/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061317-MG-TP-14-2	2	6/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061317-MG-TP-14-10	10	6/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061317-MG-TP-15-2	2	6/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061317-MG-TP-15-10	10	6/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061317-MG-TP-16-2	2	6/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061317-MG-TP-16-10	10	6/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061317-MG-TP-17-2	2	6/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061317-MG-TP-17-10	10	6/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061317-MG-TP-18-2	2	6/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061317-MG-TP-18-10	10	6/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	360

Table 1
Summary of Soil Analytical Data
Livingston Ridge SWD #2 Water Line

Sample ID	Depth (feet)	Date	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH (GRO)	TPH (DRO)	TPH (MRO)	Total TPH	Chloride
Soil Boring Laboratory Results												
088210-35-071717-MG-SB-1-50	50	7/17/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	8300
088210-35-071717-MG-SB-1-60	60	7/17/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	8300
088210-35-071717-MG-SB-1-70	70	7/17/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	13000
088210-35-071817-MG-SB-1-80	80	7/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	11000
088210-35-071817-MG-SB-1-90	90	7/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	3400
088210-35-071817-MG-SB-2-50	50	7/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	7600
088210-35-071817-MG-SB-2-60	60	7/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	7700
088210-35-071817-MG-SB-2-70	70	7/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	6200
088210-35-071817-MG-SB-2-75	75	7/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	980
088210-35-071817-MG-SB-3-50	50	7/19/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	62
088210-35-071817-MG-SB-3-60	60	7/19/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	88
088210-35-071817-MG-SB-4-40	40	7/19/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	870
088210-35-071817-MG-SB-4-50	50	7/19/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	79
088210-35-081817-SP-SB-5-100	100	8/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	48
088210-35-081817-SP-SB-5-110	110	8/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	760
088210-35-081817-SP-SB-5-120	120	8/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	82
088210-35-081617-SP-SB-6-85	85	8/16/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-081617-SP-SB-6-95	95	8/16/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
Excavation Soil Sample Results												
088210-35-031218-MG-TP-19	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031218-MG-TP-20	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031218-MG-TP-21	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031218-MG-TP-22	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031218-MG-TP-23	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	130
088210-35-031218-MG-TP-24	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	41
088210-35-031218-MG-TP-25	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	59
088210-35-031218-MG-TP-26	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	50
088210-35-031218-MG-TP-27	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031218-MG-TP-28	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031218-MG-TP-29	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031218-MG-TP-30	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031218-MG-TP-31	4	3/12/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031318-MG-TP-32	4	3/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	65
088210-35-031318-MG-TP-33	4	3/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031318-MG-TP-34	4	3/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	110
088210-35-031318-MG-TP-35	4	3/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	67
088210-35-031318-MG-TP-36	4	3/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031318-MG-TP-37	4	3/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-031318-MG-TP-38	4	3/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30

Table 1
Summary of Soil Analytical Data
Livingston Ridge SWD #2 Water Line

Sample ID	Depth (feet)	Date	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH (GRO)	TPH (DRO)	TPH (MRO)	Total TPH	Chloride
Stockpile Soil Sample Results												
088210-35-031318-MG-SP-1	--	3/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	250
088210-35-031318-MG-SP-2	--	3/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	220
088210-35-031318-MG-SP-2	--	3/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	45
088210-35-031318-MG-SP-4	--	3/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	140
NMOCD RRALs (Total Ranking Score = 0)			**10**	**50**				**Total TPH: 5,000**				**600**

Notes:

All sample results are in milligrams per kilogram
NA = Not Analyzed
NMOCD = New Mexico Oil Conservation Division
SP = Stockpile Sample
RRALs = Recommended Remediation Action Limits
Highlighted = Exceeds NMOCD RRAL

Attachments

Attachment 1
Assessment Summary Report

October 16, 2017 Reference No. 088210-35

Mr. Zane Kurtz
Sr. Safety and Environmental Representative
5509 Champions Dr.
Midland, TX 79706
VIA E-Mail: zane_kurtz@eogresources.com

Dear Mr. Kurtz:

Re: Assessment Summary Report
Livingston Ridge SWD Water Line
2RP-2044
EOG Resources, Inc.
Site Location: Sec. 1, T 22-S, R 31-E
(Lat 32.41751°, Long -103.73427°)
Eddy County, New Mexico

GHD Services, Inc. (GHD) is pleased to present this report for the above referenced site. Assessment activities were performed at the Livingston Ridge SWD Water Line (hereafter referred to as the "Site"), from June 9 to August 18, 2017 by GHD. The Site is located within Section 1, Township 22 South, Range 31 East, in Eddy County, New Mexico (Figure 1). The property is owned by the U.S. Bureau of Land Management (BLM).

The Site is an active pipeline located approximately 30 miles east-northeast of Carlsbad, New Mexico. According to EOG Resources, Inc. (EOG) supplied Site information, a release of approximately 50 barrels (bbls) of crude oil and 3,200 bbls of produced water occurred when a flowline ruptured. Approximately 30 bbls of crude oil and 480 bbls of produced water were recovered after the release utilizing vacuum trucks. The release was discovered on October 27, 2013. A C-141 Form was submitted to the New Mexico Oil Conservation Division (NMOCD) and the BLM on November 5, 2013 and remediation permit (RP) number 2RP-2044 was assigned.

Initial delineation samples were collected on November 4, 2013 in five areas within the release area (green outlined area on Figure 2) by Yates Petroleum Corporation (Yates). Thirty-nine samples were collected from depths ranging from 2 to 16 feet below ground surface (ft. bgs) and submitted for laboratory analyses. The samples were submitted to Cardinal Laboratories (Cardinal) in Hobbs, New Mexico for benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B, total petroleum hydrocarbons (TPH) gasoline and diesel range organics by EPA Method 8015M, and chlorides by Method SM4500CL-B analysis.

None of the samples contained BTEX or TPH constituents above the laboratory reporting limits. Chloride concentrations ranged from 6,280 to 29,600 milligrams per kilogram (mg/kg).

Additional vertical delineation samples were collected on January 16, 2014 by Yates utilizing a core drill rig. Twenty-four samples were collected from depths ranging from 20 to 55 ft. bgs within three areas of the release area. The samples were submitted to Cardinal for chloride analysis by Method SM4500CL-B. Chloride concentrations ranged from 128 to 14,800 mg/kg. A sample collected from one boring centrally located in the release area contained a chloride concentration of 752 mg/kg at a depth 55 ft. bgs. This sample represented the deepest chloride concentration greater than the NMOCD Recommended Remedial Action Level (RRAL) of 600 mg/kg established for this Site (see below).

1. Recommended Remediation Action Limits

There are relatively few groundwater wells in the area of the Site with which to obtain a depth to groundwater. Based on information available from the New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System website, the closest well with a reported depth to water is approximately 3.5 miles from the site. The depth to groundwater measured in this well was 448 feet below ground surface (ft. bgs).

Based on information available from the United States Geological Survey (USGS) website, the closest USGS gauging site, approximately 2.7 miles southeast of the site, indicates groundwater at a depth of approximately 125 feet below ground surface (ft. bgs) in 1988. The well information is included in Appendix A.

Groundwater was not encountered in soil boring SB-5 that was advanced to a depth of 130 ft. bgs during GHD's assessment activities.

There do not appear to be any wellhead protection areas and no surface water bodies within 200 ft. to 1000 ft. of the Site. Therefore, the preliminary total ranking score for the Site is 0 (see table below).

Based on this score, the applicable NMOCD Site-specific RRALs are 10 mg/kg for benzene, 50 mg/kg for total BTEX, 5,000 mg/kg for total TPH, and 600 mg/kg for chlorides.

In an August 28, 2017 telephone conversation between Bernard Bockisch of GHD and Jim Griswold, NMOCD Environmental Bureau Chief, GHD was informed that the NMOCD is accepting chloride concentrations of 600 mg/kg for assessment clean up levels.

New Mexico Oil Conservation Division Site Assessment	
Ranking Criteria	Score
Depth to Ground Water (> 100 ft. bgs)	0
Wellhead Protection Area (> 1000 ft. from water source, > 200 ft. from domestic source)	0
Distance to Surface Body Water (200-1000 ft.)	0
Ranking Criteria Total Score	**0***

New Mexico Oil Conservation Division Site Assessment
*Because the ranking criteria total score is 0, NMOCD established RRALs are 10 mg/kg for benzene, 50 mg/kg for total BTEX, 5,000 mg/kg for TPH[1], and 600 mg/kg for chlorides.

1. NMOCD Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993.

2. Assessment Activities

GHD and SDR Enterprises, LLC (SDR) performed additional delineation from June 9 to August 18, 2017 that included the collection of 36 soil samples from 18 test pits and 18 samples from 6 soil borings. Soil samples were collected from 2 ft. bgs and 10 ft. bgs in each test pit and submitted to Hall Environmental Analysis Laboratory (HEAL) located in Albuquerque, New Mexico. Two samples (TP-5 and TP-7) were submitted for TPH (gasoline, diesel, and motor oil range) by EPA Method 8015 BTEX by EPA Method 8021B. All of the samples were submitted for chloride analysis by EPA 300.

BTEX and TPH constituents were not detected above the laboratory reporting limits and chlorides ranged from below the laboratory reporting limit to 17,000 mg/kg. Chloride was detected above the NMOCD RRAL in five of the test pit samples (TP-2, TP-4, TP-5, TP-6, and TP-7) all at depths of 10 ft. bgs. These test pits were located in the southern area of the release. The analytical data is summarized on Table 1 and the laboratory reports are included in Appendix A.

The horizontal and vertical extent of the chloride concentrations within the northern portion of the spill area had been delineated to below the RRAL for chloride. However, the horizontal and vertical extent of chloride concentrations in the southern portion of the impacted area was not fully assessed.

Further soil sampling and soil boring activities were performed by GHD and Enviro-Drill, Inc. of Albuquerque, New Mexico from July 17 through 19, 2017 to assess the vertical extent of chloride concentrations in the soil in the southern portion of the impacted area. Thirteen additional soil samples were collected from four soil borings (SB-1 to SB-4) at depths ranging from 40 ft. bgs to 90 ft. bgs. The samples were submitted to HEAL for analysis of chloride by EPA Method 300.0.

Chloride concentrations in these samples ranged from 62 to 13,000 mg/kg. A summary of the soil boring laboratory results is presented in the following table.

Soil Boring ID	Depth	Chloride Concentration in mg/kg
SB-1	50	**8,300**
SB-1	60	**8,300**
SB-1	70	**13,000**
SB-1	80	**11,000**
SB-1	90	**3,400**

Soil Boring ID	Depth	Chloride Concentration in mg/kg
SB-2	50	**7,600**
SB-2	60	**7,700**
SB-2	70	**6,200**
SB-2	75	**980**
SB-3	50	62
SB-3	60	88
SB-4	40	**870**
SB-4	50	79
SB-5 (near SB-1)	100	48
SB-5 (near SB-1)	110	**760**
SB-5 (near SB-1)	120	82
SB-6 (near SB-2)	85	<30
SB-6 (near SB-2)	95	<30

The analytical data is summarized on Table 1 and the laboratory reports are included in Appendix A.

Two additional soil borings, SB-5 and SB-6 were advanced in close proximity to SB-1 and SB-2, respectively between August 16 and 18, 2017. Borings SB-1 and SB-2 experienced drilling refusal at depths of 90 and 75 ft. bgs. The two additional soil borings (SB-5 and SB-6) were advanced to collect additional samples from below these depths.

Three soil samples were collected from SB-5 (near SB-1) from 100, 110, and 120 ft. bgs and two samples were collected from SB-6 (near SB-2) at depths of 85 and 95 ft. bgs. The samples were submitted to HEAL for analysis of chloride by EPA Method 300.0.

Soils at the Site consisted primarily of clayey sands and silty sands with the sands being either very fine or fine grained. A clay with sand unit was encountered at varying depths in all of the soil borings. The soil boring logs are included as Appendix C.

Based on the collected assessment data, it appears that the vertical and horizontal extent of chloride-impacted soil has been fully assessed as shown on Figure 2.

3. Summary and Recommendations

Based on the assessment of the chloride concentrations, GHD recommends the following:

- Excavating the spill area to a depth of 4 ft. bgs and stockpiling the soil to be used for future backfill at the Site. Soil samples will be collected and submitted for chloride analysis to determine if the excavated soil can be used as backfill.
- Placement of a 20-mil polyethylene liner in the bottom of the excavation (see Figure 2 for the excavation area) at a depth of 4 ft. bgs.

- Backfilling of the excavation with clean fill material and wheel compacting to grade.
- Fertilizing and reseeding of the disturbed area with a BLM-approved seed mix.

Following completion of the backfilling, revegetation of the site will be performed. Disturbed areas associated with the remediation efforts will be re-seeded. If after one growing season the vegetation has not taken hold, seeding may need to be repeated until revegetation is successful. The seed mix will be determined by the BLM.

Should you have any questions, or require additional information regarding this submittal please feel free to contact myself, or Bernie Bockisch at (505) 884-0672 or Bernard.Bockisch@ghd.com.

Sincerely,

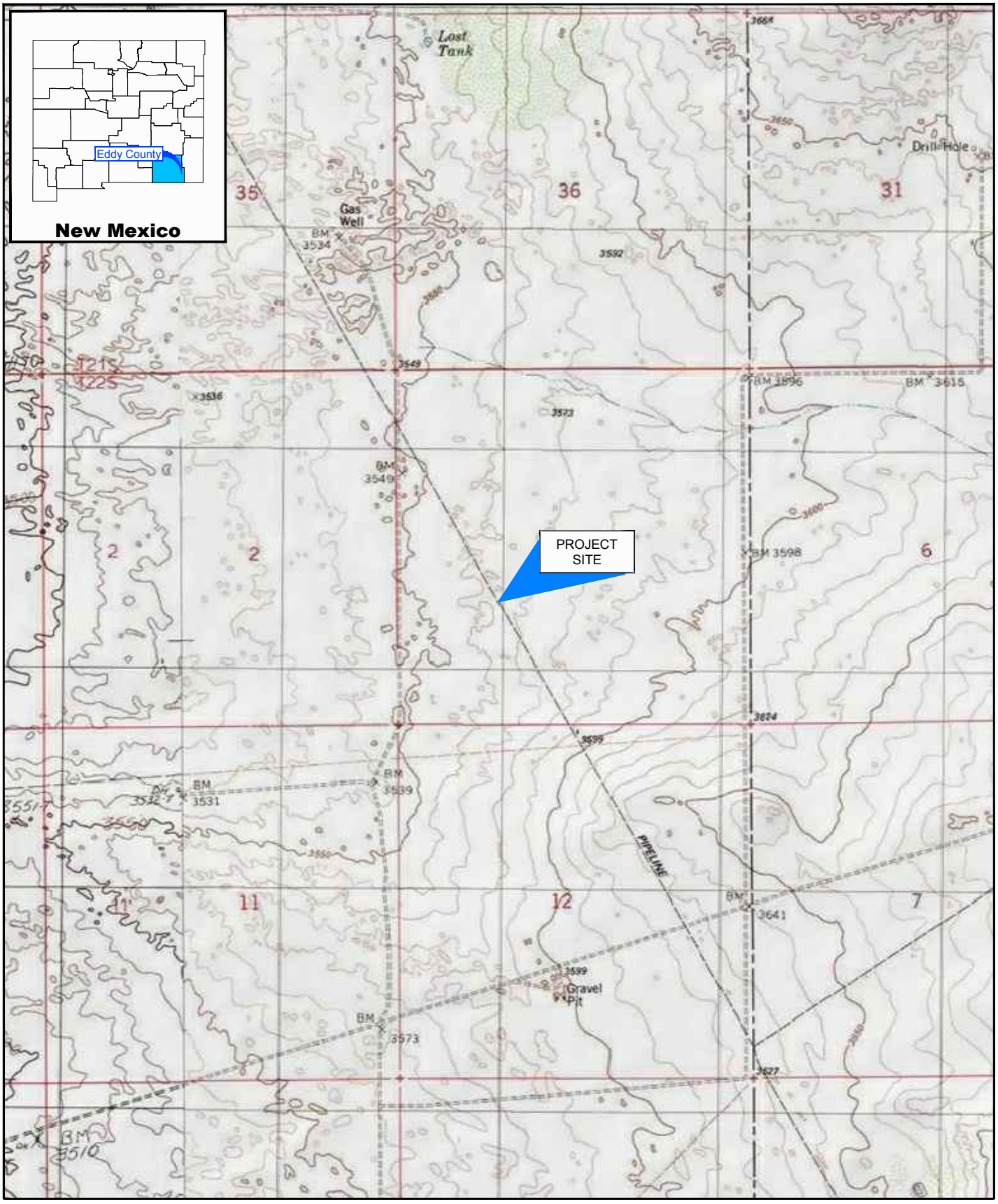
GHD

Alan Brandon
Senior Project Manager

Bernard Bockisch
Albuquerque Operations Manager

BB/mc/30

Figures



Source: USGS 7.5 Minute Quad "The Divide and Livingston Ridge, New Mexico"

Lat/Long: 32.41827° North, 103.73503° West

0 1000 2000ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

EOG RESOURCES
EDDY COUNTY, NEW MEXICO
LIVINGSTON RIDGE SWD No.2

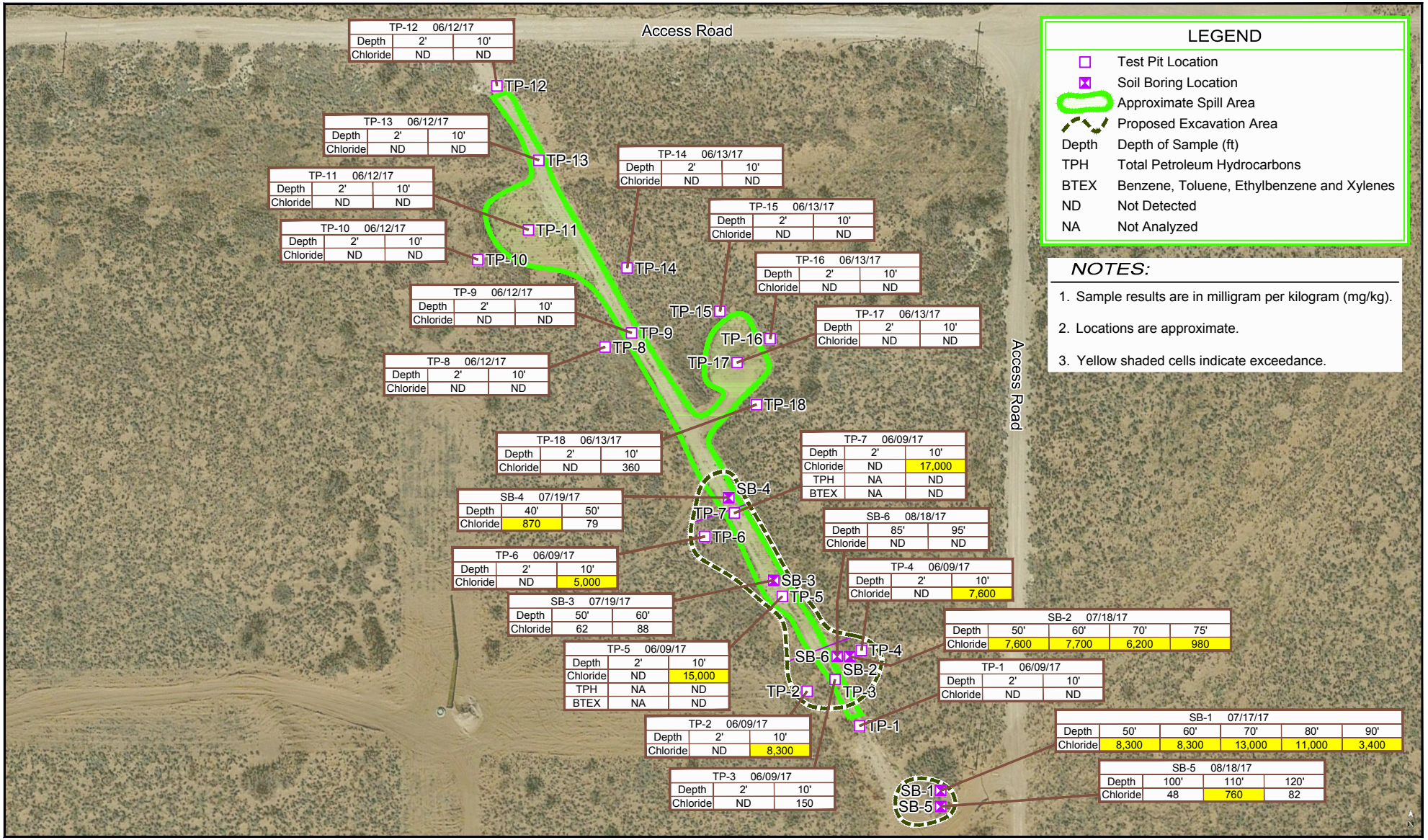
088210-35

Jun 21, 2017

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\08-...\088-...\088210-EOG-Madera Ridge 25-1\088210-35(000)GN-DL001.dwg



Source: Image © 2016 Google - Imagery Date: February 1, 2017

Lat/Long: 32.41827° North, 103.73503° West

0 60 120ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

EOG RESOURCES
EDDY COUNTY, NEW MEXICO
LIVINGSTON RIDGE SWD No.2

088210-35

Oct 11, 2017

SAMPLE LOCATION MAP

FIGURE 2

CAD File: I:\CAD\Files\08-----\088-----\088210-EOG Madera Ridge 25-1\088210-35(000)GN-DL001.dwg

Tables

Table 1

Livingston Ridge SWD #2 Water Line - Summary of Soil Analytical Data

Sample ID	Depth (feet)	Date	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH (GRO)	TPH (DRO)	TPH (MRO)	Total TPH	Chloride
088210-35-060917-MG-TP-1-2	2	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-1-10	10	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-060917-MG-TP-2-2	2	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-2-10	10	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	8300
088210-35-060917-MG-TP-3-2	2	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-3-10	10	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	150
088210-35-060917-MG-TP-4-2	2	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-4-10	10	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	7600
088210-35-060917-MG-TP-5-2	2	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-5-10	10	06/09/2017	<0.024	<0.048	<0.048	<0.097	<0.217	<4.8	<9.6	<48	<62.4	15000
088210-35-060917-MG-TP-6-2	2	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-6-10	10	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	5000
088210-35-060917-MG-TP-7-2	2	06/09/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-060917-MG-TP-7-10	10	06/09/2017	<0.024	<0.049	<0.049	<0.097	<0.219	<4.9	<10	<50	<64.9	17000
088210-35-061217-MG-TP-8-2	2	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-8-10	10	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061217-MG-TP-9-2	2	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-9-10	10	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061217-MG-TP-10-2	2	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-10-10	10	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061217-MG-TP-11-2	2	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-11-10	10	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061217-MG-TP-12-2	2	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-12-10	10	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061217-MG-TP-13-2	2	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061217-MG-TP-13-10	10	06/12/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061317-MG-TP-14-2	2	06/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061317-MG-TP-14-10	10	06/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061317-MG-TP-15-2	2	06/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061317-MG-TP-15-10	10	06/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061317-MG-TP-16-2	2	06/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061317-MG-TP-16-10	10	06/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061317-MG-TP-17-2	2	06/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061317-MG-TP-17-10	10	06/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-061317-MG-TP-18-2	2	06/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-33-061317-MG-TP-18-10	10	06/13/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	360

Table 1

Livingston Ridge SWD #2 Water Line - Summary of Soil Analytical Data

Sample ID	Depth (feet)	Date	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH (GRO)	TPH (DRO)	TPH (MRO)	Total TPH	Chloride
088210-35-071717-MG-SB-1-50	50	07/17/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	8300
088210-35-071717-MG-SB-1-60	60	07/17/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	8300
088210-35-071717-MG-SB-1-70	70	07/17/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	13000
088210-35-071817-MG-SB-1-80	80	07/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	11000
088210-35-071817-MG-SB-1-90	90	07/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	3400
088210-35-071817-MG-SB-2-50	50	07/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	7600
088210-35-071817-MG-SB-2-60	60	07/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	7700
088210-35-071817-MG-SB-2-70	70	07/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	6200
088210-35-071817-MG-SB-2-75	75	07/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	980
088210-35-071817-MG-SB-3-50	50	07/19/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	62
088210-35-071817-MG-SB-3-60	60	07/19/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	88
088210-35-071817-MG-SB-4-40	40	07/19/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	870
088210-35-071817-MG-SB-4-50	50	07/19/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	79
088210-35-081817-SP-SB-5-100	100	08/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	48
088210-35-081817-SP-SB-5-110	110	08/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	760
088210-35-081817-SP-SB-5-120	120	08/18/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	82
088210-35-081617-SP-SB-6-85	85	08/16/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
088210-35-081617-SP-SB-6-95	95	08/16/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	<30
NMOCD RRALs (Total Ranking Score = 0)			**10**	**50**				**Total TPH: 5,000**				**600**

Notes:

All sample results are in milligrams per kilogram
NA = Not Analyzed
NMOCD = New Mexico Oil Conservation Division
RRALs = Recommended Remediation Action Limits
Highlighted = Exceeds NMOCD RRAL

Appendices

Appendix A
Water Well Report

Livingston Ridge SWD #2

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02744			ED	3	2	1	11	22S	31E	617374	3586631*	1839	4911		
C 02745			ED	4	2	2	15	22S	31E	616789	3585013*	3300	925		
C 02746			ED	4	2	2	15	22S	31E	616789	3585013*	3300	930		
C 02747			ED	4	2	2	15	22S	31E	616789	3585013*	3300	1076		
C 02949 EXPL			ED	1	1	4	34	21S	31E	616140	3589231*	3397	970		
C 03150			ED	2	4	4	14	22S	31E	618412	3584025*	3469	981		
C 02939		C	LE	3	3	1	19	22S	32E	620234	3583042*	4560	280		
C 03717 POD1		C	LE	4	4	1	09	22S	32E	624094	3586365	5179	650		
C 03112 EXPLORE			ED	3	1	1	09	22S	31E	613753	3586590*	5341	3567		
C 02415			ED	3	3	4	16	22S	31E	614592	3583785*	5746	880	448	432
C 02727			ED	3	1	1	33	21S	31E	613716	3589809*	5815	913		
C 02682			ED	4	4	4	08	22S	31E	613566	3585379*	5836	4400		

Average Depth to Water: **448 feet**

Minimum Depth: **448 feet**

Maximum Depth: **448 feet**

Record Count: 12

UTMNAD83 Radius Search (in meters):

Easting (X): 619026.33 **Northing (Y):** 3587439.34 **Radius:** 6000

***UTM location was derived from PLSS - see Help**

8/24/17 8:17 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

USGS science for a changing world

USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

Click to hideNews Bulletins

- Please see news on new formats
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 322333103461401

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

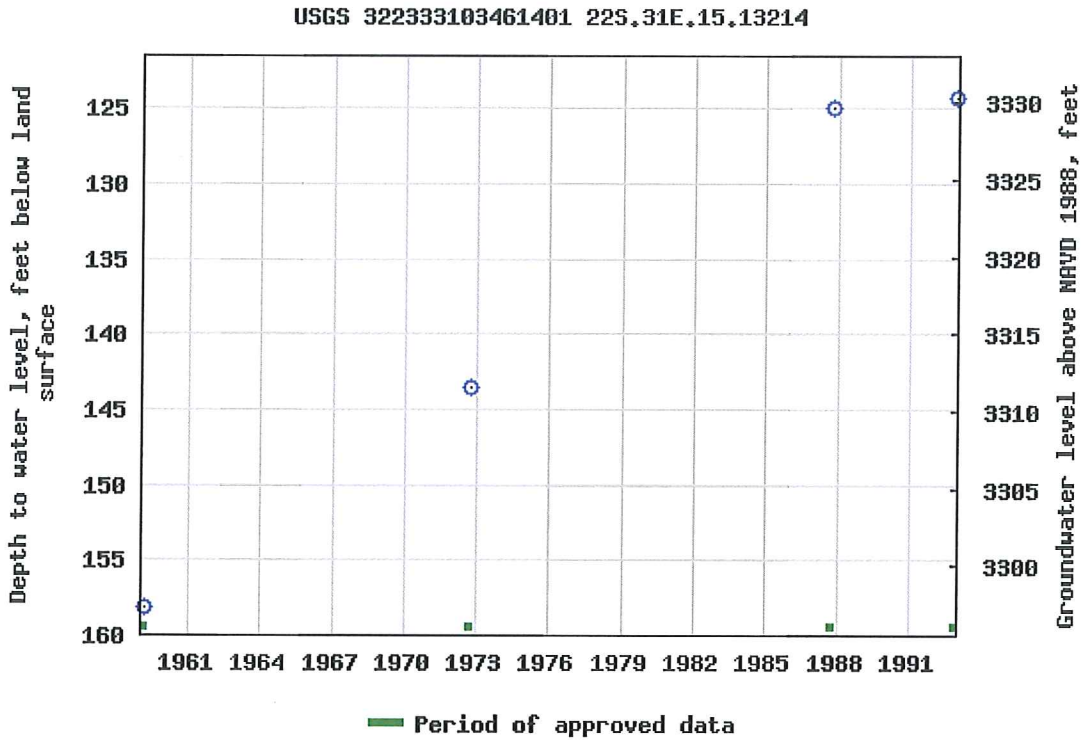
USGS 322333103461401 22S.31E.15.13214

Available data for this site Groundwater: Field measurements | GO

Eddy County, New Mexico
Hydrologic Unit Code --
Latitude 32°23'40", Longitude 103°46'16" NAD27
Land-surface elevation 3,455 feet above NAVD88
This well is completed in the Santa Rosa Sandstone (231SNRS) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey
Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2017-10-04 09:30:06 EDT
0.97 0.88 nadww02

Appendix B
Laboratory Analytical Reports

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

June 19, 2017

Bernie Bockish
GHD
6121 Indian School Road, NE #200
Albuquerque, NM 87110
TEL: (505) 884-0672
FAX

RE: Livingston 2 OrderNo.: 1706844

Dear Bernie Bockish:

Hall Environmental Analysis Laboratory received 36 sample(s) on 6/15/2017 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 **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-1-2'
Project: Livingston 2
Collection Date: 6/9/2017 9:55:00 AM
Lab ID: 1706844-001 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 1:56:39 AM	32339

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-1-10
Project: Livingston 2
Collection Date: 6/9/2017 10:05:00 AM
Lab ID: 1706844-002 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 2:58:41 AM	32339

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-2-10
Project: Livingston 2
Collection Date: 6/9/2017 10:55:00 AM
Lab ID: 1706844-003 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	8300	300		mg/Kg	200	6/18/2017 10:18:05 PM	32339

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-3-2'
Project: Livingston 2
Collection Date: 6/9/2017 11:10:00 AM
Lab ID: 1706844-004 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 3:23:31 AM	32339

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-3-10
Project: Livingston 2
Collection Date: 6/9/2017 11:25:00 AM
Lab ID: 1706844-005 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	150	30		mg/Kg	20	6/17/2017 3:35:56 AM	32339

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-4-2'
Project: Livingston 2
Collection Date: 6/9/2017 11:35:00 AM
Lab ID: 1706844-006 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 3:48:20 AM	32339

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-4-10
Project: Livingston 2
Collection Date: 6/9/2017 11:50:00 AM
Lab ID: 1706844-007
Matrix: SOIL
Received Date: 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	7600	300		mg/Kg	200	6/18/2017 10:30:30 PM	32339

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-5-2'
Project: Livingston 2
Collection Date: 6/9/2017 1:05:00 PM
Lab ID: 1706844-008 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 4:13:09 AM	32339

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-5-10
Project: Livingston 2
Collection Date: 6/9/2017 1:20:00 PM
Lab ID: 1706844-009 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	15000	750		mg/Kg	500	6/18/2017 10:42:55 PM	32340
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/16/2017 4:23:31 PM	32315
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/16/2017 4:23:31 PM	32315
Surr: DNOP	102	70-130		%Rec	1	6/16/2017 4:23:31 PM	32315
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/16/2017 6:45:47 PM	32311
Surr: BFB	102	54-150		%Rec	1	6/16/2017 6:45:47 PM	32311
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	6/16/2017 6:45:47 PM	32311
Toluene	ND	0.048		mg/Kg	1	6/16/2017 6:45:47 PM	32311
Ethylbenzene	ND	0.048		mg/Kg	1	6/16/2017 6:45:47 PM	32311
Xylenes, Total	ND	0.097		mg/Kg	1	6/16/2017 6:45:47 PM	32311
Surr: 4-Bromofluorobenzene	129	66.6-132		%Rec	1	6/16/2017 6:45:47 PM	32311

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-6-2'
Project: Livingston 2
Collection Date: 6/9/2017 1:40:00 PM
Lab ID: 1706844-010 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 10:48:00 AM	32340

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-6-10
Project: Livingston 2
Collection Date: 6/9/2017 1:55:00 PM
Lab ID: 1706844-011 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	5000	150		mg/Kg	100	6/18/2017 10:55:19 PM	32340

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-2-2'
Project: Livingston 2
Collection Date: 6/9/2017 10:40:00 AM
Lab ID: 1706844-012 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 11:37:38 AM	32340

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-7-2'
Project: Livingston 2
Collection Date: 6/9/2017 2:05:00 PM
Lab ID: 1706844-013 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 12:14:51 PM	32340

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-060917-MG-TP-7-10
Project: Livingston 2
Collection Date: 6/9/2017 2:40:00 PM
Lab ID: 1706844-014 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	17000	750		mg/Kg	500	6/18/2017 11:07:43 PM	32340
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	6/16/2017 4:45:37 PM	32315
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/16/2017 4:45:37 PM	32315
Surr: DNOP	102	70-130		%Rec	1	6/16/2017 4:45:37 PM	32315
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/16/2017 7:10:02 PM	32311
Surr: BFB	96.5	54-150		%Rec	1	6/16/2017 7:10:02 PM	32311
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	6/16/2017 7:10:02 PM	32311
Toluene	ND	0.049		mg/Kg	1	6/16/2017 7:10:02 PM	32311
Ethylbenzene	ND	0.049		mg/Kg	1	6/16/2017 7:10:02 PM	32311
Xylenes, Total	ND	0.097		mg/Kg	1	6/16/2017 7:10:02 PM	32311
Surr: 4-Bromofluorobenzene	122	66.6-132		%Rec	1	6/16/2017 7:10:02 PM	32311

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-8-2'
Project: Livingston 2
Collection Date: 6/12/2017 10:50:00 AM
Lab ID: 1706844-015 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 12:39:40 PM	32340

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-8-10
Project: Livingston 2
Collection Date: 6/12/2017 11:10:00 AM
Lab ID: 1706844-016
Matrix: SOIL
Received Date: 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 12:52:04 PM	32340

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-9-2'
Project: Livingston 2
Collection Date: 6/12/2017 11:20:00 AM
Lab ID: 1706844-017
Matrix: SOIL
Received Date: 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 1:04:29 PM	32340

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-9-10
Project: Livingston 2
Collection Date: 6/12/2017 11:35:00 AM
Lab ID: 1706844-018 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 1:16:53 PM	32340

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-10-2
Project: Livingston 2
Collection Date: 6/12/2017 11:55:00 AM
Lab ID: 1706844-019
Matrix: SOIL
Received Date: 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 1:29:17 PM	32340

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-10-1
Project: Livingston 2
Collection Date: 6/12/2017 1:05:00 PM
Lab ID: 1706844-020 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 1:41:41 PM	32340

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-11-2
Project: Livingston 2
Collection Date: 6/12/2017 1:15:00 PM
Lab ID: 1706844-021 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 1:54:06 PM	32340

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-11-1
Project: Livingston 2
Collection Date: 6/12/2017 1:30:00 PM
Lab ID: 1706844-022 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 2:06:30 PM	32340

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-12-2
Project: Livingston 2
Collection Date: 6/12/2017 1:45:00 PM
Lab ID: 1706844-023 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 2:43:43 PM	32340

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-12-1
Project: Livingston 2
Collection Date: 6/12/2017 2:00:00 PM
Lab ID: 1706844-024
Matrix: SOIL
Received Date: 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 2:56:08 PM	32340

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-13-2
Project: Livingston 2
Collection Date: 6/12/2017 2:10:00 PM
Lab ID: 1706844-025
Matrix: SOIL
Received Date: 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 3:08:34 PM	32340

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061217-MG-TP-13-1
Project: Livingston 2
Collection Date: 6/12/2017 2:30:00 PM
Lab ID: 1706844-026 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 3:20:58 PM	32340

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061317-MG-TP-14-2
Project: Livingston 2
Collection Date: 6/13/2017 8:15:00 AM
Lab ID: 1706844-027
Matrix: SOIL
Received Date: 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 3:33:23 PM	32340

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061317-MG-TP-14-1
Project: Livingston 2
Collection Date: 6/13/2017 8:40:00 AM
Lab ID: 1706844-028
Matrix: SOIL
Received Date: 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 3:45:47 PM	32340

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Livingston 2
Lab ID: 1706844-029 **Matrix:** SOIL

Client Sample ID: 088210-35-061317-MG-TP-15-2
Collection Date: 6/13/2017 9:00:00 AM
Received Date: 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 4:23:00 PM	32341

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061317-MG-TP-15-1
Project: Livingston 2
Collection Date: 6/13/2017 9:15:00 AM
Lab ID: 1706844-030
Matrix: SOIL
Received Date: 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 5:25:03 PM	32341

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061317-MG-TP-16-2
Project: Livingston 2
Collection Date: 6/13/2017 9:25:00 AM
Lab ID: 1706844-031 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 5:37:27 PM	32341

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061317-MG-TP-16-1
Project: Livingston 2
Collection Date: 6/13/2017 9:40:00 AM
Lab ID: 1706844-032 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 5:49:52 PM	32341

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061317-MG-TP-17-2
Project: Livingston 2
Collection Date: 6/13/2017 9:50:00 AM
Lab ID: 1706844-033 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 6:02:17 PM	32341

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061317-MG-TP-17-1
Project: Livingston 2
Collection Date: 6/13/2017 10:00:00 AM
Lab ID: 1706844-034 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 6:14:42 PM	32341

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061317-MG-TP-18-2
Project: Livingston 2
Collection Date: 6/13/2017 10:25:00 AM
Lab ID: 1706844-035 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/17/2017 6:27:07 PM	32341

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
	D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
	RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **1706844**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Client Sample ID: 088210-35-061317-MG-TP-18-1
Project: Livingston 2
Collection Date: 6/13/2017 11:00:00 AM
Lab ID: 1706844-036 **Matrix:** SOIL **Received Date:** 6/15/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	360	30		mg/Kg	20	6/17/2017 6:39:31 PM	32341

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706844**

19-Jun-17

Client: GHD

Project: Livingston 2

Sample ID	**MB-32339**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**32339**	RunNo:	**43583**					
Prep Date:	**6/16/2017**	Analysis Date:	**6/16/2017**	SeqNo:	**1372810**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-32339**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**32339**	RunNo:	**43583**					
Prep Date:	**6/16/2017**	Analysis Date:	**6/16/2017**	SeqNo:	**1372811**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.9	90	110			

Sample ID	**MB-32340**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**32340**	RunNo:	**43585**					
Prep Date:	**6/17/2017**	Analysis Date:	**6/17/2017**	SeqNo:	**1372868**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-32340**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**32340**	RunNo:	**43585**					
Prep Date:	**6/17/2017**	Analysis Date:	**6/17/2017**	SeqNo:	**1372869**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.4	90	110			

Sample ID	**MB-32341**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**32341**	RunNo:	**43585**					
Prep Date:	**6/17/2017**	Analysis Date:	**6/17/2017**	SeqNo:	**1372898**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-32341**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**32341**	RunNo:	**43585**					
Prep Date:	**6/17/2017**	Analysis Date:	**6/17/2017**	SeqNo:	**1372899**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706844**
19-Jun-17

Client: GHD
Project: Livingston 2

Sample ID	**MB-32315**	SampType:	**MBLK**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**32315**	RunNo:	**43560**					
Prep Date:	**6/15/2017**	Analysis Date:	**6/16/2017**	SeqNo:	**1372149**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.6		10.00		96.0	70	130			

Sample ID	**LCS-32315**	SampType:	**LCS**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**32315**	RunNo:	**43560**					
Prep Date:	**6/15/2017**	Analysis Date:	**6/16/2017**	SeqNo:	**1372317**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	99.8	73.2	114			
Surr: DNOP	4.8		5.000		95.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706844**

19-Jun-17

Client: GHD

Project: Livingston 2

Sample ID	**MB-32311**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**32311**	RunNo:	**43568**					
Prep Date:	**6/15/2017**	Analysis Date:	**6/16/2017**	SeqNo:	**1373048**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		96.9	54	150			

Sample ID	**LCS-32311**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**32311**	RunNo:	**43568**					
Prep Date:	**6/15/2017**	Analysis Date:	**6/16/2017**	SeqNo:	**1373049**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	102	76.4	125			
Surr: BFB	1100		1000		108	54	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706844**

19-Jun-17

Client: GHD

Project: Livingston 2

Sample ID	**MB-32311**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**32311**	RunNo:	**43568**					
Prep Date:	**6/15/2017**	Analysis Date:	**6/16/2017**	SeqNo:	**1373066**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.2		1.000		124	66.6	132			

Sample ID	**LCS-32311**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**32311**	RunNo:	**43568**					
Prep Date:	**6/15/2017**	Analysis Date:	**6/16/2017**	SeqNo:	**1373067**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	107	80	120			
Toluene	1.1	0.050	1.000	0	108	80	120			
Ethylbenzene	1.1	0.050	1.000	0	109	80	120			
Xylenes, Total	3.3	0.10	3.000	0	110	80	120			
Surr: 4-Bromofluorobenzene	1.3		1.000		126	66.6	132			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

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: GHD | Work Order Number: 1706844 | RcptNo: 1

Received By: Erin Melendrez 6/15/2017 9:30:00 AM

Completed By: Ashley Gallegos 6/15/2017 10:29:02 AM

Reviewed By: 06/15/17

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?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(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	5.1	Good	Yes			

Chain-of-Custody Record

Client: GHD Services, Inc.

Mailing Address: 6121 Indian School Rd. Ste 200 NE Albuquerque, NM 87110

Phone #: 505 884 0672

email or Fax#: Bernard.Bockisch@ghd.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush 48hr

Project Name: Livingston 2

Project #: 088210-35

Project Manager: Bernard Bockisch

Sampler: Michael Gant

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1701847
6/9	~~1000~~ 0955	S	S-088210-35-060917-MG-TP-1-2'	4oz Soil Jar	ICE	-001
6/9	~~1015~~ 1005	S	S-088210-35-060917-MG-TP-1-10'			-002
6/9	1055	S	S-088210-35-060917-MG-TP-2-10'			-003
6/9	1110	S	S-088210-35-060917-MG-TP-3-2'			-004
6/9	1125	S	S-088210-35-060917-MG-TP-3-10'			-005
6/9	1135	S	S-088210-35-060917-MG-TP-4-2'			-006
6/9	1150	S	S-088210-35-060917-MG-TP-4-10'			-007
6/9	1305	S	S-088210-35-060917-MG-TP-5-2'			-008
6/9	1320	S	S-088210-35-060917-MG-TP-5-10'			-009
6/9	1340	S	S-088210-35-060917-MG-TP-6-2'			-010
6/9	1355	S	S-088210-35-060917-MG-TP-6-10'			-011
6/9	1040	S	S-088210-35-060917-MG-TP-22'			-012

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)	Chloride (300)	BTEX (8021)			Air Bubbles (Y or N)
											X				
											X				
											X				
											X				
											X				
											X				
											X				
											X				
		X									X	X			
											X				
											X				
											X				

Date: 6/14 Time: 1600 Relinquished by: [signature] Received by: [signature] Date 6/14/17 Time 1600

Date: 6/14/17 Time: 1900 Relinquished by: [signature] Received by: [signature] Date 06/15/17 Time 0930

Remarks: Hold for possible BTEX

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.

Chain-of-Custody Record

Client: GHD Services, Inc.

Mailing Address: 6121 Indian School Rd Ste 200 Albuquerque NM 87110

Phone #: 505 884 0672

email or Fax#: Bernard.Bockisch@ghd.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush 48hr

Project Name: Livingston 2

Project #: 088210-35

Project Manager: Bernard Bockisch

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.1°

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1708	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)	chloride (300)	BTEX (8021)			Air Bubbles (Y or N)
6/9	1405	S	S-088210-35-060917-MG-TP-7-2'	4oz Soil Jar	Ice	1701844-013												X				
6/9	1440	S	S-088210-35-060917-MG-TP-7-10'			-014			X									X	X			
6/12	1050	S	S-088210-35-061217-MG-TP-8-2'			-015												X				
6/12	1110	S	S-088210-35-061217-MG-TP-8-10'			-016												X				
6/12	1120	S	S-088210-35-061217-MG-TP-9-2'			-017												X				
6/12	1135	S	S-088210-35-061217-MG-TP-9-16'			-018												X				
6/12	1155	S	S-088210-35-061217-MG-TP-10-2'			-019												X				
6/12	1305	S	S-088210-35-061217-MG-TP-10-10'			-020												X				
6/12	1315	S	S-088210-35-061217-MG-TP-11-2'			-021												X				
6/12	1330	S	S-088210-35-061217-MG-TP-11-10'			-022												X				
6/12	1345	S	S-088210-35-061217-MG-TP-12-2'			-023												X				
6/12	1400	S	S-088210-35-061217-MG-TP-12-10'			-024												X				

Date	Time	Relinquished by:	Received by:	Date	Time
6/14	1600			6/14	1600
6/14/17	1999			06/15/17	0930

Remarks: Hold for possible BTEX

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.

Chain-of-Custody Record

Client: GHD Services, Inc.

Mailing Address: 6121 Indian School Rd Ste 200 NE
Albuquerque, NM 87110

Phone #: 505 884 0672

email or Fax#: BernardBocktisch@ghd.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush 48hr

Project Name: Livingston2

Project #: 088210-35

Project Manager: Bernard Bocktisch

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1706844	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)	Chloride (300)	BTEX (8021)			Air Bubbles (Y or N)
6/12	1410	S	S-088210-35-061217-MG-TP-13-2'	4oz Soil Jar	Ice	-025												X				
6/12	1430	S	S-088210-35-061217-MG-TP-13-10'			-026												X				
6/13	0815	S	S-088210-35-061317-MG-TP-14-2'			-027												X				
6/13	0840	S	S-088210-35-061317-MG-TP-14-10'			-028												X				
6/13	0900	S	S-088210-35-061317-MG-TP-15-2'			-029												X				
6/13	0915	S	S-088210-35-061317-MG-TP-15-10			-030												X				
6/13	0925	S	S-088210-35-061317-MG-TP-16-2			-031												X				
6/13	0940	S	S-088210-35-061317-MG-TP-16-10			-032												X				
6/13	0950	S	S-088210-35-061317-MG-TP-17-2			-033												X				
6/13	1000	S	S-088210-35-061317-MG-TP-17-10			-034												X				
6/13	1025	S	S-088210-35-061317-MG-TP-18-2			-035												X				
6/13	1100	S	S-088210-35-061317-MG-TP-18-10			-036												X				

Date	Time	Relinquished by:	Received by:	Date	Time
6/14	1600				1600
14/17	1900			06/15/17	0930

Remarks: Hold for possible BTEX

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

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

August 01, 2017

Bernie Bockish

GHD
6121 Indian School Road, NE #200
Albuquerque, NM 87110
TEL: (505) 884-0672
FAX

RE: Livingston 2 OrderNo.: 1707B18

Dear Bernie Bockish:

Hall Environmental Analysis Laboratory received 13 sample(s) on 7/21/2017 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: **1707B18**
Date Reported: **8/1/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Livingston 2
Lab Order: 1707B18

Lab ID: 1707B18-001 **Collection Date:** 7/17/2017 4:20:00 PM
Client Sample ID: S088210-35-071717MG-SB-1-50' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **SRM**	
Chloride	8300	300		mg/Kg	200	7/27/2017 5:15:27 PM	33021

Lab ID: 1707B18-002 **Collection Date:** 7/17/2017 5:05:00 PM
Client Sample ID: S088210-35-071717MG-SB-1-60' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **SRM**	
Chloride	8300	300		mg/Kg	200	7/27/2017 5:27:52 PM	33021

Lab ID: 1707B18-003 **Collection Date:** 7/17/2017 5:50:00 PM
Client Sample ID: S088210-35-071717MG-SB-1-70' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **SRM**	
Chloride	13000	750		mg/Kg	500	7/27/2017 5:40:17 PM	33021

Lab ID: 1707B18-004 **Collection Date:** 7/18/2017 9:10:00 AM
Client Sample ID: S088210-35-071817MG-SB-1-80' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **SRM**	
Chloride	11000	750		mg/Kg	500	7/27/2017 5:52:42 PM	33021

Lab ID: 1707B18-005 **Collection Date:** 7/18/2017 10:05:00 AM
Client Sample ID: S088210-35-071817MG-SB-1-90' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **SRM**	
Chloride	3400	150		mg/Kg	100	7/27/2017 6:29:56 PM	33021

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order: **1707B18**
Date Reported: **8/1/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD **Lab Order:** 1707B18
Project: Livingston 2

Lab ID: 1707B18-006 **Collection Date:** 7/18/2017 2:10:00 PM
Client Sample ID: S088210-35-071817MG-SB-2-50' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **SRM**	
Chloride	7600	750		mg/Kg	500	7/27/2017 6:42:20 PM	33021

Lab ID: 1707B18-007 **Collection Date:** 7/18/2017 2:55:00 PM
Client Sample ID: S088210-35-071817MG-SB-2-60' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **SRM**	
Chloride	7700	300		mg/Kg	200	7/27/2017 6:54:45 PM	33021

Lab ID: 1707B18-008 **Collection Date:** 7/18/2017 3:30:00 PM
Client Sample ID: S088210-35-071817MG-SB-2-70' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **SRM**	
Chloride	6200	300		mg/Kg	200	7/27/2017 7:07:10 PM	33021

Lab ID: 1707B18-009 **Collection Date:** 7/18/2017 4:15:00 PM
Client Sample ID: S088210-35-071817MG-SB-2-75' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	980	30		mg/Kg	20	7/26/2017 4:12:52 PM	33021

Lab ID: 1707B18-010 **Collection Date:** 7/19/2017 11:15:00 AM
Client Sample ID: S088210-35-071917MG-SB-3-50' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	62	30		mg/Kg	20	7/26/2017 4:25:17 PM	33021

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order: **1707B18**
Date Reported: **8/1/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Livingston 2
Lab Order: 1707B18

Lab ID: 1707B18-011 **Collection Date:** 7/19/2017 11:45:00 AM
Client Sample ID: S088210-35-071917MG-SB-3-60' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	88	30		mg/Kg	20	7/26/2017 4:37:42 PM	33021

Lab ID: 1707B18-012 **Collection Date:** 7/19/2017 3:05:00 PM
Client Sample ID: S088210-35-071917MG-SB-4-40' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	870	30		mg/Kg	20	7/26/2017 4:50:07 PM	33021

Lab ID: 1707B18-013 **Collection Date:** 7/19/2017 3:35:00 PM
Client Sample ID: S088210-35-071917MG-SB-4-50' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	79	30		mg/Kg	20	7/26/2017 5:02:32 PM	33021

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1707B18**

01-Aug-17

Client: GHD

Project: Livingston 2

Sample ID	**MB-33021**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**33021**	RunNo:	**44523**					
Prep Date:	**7/26/2017**	Analysis Date:	**7/26/2017**	SeqNo:	**1407865**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-33021**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**33021**	RunNo:	**44523**					
Prep Date:	**7/26/2017**	Analysis Date:	**7/26/2017**	SeqNo:	**1407866**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: GHD Work Order Number: 1707B18 RcptNo: 1

Received By: Sophia Campuzano 7/21/2017 9:45:00 AM

Completed By: Erin Melendrez 7/21/2017 10:32:15 AM

Reviewed By: 7/21/17

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?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(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	2.4	Good	Yes			

Chain-of-Custody Record

Client: GHD Services, Inc.

Mailing Address: 6121 Indian School Rd Ste 200 NE Albuquerque, NM 87110

Phone #: 505 884 0672

email or Fax#: Bernard.Bockisch@ghd.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Livingston 2

Project #: 088210-35

Project Manager: Bernard Bockisch

Sampler: Michael Gant

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1707B18	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)	Chloride (300)				Air Bubbles (Y or N)
7/17	1620	S	S-088210-35-071717-MG-SB-1-50'	4oz Soil Jar	ICE	-001												X				
7/17	1705	S	S-088210-35-071717-MG-SB-1-60'			-002												X				
7/17	1750	S	S-088210-35-071717-MG-SB-1-70'			-003												X				
7/18	0910	S	S-088210-35-071817-MG-SB-1-80'			-004												X				
7/18	1005	S	S-088210-35-071817-MG-SB-1-90'			-005												X				
7/18	1410	S	S-088210-35-071817-MG-SB-2-50'			-006												X				
7/18	1455	S	S-088210-35-071817-MG-SB-2-60'			-007												X				
7/18	1530	S	S-088210-35-071817-MG-SB-2-70'			-008												X				
7/18	1615	S	S-088210-35-071817-MG-SB-2-75'			-009												X				
7/19	1115	S	S-088210-35-071917-MG-SB-3-50'			-010												X				
7/19	1145	S	S-088210-35-071917-MG-SB-3-60'			-011												X				
7/19	1505	S	S-088210-35-071917-MG-SB-4-40'			-012												X				

Date	Time	Relinquished by:	Received by:	Date	Time
7/20	0800			7/20/17	0850
7/20/17	1900		Sigel Cruz	07/21/17	0945

Remarks:

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.

Chain-of-Custody Record

Client: GHD Services, Inc.

Mailing Address: 6121 Indian School Rd Ste 200 NE Albuquerque, NM 87110

Phone #: 505 884 0672

email or Fax#: Bernard.Bockisch@ghd.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Livingston 2

Project #: 08210-35

Project Manager: Bernard Bockisch

Sampler: Michael Gant

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	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)	X Chloride (300)				Air Bubbles (Y or N)
7/19	1635	S	S-08820-35-071917-MG-SB-4.5'	4oz Soil Jar	ICE	1707B18-013												X				

Date: 7/20 Time: 0800 Relinquished by: [signature] Received by: [signature] Date Time: 7/20/17 0850

Date: 7/20/17 Time: 1900 Relinquished by: [signature] Received by: Steph Cox Date Time: 07/21/17 0945

Remarks:

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 01, 2017

Alan Brandon

GHD
6121 Indian School Road, NE #200
Albuquerque, NM 87110
TEL: (505) 884-0672
FAX

RE: Livingston Ridge SWD No 2 OrderNo.: 1708C84

Dear Alan Brandon:

Hall Environmental Analysis Laboratory received 3 sample(s) on 8/22/2017 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: **1708C84**
Date Reported: **9/1/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Livingston Ridge SWD No 2
Lab Order: 1708C84

Lab ID: 1708C84-001 **Collection Date:** 8/18/2017 10:53:00 AM
Client Sample ID: S-088210-35-081817-SP-SB-5-100 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	48	30		mg/Kg	20	8/28/2017 6:01:52 PM	33585

Lab ID: 1708C84-002 **Collection Date:** 8/18/2017 11:40:00 AM
Client Sample ID: S-088210-35-081817-SP-SB-5-110 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	760	30		mg/Kg	20	8/28/2017 6:14:16 PM	33585

Lab ID: 1708C84-003 **Collection Date:** 8/18/2017 12:22:00 PM
Client Sample ID: S-088210-35-081817-SP-SB-5-120 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	82	30		mg/Kg	20	8/28/2017 6:26:40 PM	33585

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1708C84**
01-Sep-17

Client: GHD
Project: Livingston Ridge SWD No 2

Sample ID	**MB-33585**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**33585**	RunNo:	**45254**					
Prep Date:	**8/28/2017**	Analysis Date:	**8/28/2017**	SeqNo:	**1434156**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-33585**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**33585**	RunNo:	**45254**					
Prep Date:	**8/28/2017**	Analysis Date:	**8/28/2017**	SeqNo:	**1434157**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: GHD | Work Order Number: 1708C84 | RcptNo: 1

Received By: **Isaiah Ortiz** 8/22/2017 8:57:00 AM

Completed By: **Michelle Garcia** 8/22/2017 4:08:36 PM

Reviewed By: IMO 8/23/2017

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° 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 ☐	# of preserved bottles checked for pH: _____ (<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: _____

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	0.1	Good	Not Present			

Chain-of-Custody Record

Client: GHD - Albuquerque

Mailing Address: 6121 Indian School Rd NE Ste 200, Albuquerque NM 87110

Phone #: 505-884-0672

email or Fax#: Alan.Brandon@ghd.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____

Project Name: Livingston Ridge SWD No. 2

Project #: 088210/35

Project Manager: Alan Brandon

Sampler: Steve Perez

On Ice: ☑ Yes ☐ No

Sample Temperature: 0.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1708C84	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)	Chloride 300.0			Air Bubbles (Y or N)
8-18-17	1053	Soil	S-088210-35-081817-SP-SB-5-100'	4oz glass-1	ICE	001												X			
↓	1140		S-088210-35-081817-SP-SB-5-110'	↓	↓	002												X			
↓	1222		S-088210-35-081817-SP-SB-5-120'	↓	↓	003												X			

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
8/21/17	15:50					
Date:	Time:	Relinquished by:	Received by:	8/22/17	8:57	
				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

August 28, 2017

Alan Brandon

GHD
6121 Indian School Road, NE #200
Albuquerque, NM 87110
TEL: (505) 884-0672
FAX

RE: Livington Ridge SWD No 2 OrderNo.: 1708B40

Dear Alan Brandon:

Hall Environmental Analysis Laboratory received 2 sample(s) on 8/18/2017 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: **1708B40**
Date Reported: **8/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Livington Ridge SWD No 2
Lab Order: 1708B40

Lab ID: 1708B40-001 **Collection Date:** 8/16/2017 11:41:00 AM
Client Sample ID: S-088210-35-081617-SP-SB-6-85' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	8/26/2017 12:09:13 AM	33563

Lab ID: 1708B40-002 **Collection Date:** 8/16/2017 11:44:00 AM
Client Sample ID: S-088210-35-081617-SP-SB-6-95' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	8/26/2017 12:21:37 AM	33563

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1708B40**

28-Aug-17

Client: GHD

Project: Livington Ridge SWD No 2

Sample ID	**MB-33563**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**33563**	RunNo:	**45224**					
Prep Date:	**8/25/2017**	Analysis Date:	**8/25/2017**	SeqNo:	**1433002**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-33563**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**33563**	RunNo:	**45224**					
Prep Date:	**8/25/2017**	Analysis Date:	**8/25/2017**	SeqNo:	**1433003**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: GHD Work Order Number: 1708B40 RcptNo: 1

Received By: Sophia Campuzano 8/18/2017 9:15:00 AM

Completed By: Ashley Gallegos 8/18/2017 11:28:06 AM

Reviewed By: BRE 08/18/17

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?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(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	1.0	Good	Not Present			

Chain-of-Custody Record

Client: GHD - Albuquerque

Mailing Address: 6121 Indian School Rd NE Ste 200, Albuquerque NM 87110

Phone #: 505-884-0672

email or Fax#: Alan.Brandon@ghd.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____

Project Name: Livingston Ridge SWD No. 2

Project #: 088210/35

Project Manager: Alan Brandon

Sampler: Steve Perez

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1708B40	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)	Chloride 300.0				Air Bubbles (Y or N)
8-16-17	11:41	Soil	5088210-35-081617-SP-SB6-85'	4oz glass-1	+ICE	-001												X				
↓	11:44	↓	5-088210-35-081617-SP-SB-6-95'	↓	↓	-002												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
8-17-17	0745			8/17/17	0745
Date:	Time:	Relinquished by:	Received by:	Date	Time
8/17/17	1240		Courier	08/18/17	0915

Remarks:

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.

Appendix C
Boring Logs

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-1
DATE COMPLETED: July 17, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: M. GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
2	SC-CLAYEY SAND, fine grained, well sorted, reddish brown, dry							
4								
6								
8								
10	- light brown at 10.0ft BGS							
12								
14								
16	- light reddish brown at 15.0ft BGS							
18								
20	- very fine grained, brown at 20.0ft BGS			SB-1-20				
22								
24								
26	SM-SILTY SAND, very fine grained, well sorted, brown, dry	25.00		SB-1-25				
28								
30	- reddish brown at 30.0ft BGS			SB-1-30				
32								
34								
36				SB-1-35				
38								
40				SB-1-40				
42								
44								
46	- fine grained, dark brown at 45.0ft BGS		BACKFILLED WITH BENTONITE CHIPS AND SOIL	SB-1-45				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-1
DATE COMPLETED: July 17, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: M. GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
50	SC-CLAYEY SAND, very fine grained, light brown, well sorted, dry	50.00	CUTTINGS	SB-1-50				8300
60	- brown at 60.0ft BGS			SB-1-60				8300
70	CL-SANDY CLAY, very fine grained, well sorted, reddish brown, dry	70.00		SB-1-70				13000
80	SC-CLAYEY SAND, very fine grained, well sorted, brown, dry	80.00		SB-1-80				11000
85	- reddish brown at 85.0ft BGS			SB-1-85				
90	END OF BOREHOLE @ 90.0ft BGS	90.00		SB-1-90				3400

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-2
DATE COMPLETED: July 18, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: M. GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
0	SC-CLAYEY SAND, fine grained, well sorted, reddish yellow, dry							
10	SM-SILTY SAND, very fine grained, well sorted, light brown, dry	10.00						
20	- fine grained, reddish brown at 20.0ft BGS			SB-2-20				
30	- pink at 30.0ft BGS			SB-2-30				
40	SC-CLAYEY SAND, very fine grained, well sorted, reddish brown, dry	40.00	BACKFILLED WITH BENTONITE CHIPS AND SOIL CUTTINGS	SB-2-40				
46								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-2
DATE COMPLETED: July 18, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: M. GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
50	CL-SANDY CLAY, very fine grained, well sorted, slightly plastic, strong brown, dry	50.00		SB-2-50				7600
52								
54								
56								
58								
60	- with sand at 60.0ft BGS			SB-2-60				7700
62								
64								
66								
68								
70	SM-SILTY SAND, fine grained, well sorted, reddish yellow, dry	70.00		SB-2-70				6200
72								
74								
76	END OF BOREHOLE @ 75.0ft BGS	75.00		SB-2-75				980
78								
80								
82								
84								
86								
88								
90								
92								
94								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-3
DATE COMPLETED: July 19, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: M. GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
0	SC-CLAYEY SAND, fine grained, well sorted, reddish yellow, dry							
10	- very fine grained, light brown at 10.0ft BGS							
15	SM-SILTY SAND, very fine grained, well sorted, reddish yellow, dry	15.00		SB-3-20				
25	- strong brown at 25.0ft BGS			SB-3-25				
30	SC-CLAYEY SAND, very fine grained, well sorted, reddish brown, dry	30.00	BACKFILLED WITH BENTONITE CHIPS AND SOIL CUTTINGS	SB-3-30				
35	CL-SANDY CLAY, very fine grained, well sorted, low plasticity, strong brown, dry	35.00		SB-3-35				
40	SC-cLAYEY SAND, very fine grained, well sorted, reddish brown, dry	40.00		SB-3-40				
45				SB-3-45				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-3
DATE COMPLETED: July 19, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: M. GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
50	CL-SANDY CLAY, very fine grained, well sorted, low plasticity, reddish brown, dry	50.00		SB-3-50				62
60	END OF BOREHOLE @ 60.0ft BGS	60.00		SB-3-60				88

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-4
DATE COMPLETED: July 19, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: M. GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
0	SC-CLAYEY SAND, fine grained, well sorted, reddish yellow, dry	0.00						
10	- very fine grained at 10.0ft BGS							
15	SM-SILTY SAND, very fine grained, well sorted, light brown, dry	15.00						
20	SC-CLAYEY SAND, very fine grained, well sorted, light brown, dry	20.00		SB-4-20				
25	SM-SILTY SAND, very fine grained, well sorted, strong brown, dry	25.00	BACKFILLED WITH BENTONITE CHIPS AND SOIL CUTTINGS	SB-4-25				
30				SB-4-30				
35	CL-SANDY CLAY, very fine grained, well sorted, low plasticity, reddish brown, dry	35.00		SB-4-35				
40	- strong brown at 40.0ft BGS			SB-4-40				870
45	SC-CLAYEY SAND, very fine grained, well sorted, reddish brown, dry	45.00		SB-4-45				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-4
DATE COMPLETED: July 19, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: M. GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
50	END OF BOREHOLE @ 50.0ft BGS	50.00		SB-4-50				79

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-5
DATE COMPLETED: August 18, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: S. PEREZ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
	SEE SB-1 FOR STRATIGRAPHIC DETAILS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-5
DATE COMPLETED: August 18, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: S. PEREZ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
90	SC-CLAYEY SAND, with silt, coarse grained, poorly graded, brown, dry	90.00	BACKFILLED WITH BENTONITE CHIPS AND SOIL CUTTINGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-5
DATE COMPLETED: August 18, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: S. PEREZ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
98								
100	SP-SAND, with silt, trace clay, coarse grained sandstone, poorly graded, brown, dry	100.00		SB-5-20				48
102								
104								
106								
108								
110				SB-5-25				760
112								
114								
116								
118								
120	- trace silt and clay at 120.0ft BGS			SB-5-30				82
122								
124								
126								
128								
130	END OF BOREHOLE @ 130.0ft BGS	130.00		SB-5-35				
132								
134								
136								
138								
140								
142								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-6
DATE COMPLETED: August 16, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: S. PEREZ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
	SEE SB-1 FOR STRATIGRAPHIC DETAILS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-6
DATE COMPLETED: August 16, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: S. PEREZ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
50			BACKFILLED WITH BENTONITE CHIPS AND SOIL CUTTINGS					
52								
54								
56								
58								
60								
62								
64								
66								
68								
70								
72								
74								
76	CL-SILTY CLAY, few sand, fine garined, reddish brown, dry	75.00						
78								
80								
82								
84								
86				SB-6-85			45	<30
88	SW-SILTY SAND, trace fine gravel, coarse grained, well graded, reddish brown, dry	86.50						
90								
92								
94				SB-6-95			15	<30

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LIVINGSTON RIDGE SWD NO. 2
PROJECT NUMBER: 088210-35
CLIENT: EOG RESOURCES
LOCATION: EDDY COUNTY, NEW MEXICO

HOLE DESIGNATION: SB-6
DATE COMPLETED: August 16, 2017
DRILLING METHOD: HSA
FIELD PERSONNEL: S. PEREZ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE Chloride (mg/kg)
98	END OF BOREHOLE @ 96.5ft BGS	96.50			X			
100								
102								
104								
106								
108								
110								
112								
114								
116								
118								
120								
122								
124								
126								
128								
130								
132								
134								
136								
138								
140								
142								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 088210-WI.GPJ CRA_CORP.GDT 9/15/17

Attachment 2
Laboratory Reports

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

March 28, 2018

Bernie Bockisch

GHD
6121 Indian School Road, NE #200
Albuquerque, NM 87110
TEL: (505) 884-0672
FAX

RE: Livingston OrderNo.: 1803842

Dear Bernie Bockisch:

Hall Environmental Analysis Laboratory received 12 sample(s) on 3/14/2018 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: **1803842**
Date Reported: **3/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Livingston
Lab Order: 1803842

Lab ID: 1803842-001 **Collection Date:** 3/12/2018 10:50:00 AM
Client Sample ID: S-088210-35-031218-MG-TP-19 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/27/2018 5:03:30 PM	37258

Lab ID: 1803842-002 **Collection Date:** 3/12/2018 10:52:00 AM
Client Sample ID: S-088210-35-031218-MG-TP-20 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/27/2018 5:15:54 PM	37258

Lab ID: 1803842-003 **Collection Date:** 3/12/2018 10:55:00 AM
Client Sample ID: S-088210-35-031218-MG-TP-21 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/27/2018 8:22:01 PM	37270

Lab ID: 1803842-004 **Collection Date:** 3/12/2018 11:45:00 AM
Client Sample ID: S-088210-35-031218-MG-TP-22 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/27/2018 9:24:04 PM	37270

Lab ID: 1803842-005 **Collection Date:** 3/12/2018 11:48:00 AM
Client Sample ID: S-088210-35-031218-MG-TP-23 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	130	30		mg/Kg	20	3/27/2018 9:36:29 PM	37270

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order: **1803842**
Date Reported: **3/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Livingston
Lab Order: 1803842

Lab ID: 1803842-006 **Collection Date:** 3/12/2018 11:50:00 AM
Client Sample ID: S-088210-35-031218-MG-TP-24 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	41	30		mg/Kg	20	3/27/2018 9:48:53 PM	37270

Lab ID: 1803842-007 **Collection Date:** 3/12/2018 11:55:00 AM
Client Sample ID: S-088210-35-031218-MG-TP-25 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	59	30		mg/Kg	20	3/27/2018 10:01:17 PM	37270

Lab ID: 1803842-008 **Collection Date:** 3/12/2018 12:55:00 PM
Client Sample ID: S-088210-35-031218-MG-TP-26 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	50	30		mg/Kg	20	3/27/2018 10:13:42 PM	37270

Lab ID: 1803842-009 **Collection Date:** 3/12/2018 12:57:00 PM
Client Sample ID: S-088210-35-031218-MG-TP-27 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/27/2018 10:26:07 PM	37270

Lab ID: 1803842-010 **Collection Date:** 3/12/2018 1:30:00 PM
Client Sample ID: S-088210-35-031218-MG-TP-28 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/27/2018 10:38:31 PM	37270

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order: **1803842**
Date Reported: **3/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Livingston
Lab Order: 1803842

Lab ID: 1803842-011 **Collection Date:** 3/12/2018 1:33:00 PM
Client Sample ID: S-088210-35-031218-MG-TP-29 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/27/2018 10:50:55 PM	37270

Lab ID: 1803842-012 **Collection Date:** 3/12/2018 2:25:00 PM
Client Sample ID: S-088210-35-031218-MG-TP-30 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/27/2018 11:28:08 PM	37270

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1803842**

28-Mar-18

Client: GHD

Project: Livingston

Sample ID	**MB-37258**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**37258**	RunNo:	**50104**					
Prep Date:	**3/27/2018**	Analysis Date:	**3/27/2018**	SeqNo:	**1623718**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-37258**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**37258**	RunNo:	**50104**					
Prep Date:	**3/27/2018**	Analysis Date:	**3/27/2018**	SeqNo:	**1623719**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.1	90	110			

Sample ID	**MB-37270**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**37270**	RunNo:	**50104**					
Prep Date:	**3/27/2018**	Analysis Date:	**3/27/2018**	SeqNo:	**1623784**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-37270**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**37270**	RunNo:	**50104**					
Prep Date:	**3/27/2018**	Analysis Date:	**3/27/2018**	SeqNo:	**1623785**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: GHD Work Order Number: 1803842 RcptNo: 1

Received By: Erin Melendrez 3/14/2018 9:15:00 AM

Completed By: Dennis Suazo 3/15/2018 8:58:09 AM

Reviewed By: SRE 03/15/18 Labeled By MW 3/15/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. 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)

15. 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: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.8	Good	Not Present			

Chain-of-Custody Record

Client: GHD Services, Inc.

Mailing Address: 6121 Indian School Rd Ste 200 NE Albuquerque, NM 87110

Phone #: 505 884 0672

email or Fax#: Bernard.Bockisch@ghd.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☐ Rush _____

Project Name: Livingston

Project #: 088210.35

Project Manager: Bernard Bockisch

Sampler: MG

On Ice: X Yes ☐ No

Sample Temperature: 5.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1803842	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)	Chloride 300				Air Bubbles (Y or N)
3/12/18	1050	S	S-088210.35-031218-MG-TP-19	4oz Soil Jar	ICE	001												X				
	1052		S-088210.35-031218-MG-TP-20			002												X				
	1055		S-088210.35-031218-MG-TP-21			003												X				
	1145		S-088210.35-031218-MG-TP-22			004												X				
	1148		S-088210.35-031218-MG-TP-23			005												X				
	1150		S-088210.35-031218-MG-TP-24			006												X				
	1155		S-088210.35-031218-MG-TP-25			007												X				
	1255		S-088210.35-031218-MG-TP-26			008												X				
	1257		S-088210.35-031218-MG-TP-27			009												X				
	1330		S-088210.35-031218-MG-TP-28			010												X				
	1333		S-088210.35-031218-MG-TP-29			011												X				
	1425		S-088210.35-031218-MG-TP-30			012												X				

Date	Time	Relinquished by:	Received by:	Date	Time
3/13/18	1500			3/13/18	1500
3/13/18	1900		(Courier) ENH 3/14/18	3/14/18	0915

Remarks:

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

March 27, 2018

Bernie Bockisch
GHD
6121 Indian School Road, NE #200
Albuquerque, NM 87110
TEL: (505) 884-0672
FAX

RE: Livingston OrderNo.: 1803759

Dear Bernie Bockisch:

Hall Environmental Analysis Laboratory received 12 sample(s) on 3/14/2018 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: **1803759**
Date Reported: **3/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Livingston
Lab Order: 1803759

Lab ID: 1803759-001 **Collection Date:** 3/12/2018 2:30:00 PM
Client Sample ID: S-088210-35-031218-MG-TP-31 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/26/2018 11:16:24 PM	37248

Lab ID: 1803759-002 **Collection Date:** 3/13/2018 12:10:00 PM
Client Sample ID: S-088210-35-031318-MG-TP-32 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	65	30		mg/Kg	20	3/26/2018 11:28:49 PM	37248

Lab ID: 1803759-003 **Collection Date:** 3/13/2018 12:12:00 PM
Client Sample ID: S-088210-35-031318-MG-TP-33 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/26/2018 11:41:13 PM	37248

Lab ID: 1803759-004 **Collection Date:** 3/13/2018 12:15:00 PM
Client Sample ID: S-088210-35-031318-MG-TP-34 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	110	30		mg/Kg	20	3/27/2018 12:18:26 AM	37248

Lab ID: 1803759-005 **Collection Date:** 3/13/2018 12:17:00 PM
Client Sample ID: S-088210-35-031318-MG-TP-35 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	67	30		mg/Kg	20	3/27/2018 12:30:50 AM	37248

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order: **1803759**
Date Reported: **3/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Livingston
Lab Order: 1803759

Lab ID: 1803759-006 **Collection Date:** 3/13/2018 12:20:00 PM
Client Sample ID: S-088210-35-031318-MG-TP-36 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/27/2018 1:08:03 AM	37248

Lab ID: 1803759-007 **Collection Date:** 3/13/2018 12:22:00 PM
Client Sample ID: S-088210-35-031318-MG-TP-37 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/27/2018 1:20:28 AM	37248

Lab ID: 1803759-008 **Collection Date:** 3/13/2018 12:25:00 PM
Client Sample ID: S-088210-35-031318-MG-TP-38 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	3/27/2018 1:32:53 AM	37248

Lab ID: 1803759-009 **Collection Date:** 3/13/2018 12:27:00 PM
Client Sample ID: S-088210-35-031318-MG-SP-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	250	30		mg/Kg	20	3/15/2018 2:11:26 PM	37043

Lab ID: 1803759-010 **Collection Date:** 3/13/2018 12:30:00 PM
Client Sample ID: S-088210-35-031318-MG-SP-2 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	220	30		mg/Kg	20	3/15/2018 2:48:39 PM	37043

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order: **1803759**
Date Reported: **3/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Livingston
Lab Order: 1803759

Lab ID: 1803759-011 **Collection Date:** 3/13/2018 12:32:00 PM
Client Sample ID: S-088210-35-031318-MG-SP-3 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	45	30		mg/Kg	20	3/15/2018 3:01:03 PM	37043

Lab ID: 1803759-012 **Collection Date:** 3/13/2018 12:35:00 PM
Client Sample ID: S-088210-35-031318-MG-SP-4 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	140	30		mg/Kg	20	3/15/2018 3:13:28 PM	37043

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
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1803759**

27-Mar-18

Client: GHD

Project: Livingston

Sample ID	**MB-37043**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**37043**	RunNo:	**49843**					
Prep Date:	**3/15/2018**	Analysis Date:	**3/15/2018**	SeqNo:	**1613173**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-37043**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**37043**	RunNo:	**49843**					
Prep Date:	**3/15/2018**	Analysis Date:	**3/15/2018**	SeqNo:	**1613174**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	96.7	90	110			

Sample ID	**MB-37248**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**37248**	RunNo:	**50081**					
Prep Date:	**3/26/2018**	Analysis Date:	**3/26/2018**	SeqNo:	**1621907**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-37248**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**37248**	RunNo:	**50081**					
Prep Date:	**3/26/2018**	Analysis Date:	**3/26/2018**	SeqNo:	**1621908**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	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	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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: GHD | Work Order Number: 1803759 | RcptNo: 1

Received By: **Erin Melendrez** 3/14/2018 9:15:00 AM

Completed By: **Ashley Gallegos** 3/14/2018 9:53:12 AM

Reviewed By: DDS 3/14/18 labeled by: ENM

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. 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)

15. 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: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.8	Good	Yes			

Chain-of-Custody Record

Client: GHD Services Inc.

Mailing Address: 6121 Indian School Rd Ste 200 NE Albuquerque, NM 87110

Phone #: 505 884 0672

email or Fax#: Bernard.Bockisch@ghd.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush 48hr on select samples

Project Name: Livingston

Project #: 088210.35

Project Manager: Bernard Bockisch

Sampler: MG

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1803759	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)	Chloride, 300	RUSH 48hr			Air Bubbles (Y or N)
3/12/18	1430	S	S·088210·35·031218·MG·TP·31	4oz Soil Jar	ICE	-001												X				
3/13/18	1210		S·088210·35·031318·MG·TP·32			-002												X				
	1212		S·088210·35·031318·MG·TP·33			-003												X				
	1215		S·088210·35·031318·MG·TP·34			-004												X				
	1217		S·088210·35·031318·MG·TP·35			-005												X				
	1220		S·088210·35·031318·MG·TP·36			-006												X				
	1222		S·088210·35·031318·MG·TP·37			-007												X				
	1225		S·088210·35·031318·MG·TP·38			-008												X				
	1227		S·088210·35·031318·MG·SP·1			-009												X	X			
	1230		S·088210·35·031318·MG·SP·2			-010												X	X			
	1232		S·088210·35·031318·MG·SP·3			-011												X	X			
	1235		S·088210·35·031318·MG·SP·4			-012												X	X			

Date	Time	Relinquished by:	Received by:	Date	Time
3/13/18	1500			3/13/18	1500
3/13/18	1900		(courier) ENM 3/14/18	3/14/18	0915

Remarks:

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.

Attachment 3
Work Plan Approvals

From: Bratcher, Mike, EMNRD
To: Alan Brandon; Weaver, Crystal, EMNRD; stucker@blm.gov; YJORDAN@BLM.GOV
Cc: Zane Kurtz; Bernard Bockisch; cctofiling@craworld.com
Subject: RE: 088210-35-(2RP-2044) Livingston Ridge SWD Assessment Summary Report ~COR-088210-35~
Date: Tuesday, November 28, 2017 9:42:27 AM

RE: 2RP-2044

Alan,

Sorry for the delayed response. OCD would request that liner placement/installation be performed in a manner that will be as protective as possible, while making safety working around the gas line a priority. OCD will evaluate closure documentation and may request to discuss some type of long term monitoring for this site. This is a Federal site, so BLM will need to be on board with remediation proposals and any surface disturbance.

If you have any questions or concerns, please contact me.

Thank you,

Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, NM 88210
575-748-1283 Ext 108

From: Alan.Brandon@ghd.com [mailto:Alan.Brandon@ghd.com]
Sent: Tuesday, October 31, 2017 8:17 AM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>; stucker@blm.gov; YJORDAN@BLM.GOV
Cc: Zane Kurtz <Zane_Kurtz@eogresources.com>; Bernard.Bockisch@ghd.com; cctofiling@craworld.com
Subject: RE: 088210-35-(2RP-2044) Livingston Ridge SWD Assessment Summary Report ~COR-088210-35~

Mike,

After plotting the 24-inch gas line on our attached Figure 2, it does look like we will be excavating near the line. We will only excavate to within ten feet of the gas line and place the liner before backfilling. Please let us know if this is acceptable.

From: Bratcher, Mike, EMNRD [mailto:mike.bratcher@state.nm.us]
Sent: Wednesday, October 25, 2017 11:27 AM
To: Alan Brandon <Alan.Brandon@ghd.com>; Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>; stucker@blm.gov; YJORDAN@BLM.GOV
Cc: Zane Kurtz <Zane_Kurtz@eogresources.com>; Bernard Bockisch <Bernard.Bockisch@ghd.com>; cctofiling@craworld.com
Subject: RE: 088210-35-(2RP-2044) Livingston Ridge SWD Assessment Summary Report ~COR-088210-35~

RE: EOG Resources * Livingston Ridge SWD Water Line * 2RP-2044 * DOR: 10/27/13

Greetings,

At the time of this release, Transwestern had a 24" high pressure gas line that this release followed. The line was fairly shallow, and actually exposed in some areas of the release. The proposal is for a 4' excavation and liner placement, but no mention of the gas line. Assuming it still exists, what is your proposal in regard to that line?

Thank you,

Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, NM 88210
575-748-1283 Ext 108

From: Alan.Brandon@ghd.com [mailto:Alan.Brandon@ghd.com]
Sent: Tuesday, October 17, 2017 9:27 AM
To: Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; stucker@blm.gov
Cc: Zane Kurtz <Zane_Kurtz@eogresources.com>; Bernard.Bockisch@ghd.com; cctofiling@craworld.com
Subject: 088210-35-(2RP-2044) Livingston Ridge SWD Assessment Summary Report ~COR-088210-35~

Crystal, Mike and Shelly,

On behalf of EOG Resources, GHD is submitting the attached Assessment Summary Report for the Livingston Ridge SWD site (2RP-2044) for your review. If you have any questions, please contact either Bernard Bockisch or myself.

Thank you.

CONFIDENTIALITY NOTICE: This email, including any attachments, is confidential and may be privileged. If you are not the intended recipient please notify the sender immediately, and please delete it; you should not copy it or use it for any purpose or disclose its contents to any other person. GHD and its affiliates reserve the right to monitor and modify all email communications through their networks.

From:	Tucker, Shelly
To:	Bratcher, Mike, EMNRD
Cc:	Alan Brandon; Weaver, Crystal, EMNRD; YJORDAN@BLM.GOV; Zane Kurtz; Bernard Bockisch; cctofiling@craworld.com
Subject:	Re: 088210-35-(2RP-2044) Livingston Ridge SWD Assessment Summary Report ~COR-088210-35~
Date:	Friday, January 19, 2018 11:18:14 AM

BLM concurs with NMOCD approval and stipulations,

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Shelly J Tucker

Environmental Protection Specialist
O&G Spill/Release Coordinator

Bureau of Land Management
620 E. Greene St
Carlsbad, NM 88220

575.234.5905 - Direct
575.361.0084 - Cellular
575.234.6235 - Emergency Spill Number

stucker@blm.gov

The **BLM acceptance/approval does not** relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that may pose a threat to groundwater, surface water, human health or the environment or if the location fails to reclaim properly. In such an event that the location does not revegetate, or future issues with contaminants are encountered, the operator will be asked to address the issues until the contaminant issues are fully mitigated and the location is successfully reclaimed. In addition, BLM approval does not relieve the operator of responsibility for compliance with any other federal, state or local laws/regulations.

On Tue, Nov 28, 2017 at 9:42 AM, Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us> wrote:

> RE: 2RP-2044
>
> Alan,

Sorry for the delayed response. OCD would request that liner placement/installation be performed in a manner that will be as protective as possible, while making safety working around the gas line a priority. OCD will evaluate closure documentation and may request to discuss some type of long term monitoring for this site. This is a Federal site, so BLM will need to be on board with remediation proposals and any surface disturbance.

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Thank you,

Mike Bratcher

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Cc: Zane Kurtz <Zane_Kurtz@eogresources.com>; Bernard.Bockisch@ghd.com; cctofiling@craworld.com

Subject: RE: 088210-35-(2RP-2044) Livingston Ridge SWD Assessment Summary Report ~COR-088210-35~

Mike,

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Sent: Wednesday, October 25, 2017 11:27 AM
To: Alan Brandon <Alan.Brandon@ghd.com>; Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>; stucker@blm.gov; YJORDAN@BLM.GOV
Cc: Zane Kurtz <Zane_Kurtz@eogresources.com>; Bernard Bockisch <Bernard.Bockisch@ghd.com>; cctofiling@craworld.com
Subject: RE: 088210-35-(2RP-2044) Livingston Ridge SWD Assessment Summary Report ~COR-088210-35~

RE: EOG Resources * Livingston Ridge SWD Water Line * 2RP-2044 * DOR: 10/27/13

Greetings,

At the time of this release, Transwestern had a 24” high pressure gas line that this release followed. The line was fairly shallow, and actually exposed in some areas of the release. The proposal is for a 4’ excavation and liner placement, but no mention of the gas line. Assuming it still exists, what is your proposal in regard to that line?

Thank you,

Mike Bratcher

NMOCD District 2

811 South First Street

Artesia, NM 88210

575-748-1283 Ext 108

From: Alan.Brandon@ghd.com [mailto:Alan.Brandon@ghd.com]
Sent: Tuesday, October 17, 2017 9:27 AM
To: Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; stucker@blm.gov
Cc: Zane Kurtz <Zane_Kurtz@eogresources.com>; Bernard.Bockisch@ghd.com; cctofiling@craworld.com
Subject: 088210-35-(2RP-2044) Livingston Ridge SWD Assessment Summary Report ~COR-088210-35~

Crystal, Mike and Shelly,

On behalf of EOG Resources, GHD is submitting the attached Assessment Summary Report for the Livingston Ridge SWD site (2RP-2044) for your review. If you have any questions, please contact either Bernard Bockisch or myself.

Thank you.

Attachment 4
Photo Log

Photo 1 - Liner Placement

Site Photographs

Photo 2 - Backfilled area

Site Photographs

Attachment **5**
Final C-141

RECEIVED
NOV 05 2013
NMOCD ARTESIA

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

nJMW1330950433

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	OGRID Number	Contact
Yates Petroleum Corporation	25575	Amber Cannon
Address		Telephone No.
105 S. 4TH Street		575-748-1471
Facility Name	API Number	Facility Type
Livingston Ridge SWD Water Line	N/A	Flow line

Surface Owner	Mineral Owner	Lease No.
Federal	Federal	N/A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N/A	1	22S	31E	N/A	N/A	N/A	N/A	Eddy

Latitude 32.41751 **Longitude** 103.73427

NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Produced water and crude oil	3200 B/PW, 50 B/O	480 B/PW; 30 B/O
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
Water transfer line	10/27/2013; PM	10/27/2013; PM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher/NMOCD II	
By Whom? Robert Asher/Yates Petroleum Corporation	Date and Hour 10/28/2013; AM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
A main water line (going to multiple Salt Water Disposals in the area) ruptured, spilling produced water and crude oil. All batteries that tied into the line were shut in. Vacuum trucks were called to recover produced water and crude oil. Roustabouts were also called to fix the water line. Since the release the water line has also been replaced.

Describe Area Affected and Cleanup Action Taken.*
An approximate area of 50' X 600'. The release occurred in a pasture between two Oxy locations (Federal 1 #1 and Federal 1 #6). The latitude/longitude GPS points provided above were taken at an electrical pool near the release area. A clean-up crew was called to do initial clean-up of the area, and all excavated soils are being disposed of at an approved NMOCD facility. Vertical delineation samples were taken 11/4/2013 and will be sent to a NMOCD approved facility to be analyzed. As soon as Yates receives analytical results from the laboratory, they will be provided to NMOCD and BLM and further work will be determined and discussed with both agencies. **Depth to Ground Water: >100' (approximately 100-125', Section 1, T22S-R31E, per Chevron Trend Map, Wellhead Protection Area: No, Distance to Surface Water Body: >1000', SITE RANKING IS 0.**

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Amber Cannon

Printed Name: Amber Cannon

Title: Environmental Regulatory Agent

E-mail Address: acannon@yatespetroleum.com

Date: Tuesday, November 05, 2013 Phone: 575-748-4111

OIL CONSERVATION DIVISION

Approved by District Supervisor: Signed By Mike Bratcher

Approval Date: NOV 05 2013 Expiration Date:

Conditions of Approval:
Remediation per OCD Rule & Guidelines, & like approval by BLM. SUBMIT REMEDIATION PROPOSAL NO LATER THAN: Dec. 5, 2013

Attached ☐

* Attach Additional Sheets If Necessary

fJMW1330950158

fJMW1330951391

2RP-2044

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-2044
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☑ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☑ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☑ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☑ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: James Kennedy Title: Environmental Supervisor

Signature: James F Kennedy Date: 04/15/2019

email: james_kennedy@eogresources.com Telephone: 432-848-9146

OCD Only

Received by: Jocelyn Harimon Date: 06/29/2023

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Date: 07/07/2023

Printed Name: Jocelyn Harimon Title: Environmental Specialist

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District III
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Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 225431

CONDITIONS

Operator: EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702	OGRID: 7377
	Action Number: 225431
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	7/7/2023