District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., 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 April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Hilcorp Energy Company	Contact Clara Cardoza
Address 382 CR 310 Aztec NM 87410	Telephone No. 505-564-0733
Facility Name Omler A 2E	Facility Type Well

Surface Owner Federal (SF-077085)	Mineral Owner Federal	API No. 30-045-24116

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	35	28N	10W	890	North	890	West	San Juan

Latitude 36.623558 **Longitude** -107.8709869 NAD83

NATURE OF RELEASE

Type of Release Hydrocarbon	Volume of Release 6.8 bbl	Volume Recovered none
Source of Release Tank	Date and Hour of Occurrence Unknown	Date and Hour of Discovery 03/14/2018 10:47 a.m.
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? N/A	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

NMOCD

AUG 27 2018

DISTRICT III

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
During field operator's routine visit to site a spot near tank was observed. A pinhole leak was found. The tank was pulled and some of the impacted soil was dug up.

Describe Area Affected and Cleanup Action Taken.*
Hilcorp Energy intends to hand auger the area to determine the boundaries of the impacted soil and submit a clean-up plan. We are hopeful to have an environmental contractor on site by April 13th (4/7/18). **After delineation of the site, Hilcorp Energy proposes a SVE unit to remediate the site. Attached is the plan along with the delineation report (8/23/18).**

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: Clara Cardoza	OIL CONSERVATION DIVISION	
Printed Name: Clara Cardoza	Approved by Environmental Specialist:	
Title: Environmental Specialist	Approval Date: 9/24/18	Expiration Date:
E-mail Address: ccardoza@hilcorp.com	Conditions of Approval:	Attached ☒
Date: 08/23/2018 Phone: 505-564-0733		

* Attach Additional Sheets If Necessary

NVF1811356016

73

Fields, Vanessa, EMNRD

From: Fields, Vanessa, EMNRD
Sent: Monday, September 10, 2018 3:35 PM
To: Daniel Burns
Cc: Clara Cardoza; Ashley Ager; Adeloye, Abiodun; whitney thomas (l1thomas@blm.gov); Smith, Cory, EMNRD
Subject: RE: Omler A #2E Report

Good afternoon Danny,

The OCD approves portions of HilCorps SVE plan and has imposes the following condition of approvals.

- **The OCD denies HilCorps request for a passive SVE system.**

HilCorp may utilize a SVE system with the following conditions of approval:

- HilCorp will maintain a SVE runtime greater than or equal to 90% per quarter.
- HilCorp will collect an initial gas sample for laboratory analysis shortly after the startup of SVE Operations and then a quarterly sample thereafter. The gas sample will be analyzed for EPA Method 8260 Full List and include Carbon dioxide and Oxygen.
    - The gas sample port needs to be installed prior to the inlet of the vacuum pump but, after the convergence of all sve wells.
- Hicorp will submit to OCD District III a quarterly update report detailing remediation operations the report will include at a minimum.
    - o Summary of remediation activity for the quarter.
    - o SVE run time
    - o SVE mass removal and product recovery.
    - o Gas Sample Analysis

HilCorp will submit to the OCD District III a closure sampling plan prior to initiating closure of the site.

Thank you,

Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119
Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Fields, Vanessa, EMNRD
Sent: Thursday, September 6, 2018 2:48 PM
To: Daniel Burns <dburns@ltenv.com>

Thanks,
Danny Burns
dburns@ltenv.com
701-570-4727

On Aug 16, 2018, at 11:34 AM, Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us> wrote:

Good morning,

Could you provide a update on the SVE?

Thank you,

Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119
Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Fields, Vanessa, EMNRD
Sent: Friday, August 10, 2018 10:13 AM
To: 'Daniel Burns' <dburns@ltenv.com>; 'Cardoza, Clara M' <Clara.M.Cardoza@conocophillips.com>
Cc: 'Ashley Ager' <aager@ltenv.com>; 'Adeloye, Abiodun' <aadeloye@blm.gov>; 'whitney thomas (l1thomas@blm.gov)' <l1thomas@blm.gov>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: RE: Omler A #2E Report

Good morning,

Could you please provide the status of the SVE?

Thank you,

Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119
Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Fields, Vanessa, EMNRD
Sent: Thursday, July 26, 2018 9:24 AM
To: 'Daniel Burns' <dburns@ltenv.com>; 'Cardoza, Clara M' <Clara.M.Cardoza@conocophillips.com>

Durango, Colorado 80003
(701) 570-4727 mobile
(970) 385-1096 office
www.ltenv.com

LT Environmental, Inc.
848 East 2nd Avenue
Durango, Colorado 81301
970.385.1096

July 27, 2018

Ms. Vanessa Fields
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico 87410

RE: Soil Delineation and Proposed Remediation Workplan
Hilcorp Energy Company
Omler A #2E
API # 30-045-24116
NVF1811356016
San Juan County, New Mexico

Dear Ms. Fields:

LT Environmental, Inc. (LTE), on behalf of Hilcorp Energy Company (Hilcorp), presents the following summary report and remediation workplan discussing delineation soil sampling activities conducted at the Omler A #2E natural gas production well (Site). The Site is in Armenta Canyon, southeast of Bloomfield, New Mexico, in Unit D of Section 35 of Township 28 North and Range 10 West in San Juan County (Figure 1). The purpose of the investigation was to evaluate potential hydrocarbon impacts in the subsurface following the discovery of a condensate release.

Background

On March 14, 2018, Hilcorp personnel discovered a pinhole leak in the side of a condensate tank. The leak resulted in approximately 6.8 barrels (bbls) of condensate draining onto the ground and infiltrating the subsurface. The release was contained within the earthen berm, but no liquids were recovered. The defective tank was immediately shut-in, drained of remaining liquids, and repaired in place. Some of the immediate hydrocarbon saturated soil was removed from beneath the tank and set aside for disposal. The release was reported to the New Mexico Oil Conservation Division (NMOCD) by Hilcorp on a Form C-141 Release Notification and Corrective Action Form dated April 12, 2018.

The Site was ranked a 30 pursuant to the NMOCD 1993 *Guidelines for Remediation of Leaks, Spills and Releases*. The nearest permitted water well (SJ-03977-POD1) is approximately 1.6 miles to the south. The nearest surface water feature is an unnamed tributary of the Armenta Wash, which is 410 feet to the east. The permitted water well is used for watering livestock and is listed at a total depth of 275 feet below ground surface (ft bgs). Depth to water in the water well is 94 ft bgs, but because the well is located far from the Site, local topographic features were used to estimate depth to water. Groundwater at the Site is anticipated to be less than 50 ft bgs based on a cathodic protection log at the Site describing shallow groundwater at 36 ft bgs. Based on these observations, the remediation action levels applied to the Site are 100 milligrams per kilogram (mg/kg) total petroleum hydrocarbons (TPH), 10 mg/kg benzene, and 50 mg/kg total for the sum of benzene, toluene, ethylbenzene, and total xylenes (BTEX).

Hilcorp responded to the release by conducting a preliminary delineation investigation to determine the extent of subsurface hydrocarbon impact. Soil samples were collected from soil borings via hand auger on April 10, 2018. Borings were advanced until the hand auger encountered refusal at a dense, fissile claystone

and siltstone at depths ranging from 9 to 13.5 ft bgs. Brown clayey to silty sands with low to medium plasticity were encountered above the lithified materials to ground surface.

Soil Sampling

LTE personnel collected soil samples on April 10, 2018, to evaluate the extent of impact in the subsurface. A hand auger was used to complete six boreholes to depths ranging from 9 to 13.5 ft bgs. Four boreholes were advanced inside the bermed area (BH-1 to BH-4) and two were advanced outside of the bermed area (BH-4A and BH-5). Soil borings were advanced in each cardinal direction outside of the known impacted area. Continuous soil samples were logged by an LTE geologist and described using the Unified Soil Classification System (USCS). Borehole locations are depicted on Figure 2. Soil samples were field screened with a photo-ionization detector (PID) at 1-foot intervals until refusal was encountered with the hand auger. Soil boring logs are included as Attachment 1.

On May 10, June 28 and June 29, 2018, LTE used a hollow-stem auger drill rig to advance additional boreholes (BH-6 to BH-16) to collect soil samples for laboratory analysis and determine if impacts existed at depth beyond the siltstone/claystone refusal. Soil samples were collected in a continuous soil sampler by an LTE geologist, described, and field screened with a PID at 6-inch to 5-foot intervals based on sample recovery. Samples were collected and submitted for laboratory analysis at the depths where elevated field screening results were observed and at the bottom of the boring. Soil boring logs are included as Attachment 1.

Samples were analyzed for BTEX by United States Environmental Protection Agency (EPA) Method 8021 and TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-motor oil range organics (MRO) by EPA Method 8015. All samples collected were placed on ice to maintain a temperature of approximately 4 degrees Celsius (°C) and sealed in a cooler for delivery to Hall Environmental Analysis Laboratory (Hall), of Albuquerque, New Mexico, for analysis. Soil samples were labeled with the date and time of collection, sample name, sampler's name, and parameters to be analyzed. Strict chain-of-custody procedures were documented including the date and time sampled, sample number, type of sample, sampler's name and signature, preservative used, and analyses required.

Soil Sampling Analytical Results

Field-identified soil impacts consisting of visual staining, hydrocarbon odors, and/or elevated field screening results were observed in soil borings BH-1 (2 to 13.5 ft bgs), BH-4 (2 ft bgs), BH-6 (2 to 13.5 ft bgs), BH-12 (10 to 18 ft bgs), BH-13 (14 to 18 ft bgs), and BH-14 (4 to 8 ft bgs). TPH was detected at concentrations of 31 mg/kg in BH-6 (20 ft bgs), 14 mg/kg in BH-12 (10-15 ft bgs), and 380 mg/kg in BH-14 (4-5 ft bgs). Benzene was detected at concentrations of 0.031 mg/kg in BH-6 (20 ft bgs), 0.033 mg/kg in BH-7 (15-20 ft bgs), and 0.05 mg/kg in BH-13 (19-20 ft bgs). Total BTEX was detected at concentrations ranging from 0.096 mg/kg to 5.11 mg/kg in subsurface soil samples BH-6 (10-15 ft bgs and 20 ft bgs), BH-7 (15-20 ft bgs), BH-12 (10-15 ft bgs), BH-12 (15-17 ft bgs), BH-13 (19-20 ft bgs), BH-14 (4-5 ft bgs), and BH-14 (14-15 ft bgs); however, all detections are below the NMOCD remediation limits for TPH, benzene, and total BTEX, except for BH-14 (4-5 feet bgs) which exhibited a TPH concentration of 380 mg/kg. All other samples collected were below laboratory detection limits for the listed parameters. The soil analytical results as compared to the NMOCD remediation action levels are presented in Table 1. The laboratory analytical reports are included as Attachment 2.

CONCLUSIONS

Impacts to soil were field-identified by visual staining, hydrocarbon odors, and/or elevated field screening results in six boreholes (BH-1, BH-4, BH-6, BH-12, BH-13, and BH-14) within the immediate vicinity of the source area. Soil samples were collected and submitted from the highest observed field-screen readings and the bottom of the soil borings in BH-7 through BH-16 to confirm field observations. Laboratory analytical results indicated that the TPH concentration of 380 mg/kg in soil boring BH-14 (4-5 ft bgs) exceeds the NMOCD remediation action level for this Site. All remaining laboratory analytical results indicated concentrations of TPH, benzene, and total BTEX are compliant with NMOCD remediation action levels for the Site and all impacts have been delineated both laterally and vertically in the subsurface. The local TPH impact immediately surrounding BH-14 is the only existing identified impacts in exceedance of applicable standards at the Site.

RECOMMENDATIONS

During the June 2018 soil delineation event, soil borings BH-12, BH-13, and BH-14 were completed as potential soil vapor extraction (SVE) wells in anticipation of future remedial activities. The soil vapor extraction wells were completed with 2-inch diameter schedule 40 polyvinyl chloride (PVC) casing with 0.010" slotted screened intervals placed in the zone where field identified impacts were observed. Due to the limited area of impact and the isolated soil boring that exceeds the NMOCD remediation action level by a marginal amount, LTE recommends a multi-tiered, in-situ, passive SVE remediation approach.

LTE proposes utilizing a portable air compressor and installing Venturi-style "T" fittings on the SVE well head BH-14. The Venturi T contains a nozzle that increases air velocity through the fitting. When air flow is applied, the air velocity increases which creates a pressure differential that induces vacuum and air flow from the SVE well. The resulting vacuum draws hydrocarbon impacts from the subsurface towards the SVE well. The exhaust of the SVE well is piped into a 55-gallon drum which acts as a knockout tank to capture and contain any fluids recovered while SVE operations are conducted. Induced vacuum gauge, volumetric air flow, and PID field screening will be recorded during each event.

LTE also proposes installing two additional temporary 1-inch PVC wells via hand auger to be utilized as bioventing wells. Ambient air from the portable air compressor will be directed via a manifold into the wells to introduce supplemental oxygen into the subsurface to promote biological activity and the biodegradation of recalcitrant hydrocarbon impacts. Indigenous aerobic bacterial activity is enhanced with the addition of oxygen and encourages the biodegradation of excess organic material, such as hydrocarbons, in an in-situ remediation method known as bioventing. Additionally, the bioventing wells will facilitate ambient air advection and optimize the SVE progress.

LTE recommends conducting dual SVE/bioventing events with the portable air compressor every two weeks for the first four events and then monthly thereafter until PID readings show a significant decline in SVE exhaust emissions. Air samples may also be collected and submitted for laboratory analysis during the SVE/bioventing events to demonstrate the reduction and remediation of impacts. Between each event, the Venturi T fitting on the SVE well will be replaced with a wind turbine ventilator (commonly known as a whirlybird or wind turbine) to passively promote air circulation and remove additional impact vapors from the SVE well.

Once a significant decline in PID readings and/or air sample laboratory analytical results is observed, indicating sufficient mass source removal, confirmation soil samples will be collected via hand auger at 5

ft bgs in the area around BH-14. Soil samples will be submitted for laboratory analysis of BTEX and TPH. If laboratory analytical results indicate that confirmation soil sample TPH, benzene, and BTEX concentrations are compliant with NMOCD remediation action levels, Hilcorp will request that this Site be granted a No Further Action status. A letter report detailing closure sampling will be submitted under separate cover. Existing AS/SVE wells will be plugged with hydrated bentonite and abandoned in place following status approval.

LTE appreciates the opportunity to provide this report to the NMOCD. If you have any questions or comments regarding this work plan, do not hesitate to contact me at (970) 385-1096 or via email at dburns@ltenv.com or Jennifer Deal at (505) 324-5128 or at jdeal@hilcorp.com.

Sincerely,

LT ENVIRONMENTAL, INC.

Danny Burns
Project Geologist

Ashley L. Ager, M.S., P.G.
Senior Geologist

cc: Clara Cardoza, Hilcorp Energy Company

Attachments:
Figure 1 – Site Location Map
Figure 2 – Site Map
Table 1 – Soil Analytical Results
Attachment 1 – Soil Boring Logs
Attachment 2 – Laboratory Analytical Reports

FIGURES

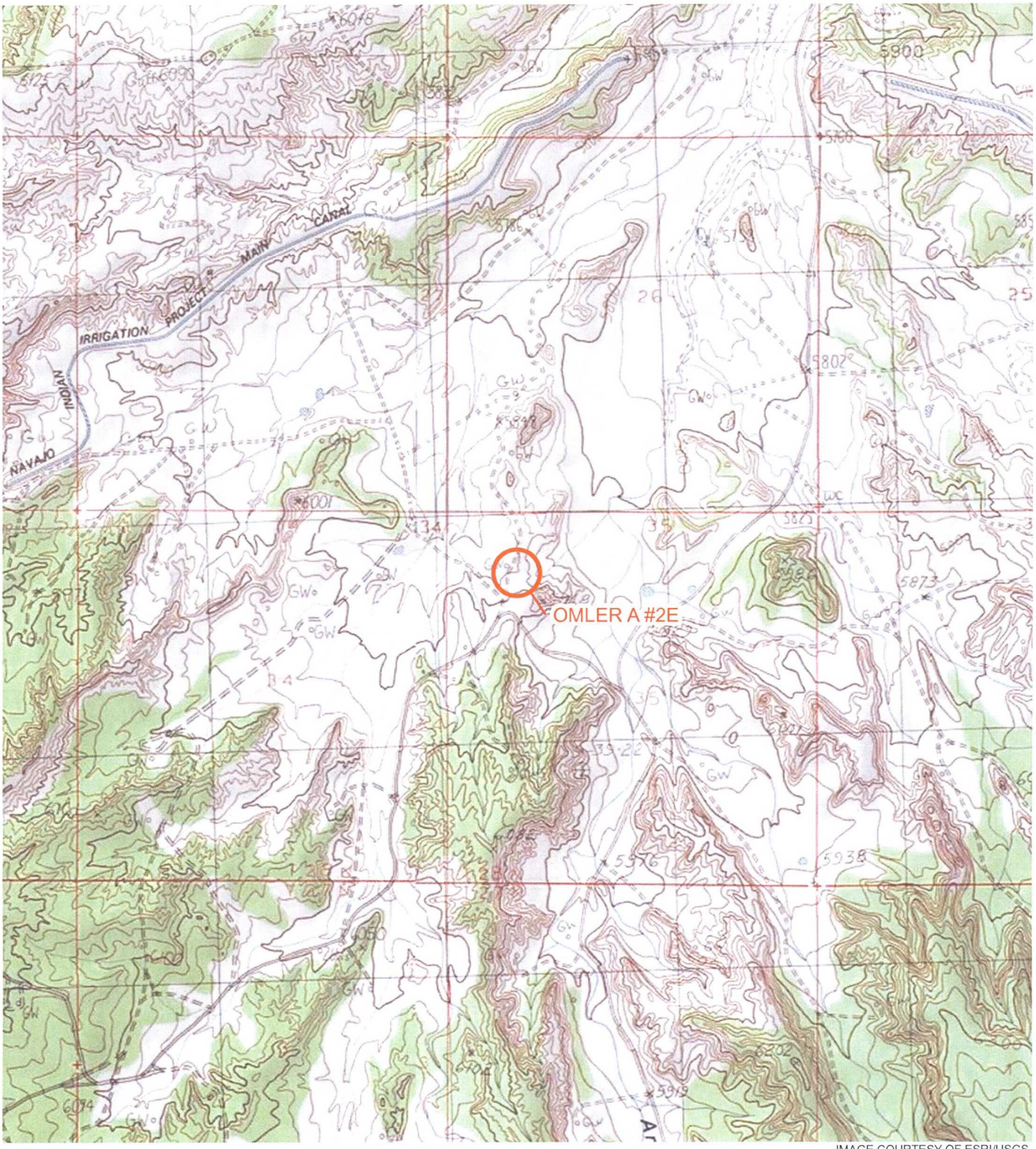


IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

FIGURE 1
SITE LOCATION MAP
OMLER A #2E
NWNW SEC 35 T28N R10W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017818006_OMLER A #2E\017818006_FIG01_SL_2018.mxd

IMAGE COURTESY OF GOOGLE EARTH 2015

LEGEND

- HAND AUGER BOREHOLE
- HOLLOW STEM AUGER
- SOIL VAPOR EXTRACTION WELL
- PROPOSED AIR SPARGE WELL
- ELECTRICAL LINE

0 30 60

Feet

N

FIGURE 2
SITE MAP
OMLER A #2E
NWNW SEC 35 T28N R10W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017818006_OMLER A #2E\017818006_FIG02_SITE_2018_180727.mxd

TABLES

TABLE 1
SOIL ANALYTICAL RESULTS

OMLER A #2E
HILCORP ENERGY COMPANY
SAN JUAN COUNTY, NEW MEXICO

Soil Sample Identification	Sample Date	Field Headspace (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH (mg/kg)
BH-1 @ 3'	4/10/2018	2,659	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-1 @ 13'	4/10/2018	2,089	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-2 @ 12'	4/10/2018	3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-3 @ 11'	4/10/2018	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-4 @ 2'	4/10/2018	1,629	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-4A @ 9'	4/10/2018	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-5 @ 12'	4/10/2018	4.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-6 @ 10-15'	5/10/2018	2,654	<0.023	0.24	0.10	1.3	1.64	19	12	<49	31
BH-6 @ 20'	5/10/2018	20.4	0.031	0.065	<0.050	<0.10	0.096	<5.0	<9.2	<46	<46
BH-7 @ 15-20'	6/28/2018	0.0	0.033	<0.048	<0.048	0.26	0.293	<4.8	<10	<50	<50
BH-8 @ 15-20'	6/28/2018	0.0	<0.024	<0.047	<0.047	<0.095	<0.095	<4.7	<9.9	<50	<50
BH-9 @ 15-20'	6/28/2018	0.2	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<10	<50	<50
BH-10 @ 15-20'	6/28/2018	8.4	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<10	<50	<50
BH-11 @ 10-15'	6/28/2018	2.6	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.9	<50	<50
BH-12 @ 5-10'	6/28/2018	42.9	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<10	<50	<50
BH-12 @ 10-15'	6/28/2018	1,089	<0.024	0.20	0.082	1.0	1.282	14	<10	<50	14
BH-12 @ 15-17'	6/28/2018	472	<0.024	0.083	<0.047	0.12	0.203	<4.7	<10	<50	<50
BH-12 @ 18-20'	6/28/2018	31.8	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	<10	<50	<50
BH-13 @ 14-15'	6/29/2018	1,740	<0.024	<0.047	<0.047	<0.095	<0.095	<4.7	<10	<50	<50
BH-13 @ 19-20'	6/29/2018	24.3	0.050	0.19	<0.050	0.11	0.350	<5.0	<10	<50	<50
BH-14 @ 4-5'	6/29/2018	2,440	<0.024	<0.048	0.31	4.8	5.11	190	190	<50	**380**
BH-14 @ 14-15'	6/29/2018	72.1	<0.23	<0.047	0.12	0.18	0.30	<4.7	<10	<50	<50
BH-15 @ 19-20'	6/29/2018	0.6	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<10	<50	<50
BH-16 @ 19-20'	6/29/2018	19.3	<0.024	<0.047	<0.047	<0.094	<0.094	<4.7	<10	<50	<50
NMOCD Remediation Action Level		**NE**	**10**	**NE**	**NE**	**NE**	**50**	**NE**	**NE**	**NE**	**100**

NOTES:

< - indicates result is less than the stated laboratory reporting limit

Bold - indicates value exceeds stated NMOCD standard

BTEX - benzene, toluene, ethylbenzene, total xylenes

DRO - diesel range organics

GRO - gasoline range organics

mg/kg - milligrams per kilogram

MRO - motor oil range organics

NA - not analyzed

NE - not established

NMOCD - New Mexico Oil Conservation Division

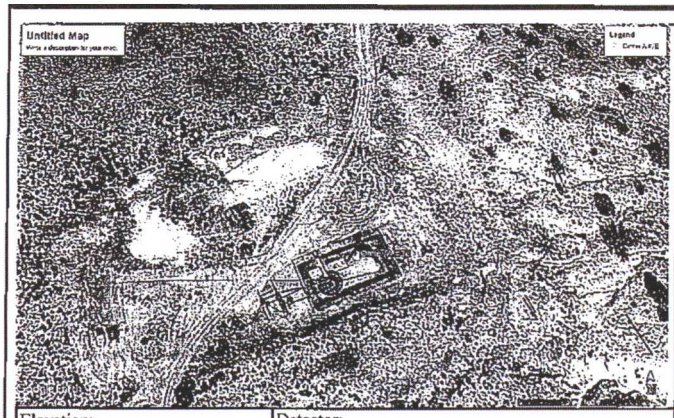
ppm - parts per million

TPH - total petroleum hydrocarbons

ATTACHMENT 1

SOIL BORING LOGS

started BH-1 where excavation is under front vault door ~2' bgs



LTE Advancing Opportunity

848 E. 2nd Ave
Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-1		Project: Omler A #2E	
Date: 4/10/2018		Project Number: 01781800G	
Logged By: Josh Adams		Drilled By: Josh Adams	
Elevation: 5,895	Detector: PID	Drilling Method: Hand Auger	Sampling Method: Hand Auger
Gravel Pack: ND		Seal: NA	Grout: NA
Casing Type: NA		Diameter: 2" Length:	Hole Diameter: 3.25" / Depth to Liquid:
Screen Type: NA	Slot:	Diameter: Length:	Total Depth: 13.5' / Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				ALREADY Removed	
					1					
					2					
	M	2659	Yes, black	BH-1@3' 1150	3	2-3		SM	red/brown silty sand, low plasticity, non-cohesive	
		1592	"		4	3-4		SM	black stained sand intermixed	
	M	1069	NO but strong HC odor		5	4-5		SC	brown clayey sand (>15% fines)	
	M	803			6	5-6		SC	medium plasticity, cohesive	
	M	684			7			SC	SAA w/ less fines & more sand	
	M	1195	HC odor		8	7-8		SM	SAA	
	M	1442	HC odor		9			SW SM	reddish/brown silty sand, low plas. non-cohesive	
	M	1183	HC odor		10			SW-SM	brown well graded sand w/ silt low plas., non-cohesive	
	M	1328	HC odor		11			SW-SM	SAA	
	M	1958	Slight HC odor		12	11-12		SC	SAA	
	M	2089	Slight HC odor	BH-1@13' 1155	13	12-13		ML	dark brown clayey sand, high pls., cohesive	
					14				dark brown sandy silt high PIS, cohesive fissle claystone/siltstone	
					15				refusal @ 13.5'	

LTE Advancing Opportunity

848 E. 2nd Ave
Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-2	Project: Omler A #2E
Date: 4/10/2018	Project Number: 017818006
Logged By: Josh Adams	Drilled By: Josh Adams
Elevation: 5,895	Detector: PID
Drilling Method: Hand Auger	Sampling Method: Hand Auger
Gravel Pack: ND	Seal: NA
Grout: NA	
Casing Type: NA	Diameter: 2" Length:
Hole Diameter: 3.25"	Depth to Liquid:
Screen Type: NA	Slot: Diameter: Length:
Total Depth: 12.5'	Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	M	4.1	NO		0	0-1		SM	brown silty sand, cohesive, low plas.	
					1					
	M	2.2	NO		2			CL	brown lean clay, cohesive, high plas.	
		2.1			3					
	M	2.1	NO		4			SM	brown silty sand, cohesive, med. plas	
		2.4			5					
		1.4			6			SM-SW	light brown, well graded sand w/ silt non-cohesive, non-plas	
		0.8	NO		7				SAA	
		1.2			8				SAA	
	M	1.3			9				SAA	
		0.0			10				SAA	
		0.5			11				SAA w/ more fines	
		3.3	NO	BH-2@12' 1250	12			CL	brown/grey lean clay, cohesive, high plas.	
	M				13				refusal @ 12.5' silrstone	
					14					
					15					

Advancing Opportunity

848 E. 2nd Ave
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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-3		Project: Omler A #2E	
Date: 4/10/2018		Project Number: 017818006	
Logged By: Josh Adams		Drilled By: Josh Adams	
Elevation: 5,895	Detector: PID	Drilling Method: Hand Auger	Sampling Method: Hand Auger
Gravel Pack: ND		Seal: NA	Grout: NA
Casing Type: NA		Diameter: 2" Length:	Hole Diameter: 3.25" / Depth to Liquid:
Screen Type: NA	Slot:	Diameter: Length:	Total Depth: 11.5' / Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	M	0.6	NO		0			SM	brown silty sand, non-cohesive, low plas.	
	M	0.8	NO		1					
	M	1.1	NO		2			CL	brown lean clay, cohesive, high plas.	
	M	0.6	NO		3			SM	brown silty sand, cohesive, low plas	
	M	1.0	NO		4					
		0.5			5			SM-SW	brown well graded sand w/ silt non-cohesive, low plas.	
		1.4			6				SAA	
		2.1			7				SAA	
		2.0			8				SAA	
		1.8			9				SAA	
	M	0.3	NO		10			SM	brown silty sand, non-cohesive low plas	
	M	0.1	NO	BH-3@11' 1340	11			CL	brown lean clay, cohesive, high plas.	
					12				refusal @ 11.5' siltstone	
					13					
					14					
					15					

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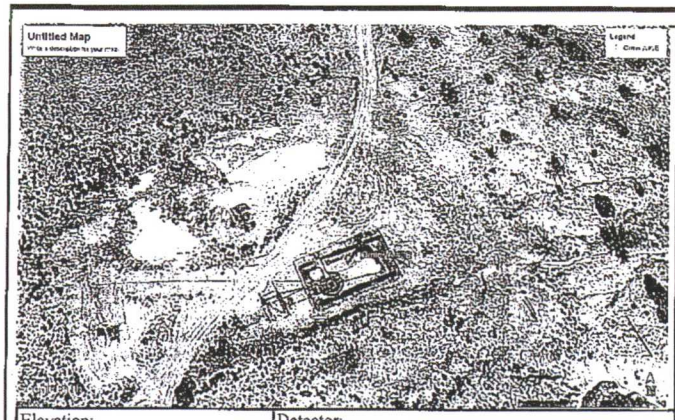
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-4		Project: Omler A #2E	
Date: 4/10/2018		Project Number: 01781800G	
Logged By: Josh Adams		Drilled By: Josh Adams	
Elevation: 5,895	Detector: PID	Drilling Method: Hand Auger	Sampling Method: Hand Auger
Gravel Pack: ND		Seal: NA	Grout: NA
Casing Type: NA		Diameter: 2" Length:	Hole Diameter: 3.25" / Depth to Liquid:
Screen Type: NA	Slot:	Diameter: Length:	Total Depth: 20' / Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	M	17.4	degraded odor		0			CL	brown lean clay, cohesive, high plas.	
		1629			1					
					2					
					3					
					4				Impact identified, will step outside berm to 4A	
					5					
					6					
					7					
					8					
					9					
					10					
					11					
					12					
					13					
					14					
					15					



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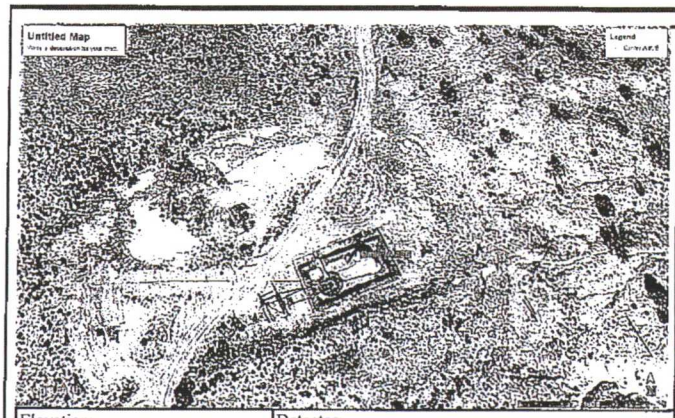
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-4A		Project: Omler A #2E	
Date: 4/10/2018		Project Number: 017818006	
Logged By: Josh Adams		Drilled By: Josh Adams	
Elevation: 5,895	Detector: PID	Drilling Method: Hand Auger	Sampling Method: Hand Auger
Gravel Pack: ND		Seal: NA	Grout: NA
Casing Type: NA		Diameter: 2" Length:	Hole Diameter: 3.25" / Depth to Liquid:
Screen Type: NA	Slot:	Diameter: Length:	Total Depth: 9' / Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	M	3.9	No		0			SM	Brown silty sand, med plas, non-cohesive	
					1				SAA	
		2.2			2					
		1.8			3				SAA	
		1.4			4				SAA	
		0.5			5				SAA	
	M	0.5	No		6			SM-SW	brown well graded sand w/silt non-plas, non-cohesive	
		1.1			7					
		0.8		BH-4A @9' 1440	8					
		2.1			9				refusal @ 9' sandstone	
					10					
					11					
					12					
					13					
					14					
					15					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-5		Project: Omler A #2E	
Date: 4/10/2018		Project Number: 017818006	
Logged By: Josh Adams		Drilled By: Josh Adams	
Elevation: 5,895	Detector: PID	Drilling Method: Hand Auger	Sampling Method: Hand Auger
Gravel Pack: ND		Seal: NA	Grout: NA
Casing Type: NA		Diameter: 2" Length:	Hole Diameter: 3.25" / Depth to Liquid:
Screen Type: NA	Slot:	Diameter: Length:	Total Depth: 12' / Depth to Water:

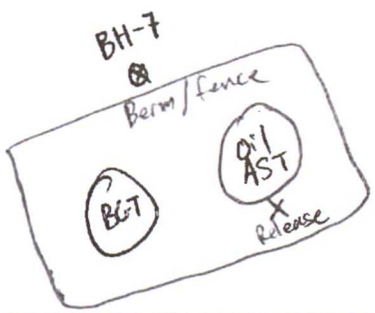
Penetration Resistance	Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	M	0.7	No		0			SM	brown silty sand, non-cohesive, loose	
					1					
		1.1			2				SAA	
		0.5			3				SAA	
		0.8			4			SM-SW	brown well graded sand w/silt non-plastic non-cohesive	
		1.1			5				SAA	
	M	0.5	No		6				SAA	
		0.0			7				SAA	
		0.4			8				SAA	
		2.4			9				SAA	
		1.4			10					
		0.8			11				brown lean clay w/silt cohesive, high plas.	
		4.4		BH-5 @ 12' 1540	12				refusal @ 12' siltstone	
					13					
					14					
					15					

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-6	Project: Omler A #2E
Date: 5/10/2018	Project Number: 017818006
Logged By: Daniel Burns	Drilled By: Geomat
Elevation: 5,896 feet	Detector: PID
Drilling Method: Hollow-Stem	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite Chips
Grout: Bentonite Chips	
Casing Type: NA	Diameter: Length:
Hole Diameter:	Depth to Liquid:
Screen Type: NA	Slot: Diameter: Length:
Total Depth:	Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					0					
	Dry	77.2	Odor		2			SM	**Silty Sand** Loose, reddish brown, low plasticity, non cohesive, dry	
					4					
					6			SC	**Clayey Sand** Soft - medium stiff, brown, medium plasticity, cohesive, dry	
	Dry	276	Odor		8					
		209			10			SM	**Silty Sand** Loose, reddish brown, low plasticity, non cohesive, dry	
		2,654		BH-6 @ 10-15' 0930	12					
	Dry	1,905	Odor		14			ML	**Silt** Very hard, gray, non plastic, non cohesive, dry	
	Dry		Odor		16					
					18					
	Dry	20.4			20					
				BH-6 @ 20' 0940	22				**TD @ 20'**	
					24					
					26					
					28					
					30					

Location Map:



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-7	Project: Omler A #2E
Date: 6-28-18	Project Number: 017818006
Logged By: D. Burns	Drilled By: Geomat
Elevation: 5,895 / Detector: PID	Drilling Method: Hollow Stem Auger / Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite chips / Grout: NA
Casing Type: Sch 40 PVC / Diameter: 2" / Length: —	Hole Diameter: 7.25" / Depth to Liquid: —
Screen Type: Sch 40 PVC / Slot: 0.010" / Diameter: 2" / Length: —	Total Depth: 20' / Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Low	Dry				0			Brown sand w/ silt. Non-plastic	
					1		SM	No stain/odor.	
			No		2				
		0.1			3	50%			
low	Slt. Moist				4	Recovery	SM	Brown silty sand, slightly cohesive nonplastic, No stain/odor.	
					5				
low					6			Lt. grayish brown fun. medium	No
	Slt. Moist.				7	80%	SW	to coarse sand well ~~sorted~~ graded.	Well
		0.1	No		8			No stain or odor.	Set
med.	Dry		No		9			Lt. grayish olive fn. sandy silt. Friable, no bedding/laminae.	
					10			No stain/odor. Non-cohesive/plastic	
med	Dry		No		11			~~Lt. grayish olive~~ grayish olive fn sandy silt, some planar features. No stain/odor	
					12		ML	Non-plastic/cohesive	
		0.3			13	100%			
med-hi	Dry		No		14			Olive, w/ brown silt, some v.fn sand. Blocky structure. No stain/odor.	
					15				

Location Map:

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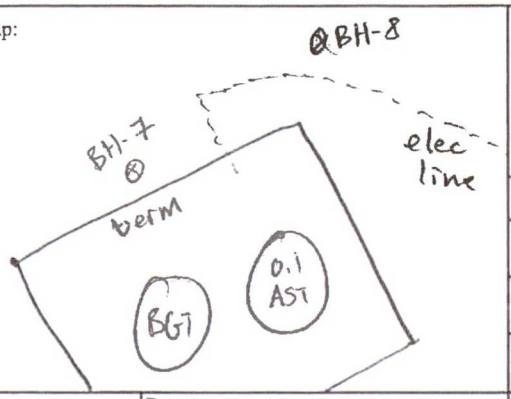
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-7	Project: Omler A #2E
Date: 6-28-18	Project Number: 017818006
Logged By: D. Burns	Drilled By: Geomat
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite chips
Grout: NA	
Casing Type: Sch 40 PVC	Diameter: 2" Length: —
Hole Diameter: 7.25"	Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010" Diameter: 2" Length: —
Total Depth: 20'	Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					15			switch to split spoon sampling after 16'	
V. Hard	Dry	0.0	No	—	16	10%	ML	Lt. gray w/tan, v. fn. sandy siH. some cementation. Hard, some platy structure. No stain/odor	
				BH7 @ 15-20'	17				
					18				
					19				
50/4"	Dry	0.1	No	(10:00)	20	split spoon 6"	ML	Gray v.fn. sandy siltstone. Dense, some laminae. No stain/odor	
					21			TD-20'	
					22			Backfill w/ cuttings.	
					23			No well set	
					24				
					25				
					26				
					27				
					28				
					29				
					30				

switch to split spoon

Location Map:



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-8	Project: Omler A #2E
Date: 6.28-18	Project Number: 017818006
Logged By: D. Burns	Drilled By: Geomat
Elevation: 5,895 / Detector: PID	Drilling Method: Hollow Stem Auger / Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite chips / Grout: NA
Casing Type: Sch 40 PVC / Diameter: 2" / Length: —	Hole Diameter: 7.25" / Depth to Liquid: —
Screen Type: Sch 40 PVC / Slot: 0.010" / Diameter: 2" / Length: —	Total Depth: 20' / Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Low	Slt. Moist		No		0–1		SM	Brown sand w/ silt, sltly cohesive + plastic. No stain/odor.	No Well Set
		0.1			2	100%			
					3			Lt. grayish tan med-coarse sand. Tr. silt. No stain/odor	
					4		SW		
low	Dry		No		5			Well graded.	
					6				
low	Slt. Moist	0.0	No		7			Same as above (SAA)	
					8	100%	SW	No stain/odor	
					9				
low	Dry		No		10			coarse tan sand. well gr. No stain/odor.	
					11			switch to split spoon	
					12	0%			
					13	split.	SW	SAA gray, coarse sand & gravel. No stain/odor. Some cementation.	
50/4"	Dry	0.0	No		14	80%	ML	Lt. brown fn. sandy silt, laminated, non-cohesive, some oxidation	
					15				

Location Map:

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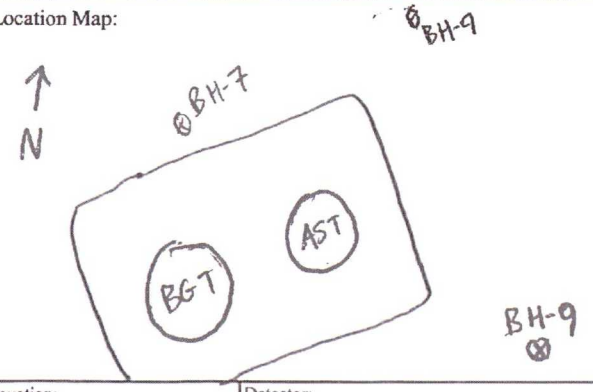
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-8
Project: Omler A #2E
Date: 6-28-18
Project Number: 017818006
Logged By: D. Burns
Drilled By: Geomat
Elevation:
Detector: PID
Drilling Method: Hollow Stem Auger
Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand
Seal: Bentonite chips
Grout: NA
Casing Type: Sch 40 PVC
Diameter: 2"
Length: —
Hole Diameter: 7.25"
Depth to Liquid: —
Screen Type: Sch 40 PVC
Slot: 0.010"
Diameter: 2"
Length: —
Total Depth: 20'
Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					15				
					16				
				BH-8 @ 15-20'	17				No well set
					18				
Hard	Dry	0.0	No		19	75%	ML	Lt. bluish gray siltstone w/ v. fin sand. Non-cohesive/plastic. No stain/odor.	
					20				
					21				
					22			TD - 20'	
					23			Backfill w/ cuttings	
					24			No well set.	
					25				
					26				
					27				
					28				
					29				
					30				

Location Map:



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-9	Project: Omler A #2E
Date: 6-28-18	Project Number: 017818006
Logged By: D. Burns	Drilled By: Geomat
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite chips
Grout: NA	
Casing Type: Sch 40 PVC	Diameter: 2" Length: —
Hole Diameter: 7.25"	Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010"
Diameter: 2" Length: —	Total Depth: 20'
Depth to Water: —	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				
					1				
low	slt. moist	0.1	No		2			Brown, silty fn-med sand. No stain/odor.	
					3				
					4	50%	SM		No
low					5			-Tan, lt. brown med sand, tr. silt. No s/o.	
					6				Well
	slt. Moist				7				Set
low		0.0	No		8	100%	SW -SM	Tan, lt. gray med-coarse sand w/ silt <30%. No stain/odor. Some oxidation.	
					9				
					10				
low to hard	slt. moist	0.1	No		11	10%	SW	Lt. gray med-coarse sand. well graded No s/o.	
					12				
					13	switch to split spoon			
					14	0%		— No recovery, cobble blocked shoe on split spoon	
50/0					15				

Location Map:

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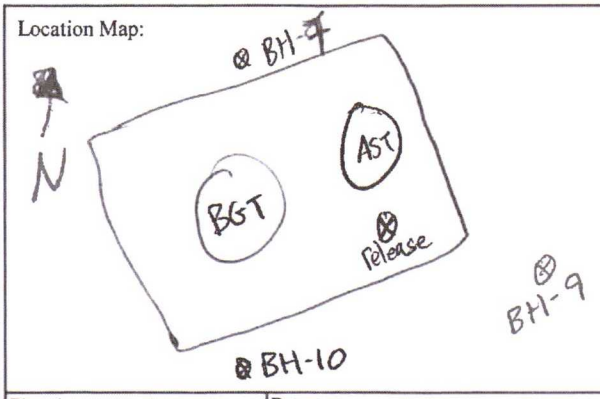
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-9	Project: Omler A #2E
Date: 6-28-18	Project Number: 017818006
Logged By: D. Burns	Drilled By: Geomat
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite chips
Grout: NA	
Casing Type: Sch 40 PVC	Diameter: 2" Length: —
Hole Diameter: 7.25"	Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010"
Diameter: 2" Length: —	Total Depth: 20'
Depth to Water: —	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					15				
					16				
				BH-9 @ 15-20'	17				
					18	S. Spoon			
					19				
Hard 5/4"	Dry	0.2	No	(13:30)	20	20%	ML	Gray fn. sandy silt stone. cemented. Laminated. No stain/odor.	
					21				
					22			TD-20'	
					23			Backfill w/ cuttings	
					24				
					25				
					26				
					27				
					28				
					29				
					30				

Location Map:



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-10		Project: Omler A #2E	
Date: 6-28-18		Project Number: 017818006	
Logged By: D. Burns		Drilled By: Geomat	
Elevation:	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand		Seal: Bentonite chips	Grout: NA
Casing Type: Sch 40 PVC		Diameter: 2" Length: —	Hole Diameter: 7.25" / Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010"	Diameter: 2" Length: —	Total Depth: 20' / Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				
					1				
			No		2		SW-SM	Brown med. sand w/ silt. No stain/odor. No cohesion/ plasticity.	
low					3				
	Slt. Moist	0.3			4	60%			No Well Set
low					5		SM	Brown, stiff silty sand, low plasticity/cohesive No stain/odor	
					6				
					7				
Low	moist	0.5	No		8	100%	SW-SM	Brown med-med fn. sand w/ silt. Slt. plastic. No stain/odor.	
					9				
					10				
					11			Lt. Brown med-med fn sand w/ silt. Not plastic/cohesive. No stain/odor.	
low	moist				12	75%	SW-SM	some 3" lense of med-coarse sands.	
	Sl. moist	0.3	No		13				
					14				
low	Dry				15		SM	Lt. gray to olive silty fn. sand. Slty, cohesive. No stain/odor.	

Location Map:

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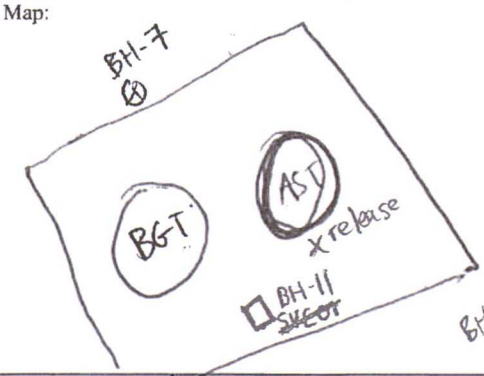
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-10	Project: Omler A #2E
Date: 6-28-18	Project Number: 017818006
Logged By: D. Burns	Drilled By: Geomat
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite chips
Grout: NA	
Casing Type: Sch 40 PVC	Diameter: 2" Length: —
Hole Diameter: 7.25"	Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010"
Diameter: 2" Length: —	Total Depth: 20'
Depth to Water: —	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
				—	15				
Hard	Dry	28.1	No	BH-10 @ 15-20'	16	40%	ML	Gray fn. sandy silt. some cement. laminae, No stain, very faint organic odor.	
					17				
					18	split spoon			
50/6"	Dry	8.4	No		19	60%	ML	Lt. gray. fn. sandy siltstone. Mostly cemented, some layers of sandy silt, no stain or odor.	
					20				
					21				
					22			TD 20'	
					23			Backfill w/ cuttings	
					24				
					25				
					26				
					27				
					28				
					29				
					30				

Location Map:



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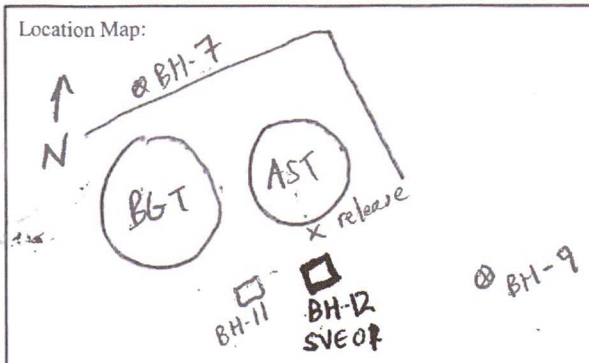
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-11 (SVE-01)		Project: Omler A #2E	
Date: 6-28-18		Project Number: 017818006	
Logged By: D. Burns		Drilled By: Geomat	
Elevation:	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand		Seal: Bentonite chips	Grout: NA
Casing Type: Sch 40 PVC	Diameter: 2" Length: —	Hole Diameter: 7.25"	Depth to Liquid: —
Screen Type: Sch 40 PVC Slot: 0.010"	Diameter: 2" Length: —	Total Depth: 15'	Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
low	slt. moist	0.0	No		0 1 2 3 4 5	60%	SW-SM	Brown ~~silty~~ sand, w/silt. med non-plastic/cohesive. No stain or odor	No well Set
low	slt. moist.						SM	Brown silty sand. V. slt plastic/cohesive. No s/o	
low	moist	3.1	No		6 7 8 9 10	80%	SW	Lt. Brown, med sand well graded. No stain or odor. Tr. silt.	
low	slt. moist	33.5	No	BH-11 @ 10-15'	11 12 13		SW-SM	Lt. grayish olive med. sand w/silt well graded. No stain, faint odor	
med	Dry	2.6	No		14 15		SM	Lt. gray silty sand, fn. some dense, almost cementation. No stain, faint odor	

@15' TD-15' Backfill

Location Map:



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Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-12 (SVE ~~02~~ 01)		Project: Omler A #2E	
Date: 6-28-18		Project Number: 017818006	
Logged By: D. Burns		Drilled By: Geomat	
Elevation:	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand 20'-10'		Seal: Bentonite chips 10'-8'	~~Grout~~ Cuttings to completion. NA
Casing Type: Sch 40 PVC		Diameter: 2" Length: ~~10~~ 12.5'	Hole Diameter: 7.25" Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010"	Diameter: 2" Length: 10'	Total Depth: 20' Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				
					1				
low	Slt. Moist	1.5	No		2	75%	SM	Brown silty sand fn-med fn. low plasticity, non-cohesive. No stain, No odor.	
					3				
					4				
					5				
					6				
low	Slt. Moist	42.9	No, slt. odor.	BH-12 @ 5-10'	7		SW-SM	Lt. Brown med sand w/ silt. Non-plastic/cohesive. No stain, slight sweet condensate HC odor.	
					8				
					9				
					10		SW	Tan med.-coarse sand. No stain, slight degraded oil odor	
					11				
low	Dry	1,089	No, mod. odor	BH-12 @ 10-15' (15:15)	12		SM	Lt. grayish olive fn. sandy silt. Loose, no bedding features. No stain, moderate condensate odor	
					13				
					14				
med.	Dry	417			15		ML	Lt. gray silt w/ sand. semi-dense w/ platy structure. No stain light degraded oily odor	

Location Map:

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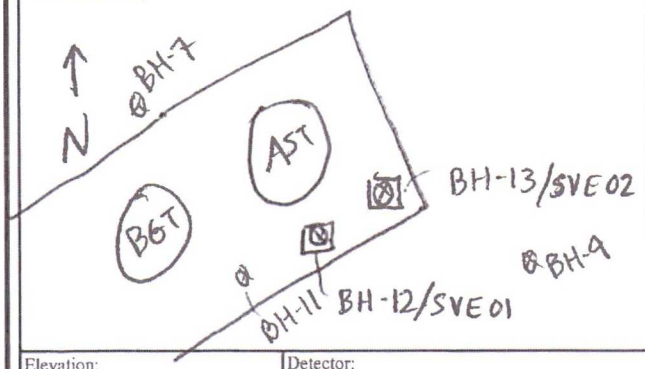
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-12	Project: Omler A #2E
Date: 6-28-18	Project Number: 017818006
Logged By: D. Burns	Drilled By: Geomat
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite chips
Grout: NA	
Casing Type: Sch 40 PVC	Diameter: 2" Length: ~12.5'
Hole Diameter: 7.25"	Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010" Diameter: 2" Length: 10'
Total Depth: 20'	Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
Hi	Dry	472	No	BH-12 @15' 16:20	15–20		ML	Gray v. fn sandy silt, mostly cemented. Dense. No stain, sl. odor. (sweet HC) → switch to split spoon	
Hard	Dry	31.8	No	BH-12 @18-20 16:30	19		ML	H. gray v. fn sandy silt stn. Dense, cemented.	
					21–30			TD-20' Potential SVE well set 10' screen 12.5' riser	

Location Map:



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-13 (SVE 02)		Project: Omler A #2E	
Date: 6-29-18		Project Number: 017818006	
Logged By: D. Burns		Drilled By: Geomat	
Elevation:	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand 20'-10'		Seal: Bentonite chips 10'-8'	Grout: NA
Casing Type: Sch 40 PVC		Diameter: 2" Length: 12.5'	Hole Diameter: 7.25" Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010"	Diameter: 2" Length: 10'	Total Depth: 20' Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Completion
					0				2.5 stick up Well
					1				
					2				
low	sl. moist	2.6	No		3	40%	SM	Brown silty sand, fn-med fn. low-slight plastic/cohesive. No stain/odor	
					4				
low					5		SW-SM	Brown med-fn-med sand w/silt. Not plastic/cohesive no stain/odor.	
					6				
low	sl. moist	34.1			7		SW	Lt. Brown med. fn sand, tr. silt. Non-plastic/cohesive. No stain. v. slight damp odor.	
					8	80%			
				NS	9				
low	slt m.	157		BH-13 @9-10	10		SW	Lt. tan & gray med-med coarse sand. semi dense, slt. stain/odor. Well graded.	
					11				
					12			Switch to split spoon no continuous recovery	
					13				
					14				
hard	dry	1,740		BH-13 @14-15 (12:00)	15		ML	Lt. gray & dark olive sandy silt.	

Location Map:

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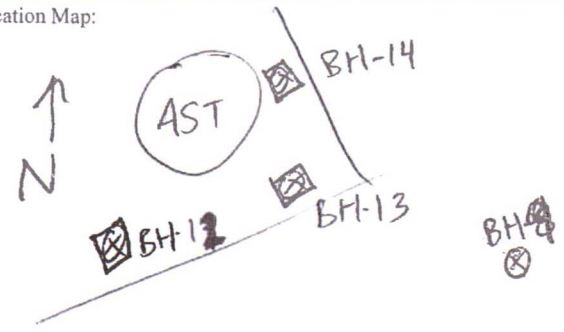
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-13	Project: Omler A #2E
Date: 6-29-18	Project Number: 017818006
Logged By: D. Burns	Drilled By: Geomat
Elevation:	Detector: PID
Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite chips
Grout: NA	
Casing Type: Sch 40 PVC	Diameter: 2" Length: 12.5'
Hole Diameter: 7.25"	Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010" Diameter: 2" Length: 10
Total Depth: 20'	Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
hi 50/12"	dry	641	slt.		15–16	X	ML	Lt. grayish olive fn. sandy silt. slight stain/odor.	
hard 50/6"	dry	383	slt. odor		17–18	X	ML	same as above. fn. sandy silt. some cementation. slt. stain/odor	
hard	dry	24.3	No	BH-13 @19.2' (12:15)	19–20	X	ML	lt. gray fn. sandy siltstone. laminated, cemented. No stain or odor	
					21–30			TD. 20' Potential SVE well set 10' screen 12.5' riser.	

Location Map:



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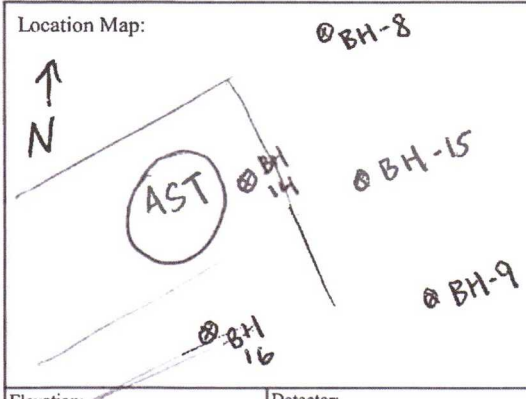
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: (SVE03) BH-14		Project: Omler A #2E	
Date: 6-29-18		Project Number: 017818006	
Logged By: D. Burns		Drilled By: Geomat	
Elevation:	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand 15'-4'		Seal: Bentonite chips 4'-2'	Grout: NA
Casing Type: Sch 40 PVC		Diameter: 2" Length: 5'	Hole Diameter: 7.25" Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010"	Diameter: 2" Length: 10'	Total Depth: 15' Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				
					1				
					2		SM	Brown silty fn-med fn sand. w/ silt. HC + piganic odor. Low plasticity/cohesiveness.	
low	moist	2,440	yes, mod.		3	75% recovery			
				BH-14 @4-5' 12:50	4		SW -SM	Dark grayish brown med. sand w/ silt. Mod. stain. & HC, swampy organic odor.	
					5				
					6				
low	sl. moist	147	yes		7		SW	Lt. gray brown & gray to black med. coarse sand. Well graded. Tr. silt. Mod-Heavy stain, mod. odor. (HC)	
					8	80%			
					9				
hard		35.1			10			Lt. gray tan coarse sand, v. slt. s/o.	
					11				
					12			✱ Refusal, switch to split spoon sampling	
					13				
Hard	Dry	72.1	sl. odor.	BH-14 @ 14-15'	14 13:15		ML	Lt. grayish olive fn. sandy silt. some cementation. Dense. No stain. slight odor.	
					15				

TD-15'
Potential SVE well set 14'-4' screen

Location Map:



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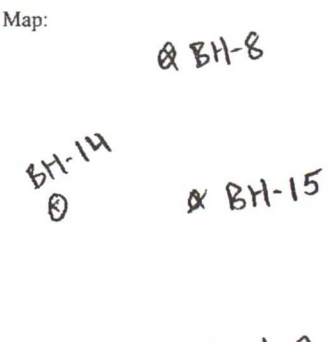
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-15		Project: Omler A #2E	
Date: 6-29-18		Project Number: 017818006	
Logged By: D. Burns		Drilled By: Geomat	
Elevation:	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand		Seal: Bentonite chips	Grout: NA
Casing Type: Sch 40 PVC		Diameter: 2" Length: —	Hole Diameter: 7.25" Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010"	Diameter: 2" Length: —	Total Depth: 20' Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				No Well Completed
					1				
					2				
low	sl. moist.	0.9	No		3	60 %	SM	Brown silty fn-med fn sand. Slightly plast./cohes. No stain/odor. Brown. med. -med fn sand. w/ silt. No s/o.	
					4				
					5				
					6				
low	sl. moist	0.4	No		7	100 %	SW	Lt. grayish tan. med to med. coarse sand. Tr. silt. Dense, non-plastic/cohes. No stain/odor.	
					8				
					9				
					10				
hard	Dry				11			☆ switch to split spoon.	
					12				
					13		SW	SAA. No stain/odor. Med to coarse sand. Well graded. No stain/odor.	
					14				
hard	Dry	0.1	No		15	50%			

Location Map:



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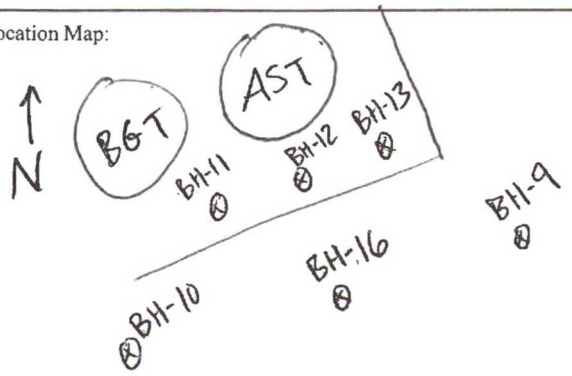
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-15		Project: Omler A #2E	
Date: 6-29-18		Project Number: 017818006	
Logged By: D. Burns		Drilled By: Geomat	
Elevation:	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand		Seal: Bentonite chips	Grout: NA
Casing Type: Sch 40 PVC		Diameter: 2" Length: —	Hole Diameter: 7.25" Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010"	Diameter: 2" Length: —	Total Depth: 20' Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					15				No Well completed
					16				
					17				
					18				
					19			Gray fn sandy silt, cemented siltstone. No stain/odor.	
Hard	Dry	0.6	No	BH-15 @19-20'	14:20	50%	ML		
					20				
					21			Backfilled w/ cuttings. TD = 20'	
					22				
					23				
					24				
					25				
					26				
					27				
					28				
					29				
					30				

Location Map:



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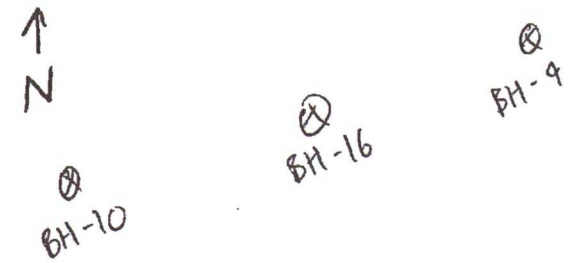
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-16		Project: Omler A #2E	
Date: 6-29-18		Project Number: 017818006	
Logged By: D. Burns		Drilled By: Geomat	
Elevation:	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand		Seal: Bentonite chips	Grout: NA
Casing Type: Sch 40 PVC		Diameter: 2" Length: —	Hole Diameter: 7.25" Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010"	Diameter: 2" Length: —	Total Depth: 20' Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				
					1				
					2				
					3		SW SM	Brown med fn sand w/silt.	
low	sl. moist.	0.1	No		4	50 % rec.	SM	Dark brown silty sand. Low plastic/cohesiv. No stain/odor.	
					5				
					6				
low					7			Brown med. sand, tr. silt. Poorly graded. No plast./cohes. No stain/odor.	
	moist	0.0	No		8	75 % rec.	SW		
					9				
hard					10			☆ switch to split spoon.	
					11				
					12				
					13				
hard	Dry	3.9	No		14		ML	Lt. gray olive, v. fn-fn. sandy silt. Slt cemented, laminated. No cohesive/plastic. No stain/odor.	
					15	50%			

Location Map:



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Durango, Colorado 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH-16		Project: Omler A #2E	
Date: 6-29-18		Project Number: 017818006	
Logged By: D. Burns		Drilled By: Geomat	
Elevation:	Detector: PID	Drilling Method: Hollow Stem Auger	Sampling Method: Continuous/Split Spoon
Gravel Pack: 10-20 Silica Sand		Seal: Bentonite chips	Grout: NA
Casing Type: Sch 40 PVC		Diameter: 2" Length: —	Hole Diameter: 7.25" / Depth to Liquid: —
Screen Type: Sch 40 PVC	Slot: 0.010"	Diameter: 2" Length: —	Total Depth: 20' / Depth to Water: —

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					15				
					16				
					17				
					18				
					19				
Hard	Dry	19.3	No stain. Sl. odor.	BH-16 @19-20	15:00 20	50% rec.	ML	Lt. gray. V. fn. sandy silt. some cementation. V. slt. degraded. No stain.	No well set.
					21			TD-20'	
					22			Backfill w/ cuttings	
					23				
					24				
					25				
					26				
					27				
					28				
					29				
					30				

ATTACHMENT 2

LABORATORY ANALYTICAL REPORTS

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

May 21, 2018

Danny Burns
LTE
848 East 2nd Avenue
Durango, CO 81301
TEL: (970) 946-1093
FAX

RE: Omler OrderNo.: 1805703

Dear Danny Burns:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/12/2018 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Project: Omler
Lab ID: 1805703-001
Matrix: SOIL
Client Sample ID: BH-5 @ 10-15'
Collection Date: 5/10/2018 9:30:00 AM
Received Date: 5/12/2018 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	12	9.8		mg/Kg	1	5/17/2018 8:51:42 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/17/2018 8:51:42 PM
Surr: DNOP	97.7	70-130		%Rec	1	5/17/2018 8:51:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	19	4.6		mg/Kg	1	5/15/2018 2:42:23 AM
Surr: BFB	182	15-316		%Rec	1	5/15/2018 2:42:23 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	0.092		mg/Kg	1	5/15/2018 2:42:23 AM
Benzene	ND	0.023		mg/Kg	1	5/15/2018 2:42:23 AM
Toluene	0.24	0.046		mg/Kg	1	5/15/2018 2:42:23 AM
Ethylbenzene	0.10	0.046		mg/Kg	1	5/15/2018 2:42:23 AM
Xylenes, Total	1.3	0.092		mg/Kg	1	5/15/2018 2:42:23 AM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	5/15/2018 2:42:23 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Project: Omler
Lab ID: 1805703-002 **Matrix:** SOIL

Client Sample ID: BH-5 @ 20'
Collection Date: 5/10/2018 9:40:00 AM
Received Date: 5/12/2018 7:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	5/17/2018 9:15:53 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/17/2018 9:15:53 PM
Surr: DNOP	93.0	70-130		%Rec	1	5/17/2018 9:15:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/15/2018 3:05:37 AM
Surr: BFB	88.5	15-316		%Rec	1	5/15/2018 3:05:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	5/15/2018 3:05:37 AM
Benzene	0.031	0.025		mg/Kg	1	5/15/2018 3:05:37 AM
Toluene	0.065	0.050		mg/Kg	1	5/15/2018 3:05:37 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/15/2018 3:05:37 AM
Xylenes, Total	ND	0.10		mg/Kg	1	5/15/2018 3:05:37 AM
Surr: 4-Bromofluorobenzene	98.1	80-120		%Rec	1	5/15/2018 3:05:37 AM

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#: **1805703**

21-May-18

Client: LTE

Project: Omler

Sample ID	**LCS-38099**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**38099**		RunNo:	**51307**				
Prep Date:	**5/14/2018**	Analysis Date:	**5/17/2018**		SeqNo:	**1669174**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.8	70	130			
Surr: DNOP	4.4		5.000		88.5	70	130			

Sample ID	**MB-38099**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**38099**		RunNo:	**51307**				
Prep Date:	**5/14/2018**	Analysis Date:	**5/17/2018**		SeqNo:	**1669175**	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	9.2		10.00		91.9	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	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#: **1805703**

21-May-18

Client: LTE
Project: Omler

Sample ID	**MB-38083**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**38083**	RunNo:	**51246**					
Prep Date:	**5/12/2018**	Analysis Date:	**5/14/2018**	SeqNo:	**1666100**	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	890		1000		89.4	15	316			

Sample ID	**LCS-38083**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**38083**	RunNo:	**51246**					
Prep Date:	**5/12/2018**	Analysis Date:	**5/14/2018**	SeqNo:	**1666101**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.4	75.9	131			
Surr: BFB	970		1000		97.2	15	316			

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#: **1805703**

21-May-18

Client: LTE
Project: Omler

Sample ID	**MB-38083**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**
Client ID:	**PBS**	Batch ID:	**38083**	RunNo:	**51246**
Prep Date:	**5/12/2018**	Analysis Date:	**5/14/2018**	SeqNo:	**1666147** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID	**LCS-38083**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**
Client ID:	**LCSS**	Batch ID:	**38083**	RunNo:	**51246**
Prep Date:	**5/12/2018**	Analysis Date:	**5/14/2018**	SeqNo:	**1666148** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.96	0.10	1.000	0	96.4	70.1	121			
Benzene	0.97	0.025	1.000	0	96.5	77.3	128			
Toluene	0.99	0.050	1.000	0	98.7	79.2	125			
Ethylbenzene	0.99	0.050	1.000	0	98.7	80.7	127			
Xylenes, Total	3.0	0.10	3.000	0	101	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

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: LTE | Work Order Number: 1805703 | RcptNo: 1

Received By: **Ashley Gallegos** 5/12/2018 7:40:00 AM

Completed By: **Ashley Gallegos** 5/12/2018 8:22:59 AM

Reviewed By: 05/12/18 Labeled by: MW 5/12/18

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? _____

MW 5/12/18

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	3.6	Good	Yes			

Chain-of-Custody Record

Client: Daniel Burns
LT Environmental Inc
Mailing Address: 848 E 2nd Ave
Durango, CO
Phone #:
email or Fax#: DBurns@LTEnviron
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____
Project Name:
Ownler
Project #:
Project Manager:
Daniel Burns
Sampler: Michael A Wilson
On Ice: ☒ Yes ☐ No
Sample Temperature: 3.9-0.3(CF)=3.6

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 1805130	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)					Air Bubbles (Y or N)
5-10-18	0930	Soil	BH-5@10-15'	1-4oz	Cool	-001	X		X													
↓	0940	↓	BH-5@20'	↓	↓	-002	X		X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
5-11-18	1635		Christ Walls	5/11/18	1635
5/11/18	1747			05/12/18	0740

Remarks: cc: ccardoza@Hilcorp.com

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

July 09, 2018

Clara Cardoza
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX

RE: Omler A 2E OrderNo.: 1806I57

Dear Clara Cardoza:

Hall Environmental Analysis Laboratory received 15 sample(s) on 6/30/2018 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 #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1806I57**
Date Reported: **7/9/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-001 **Matrix:** SOIL

Client Sample ID: BH-7 @ 15'-20'
Collection Date: 6/28/2018 10:00:00 AM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/5/2018 6:14:40 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 6:14:40 PM
Surr: DNOP	106	70-130		%Rec	1	7/5/2018 6:14:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/4/2018 1:19:46 AM
Surr: BFB	103	15-316		%Rec	1	7/4/2018 1:19:46 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.033	0.024		mg/Kg	1	7/4/2018 1:19:46 AM
Toluene	ND	0.048		mg/Kg	1	7/4/2018 1:19:46 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/4/2018 1:19:46 AM
Xylenes, Total	0.26	0.097		mg/Kg	1	7/4/2018 1:19:46 AM
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	7/4/2018 1:19:46 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-002 **Matrix:** SOIL

Client Sample ID: BH-8 @ 15'-20'
Collection Date: 6/28/2018 11:00:00 AM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/5/2018 6:39:39 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 6:39:39 PM
Surr: DNOP	104	70-130		%Rec	1	7/5/2018 6:39:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/4/2018 1:42:57 AM
Surr: BFB	92.8	15-316		%Rec	1	7/4/2018 1:42:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/4/2018 1:42:57 AM
Toluene	ND	0.047		mg/Kg	1	7/4/2018 1:42:57 AM
Ethylbenzene	ND	0.047		mg/Kg	1	7/4/2018 1:42:57 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/4/2018 1:42:57 AM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	7/4/2018 1:42:57 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-003 **Matrix:** SOIL

Client Sample ID: BH-9 @ 15'-20'
Collection Date: 6/28/2018 1:00:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/5/2018 7:04:18 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 7:04:18 PM
Surr: DNOP	101	70-130		%Rec	1	7/5/2018 7:04:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/4/2018 2:06:13 AM
Surr: BFB	95.3	15-316		%Rec	1	7/4/2018 2:06:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	7/4/2018 2:06:13 AM
Toluene	ND	0.049		mg/Kg	1	7/4/2018 2:06:13 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/4/2018 2:06:13 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/4/2018 2:06:13 AM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	7/4/2018 2:06:13 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-004 **Matrix:** SOIL

Client Sample ID: BH-10 @ 15'-20'
Collection Date: 6/28/2018 12:00:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/5/2018 7:29:08 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 7:29:08 PM
Surr: DNOP	108	70-130		%Rec	1	7/5/2018 7:29:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/4/2018 2:29:34 AM
Surr: BFB	89.0	15-316		%Rec	1	7/4/2018 2:29:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	7/4/2018 2:29:34 AM
Toluene	ND	0.050		mg/Kg	1	7/4/2018 2:29:34 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/4/2018 2:29:34 AM
Xylenes, Total	ND	0.10		mg/Kg	1	7/4/2018 2:29:34 AM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	7/4/2018 2:29:34 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-005 **Matrix:** SOIL

Client Sample ID: BH-11 @ 10'-15'
Collection Date: 6/28/2018 2:20:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/5/2018 7:53:55 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 7:53:55 PM
Surr: DNOP	109	70-130		%Rec	1	7/5/2018 7:53:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/4/2018 2:53:02 AM
Surr: BFB	90.6	15-316		%Rec	1	7/4/2018 2:53:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/4/2018 2:53:02 AM
Toluene	ND	0.048		mg/Kg	1	7/4/2018 2:53:02 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/4/2018 2:53:02 AM
Xylenes, Total	ND	0.096		mg/Kg	1	7/4/2018 2:53:02 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	7/4/2018 2:53:02 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-006 **Matrix:** SOIL

Client Sample ID: BH-12 @ 5'-10'
Collection Date: 6/28/2018 3:00:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/5/2018 8:18:45 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 8:18:45 PM
Surr: DNOP	111	70-130		%Rec	1	7/5/2018 8:18:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/4/2018 3:16:13 AM
Surr: BFB	91.8	15-316		%Rec	1	7/4/2018 3:16:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/4/2018 3:16:13 AM
Toluene	ND	0.048		mg/Kg	1	7/4/2018 3:16:13 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/4/2018 3:16:13 AM
Xylenes, Total	ND	0.096		mg/Kg	1	7/4/2018 3:16:13 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	7/4/2018 3:16:13 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-007 **Matrix:** SOIL

Client Sample ID: BH-12 @ 10'-15'
Collection Date: 6/28/2018 3:15:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/5/2018 8:43:28 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 8:43:28 PM
Surr: DNOP	106	70-130		%Rec	1	7/5/2018 8:43:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	14	4.8		mg/Kg	1	7/4/2018 3:39:22 AM
Surr: BFB	153	15-316		%Rec	1	7/4/2018 3:39:22 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/4/2018 3:39:22 AM
Toluene	0.20	0.048		mg/Kg	1	7/4/2018 3:39:22 AM
Ethylbenzene	0.082	0.048		mg/Kg	1	7/4/2018 3:39:22 AM
Xylenes, Total	1.0	0.097		mg/Kg	1	7/4/2018 3:39:22 AM
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	1	7/4/2018 3:39:22 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-008 **Matrix:** SOIL

Client Sample ID: BH-12 @ 15'-17'
Collection Date: 6/28/2018 3:20:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/5/2018 9:08:20 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 9:08:20 PM
Surr: DNOP	109	70-130		%Rec	1	7/5/2018 9:08:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/4/2018 4:25:50 AM
Surr: BFB	96.3	15-316		%Rec	1	7/4/2018 4:25:50 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/4/2018 4:25:50 AM
Toluene	0.083	0.047		mg/Kg	1	7/4/2018 4:25:50 AM
Ethylbenzene	ND	0.047		mg/Kg	1	7/4/2018 4:25:50 AM
Xylenes, Total	0.12	0.095		mg/Kg	1	7/4/2018 4:25:50 AM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	7/4/2018 4:25:50 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-009 **Matrix:** SOIL

Client Sample ID: BH-12 @ 18'-20'
Collection Date: 6/28/2018 3:30:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/5/2018 9:33:05 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 9:33:05 PM
Surr: DNOP	104	70-130		%Rec	1	7/5/2018 9:33:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/4/2018 4:49:18 AM
Surr: BFB	92.0	15-316		%Rec	1	7/4/2018 4:49:18 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/4/2018 4:49:18 AM
Toluene	ND	0.048		mg/Kg	1	7/4/2018 4:49:18 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/4/2018 4:49:18 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/4/2018 4:49:18 AM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	7/4/2018 4:49:18 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-010 **Matrix:** SOIL

Client Sample ID: BH-13 @ 14'-15'
Collection Date: 6/29/2018 12:00:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/5/2018 9:57:54 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 9:57:54 PM
Surr: DNOP	104	70-130		%Rec	1	7/5/2018 9:57:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/4/2018 5:12:36 AM
Surr: BFB	95.3	15-316		%Rec	1	7/4/2018 5:12:36 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/4/2018 5:12:36 AM
Toluene	ND	0.047		mg/Kg	1	7/4/2018 5:12:36 AM
Ethylbenzene	ND	0.047		mg/Kg	1	7/4/2018 5:12:36 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/4/2018 5:12:36 AM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	7/4/2018 5:12:36 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-011 **Matrix:** SOIL

Client Sample ID: BH-13 @ 19'-20'
Collection Date: 6/29/2018 12:15:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/5/2018 10:22:39 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 10:22:39 PM
Surr: DNOP	106	70-130		%Rec	1	7/5/2018 10:22:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/4/2018 7:08:23 AM
Surr: BFB	89.9	15-316		%Rec	1	7/4/2018 7:08:23 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.050	0.025		mg/Kg	1	7/4/2018 7:08:23 AM
Toluene	0.19	0.050		mg/Kg	1	7/4/2018 7:08:23 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/4/2018 7:08:23 AM
Xylenes, Total	0.11	0.10		mg/Kg	1	7/4/2018 7:08:23 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	7/4/2018 7:08:23 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-012 **Matrix:** SOIL

Client Sample ID: BH-14 @ 4'-5'
Collection Date: 6/29/2018 12:50:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	190	10		mg/Kg	1	7/5/2018 10:47:41 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/5/2018 10:47:41 PM
Surr: DNOP	110	70-130		%Rec	1	7/5/2018 10:47:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	190	4.8		mg/Kg	1	7/4/2018 7:31:32 AM
Surr: BFB	1720	15-316	S	%Rec	1	7/4/2018 7:31:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/4/2018 7:31:32 AM
Toluene	ND	0.048		mg/Kg	1	7/4/2018 7:31:32 AM
Ethylbenzene	0.31	0.048		mg/Kg	1	7/4/2018 7:31:32 AM
Xylenes, Total	4.8	0.096		mg/Kg	1	7/4/2018 7:31:32 AM
Surr: 4-Bromofluorobenzene	279	80-120	S	%Rec	1	7/4/2018 7:31:32 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-013 **Matrix:** SOIL

Client Sample ID: BH-14 @ 14'-15'
Collection Date: 6/29/2018 1:15:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/6/2018 1:57:09 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/6/2018 1:57:09 PM
Surr: DNOP	101	70-130		%Rec	1	7/6/2018 1:57:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/4/2018 8:18:00 AM
Surr: BFB	111	15-316		%Rec	1	7/4/2018 8:18:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	7/4/2018 8:18:00 AM
Toluene	ND	0.047		mg/Kg	1	7/4/2018 8:18:00 AM
Ethylbenzene	0.12	0.047		mg/Kg	1	7/4/2018 8:18:00 AM
Xylenes, Total	0.18	0.094		mg/Kg	1	7/4/2018 8:18:00 AM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	7/4/2018 8:18:00 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-014 **Matrix:** SOIL

Client Sample ID: BH-15 @ 19'-20'
Collection Date: 6/29/2018 2:20:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/6/2018 2:21:55 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/6/2018 2:21:55 PM
Surr: DNOP	103	70-130		%Rec	1	7/6/2018 2:21:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/4/2018 8:41:09 AM
Surr: BFB	90.7	15-316		%Rec	1	7/4/2018 8:41:09 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/4/2018 8:41:09 AM
Toluene	ND	0.048		mg/Kg	1	7/4/2018 8:41:09 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/4/2018 8:41:09 AM
Xylenes, Total	ND	0.096		mg/Kg	1	7/4/2018 8:41:09 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	7/4/2018 8:41:09 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Omler A 2E
Lab ID: 1806I57-015 **Matrix:** SOIL

Client Sample ID: BH-16 @ 19'-20'
Collection Date: 6/29/2018 3:00:00 PM
Received Date: 6/30/2018 10:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/6/2018 2:46:22 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/6/2018 2:46:22 PM
Surr: DNOP	102	70-130		%Rec	1	7/6/2018 2:46:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/4/2018 9:04:19 AM
Surr: BFB	89.8	15-316		%Rec	1	7/4/2018 9:04:19 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/4/2018 9:04:19 AM
Toluene	ND	0.047		mg/Kg	1	7/4/2018 9:04:19 AM
Ethylbenzene	ND	0.047		mg/Kg	1	7/4/2018 9:04:19 AM
Xylenes, Total	ND	0.094		mg/Kg	1	7/4/2018 9:04:19 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	7/4/2018 9:04:19 AM

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#: **1806157**

09-Jul-18

Client: HILCORP ENERGY

Project: Omler A 2E

Sample ID **MB-39016**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **39016**	RunNo: **52471**
Prep Date: **7/2/2018**	Analysis Date: **7/5/2018**	SeqNo: **1720885** 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	10		10.00		104	70	130			

Sample ID **LCS-39016**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **39016**	RunNo: **52471**
Prep Date: **7/2/2018**	Analysis Date: **7/5/2018**	SeqNo: **1720928** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	59	10	50.00	0	119	70	130			
Surr: DNOP	4.7		5.000		93.8	70	130			

Sample ID **MB-39058**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **39058**	RunNo: **52498**
Prep Date: **7/5/2018**	Analysis Date: **7/6/2018**	SeqNo: **1721687** 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	9.9		10.00		99.1	70	130			

Sample ID **LCS-39058**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **39058**	RunNo: **52498**
Prep Date: **7/5/2018**	Analysis Date: **7/6/2018**	SeqNo: **1722611** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	102	70	130			
Surr: DNOP	4.7		5.000		94.7	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	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#: **1806157**

09-Jul-18

Client: HILCORP ENERGY

Project: Omler A 2E

Sample ID	**MB-39002**	SampType:	**MBLK**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**PBS**	Batch ID:	**39002**		RunNo:	**52464**				
Prep Date:	**7/2/2018**	Analysis Date:	**7/3/2018**		SeqNo:	**1720243**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	890		1000		89.0	15	316			

Sample ID	**LCS-39002**	SampType:	**LCS**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**LCSS**	Batch ID:	**39002**		RunNo:	**52464**				
Prep Date:	**7/2/2018**	Analysis Date:	**7/3/2018**		SeqNo:	**1720244**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		100	15	316			

Sample ID	**MB-39008**	SampType:	**MBLK**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**PBS**	Batch ID:	**39008**		RunNo:	**52464**				
Prep Date:	**7/2/2018**	Analysis Date:	**7/3/2018**		SeqNo:	**1720264**	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	900		1000		90.2	15	316			

Sample ID	**LCS-39008**	SampType:	**LCS**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**LCSS**	Batch ID:	**39008**		RunNo:	**52464**				
Prep Date:	**7/2/2018**	Analysis Date:	**7/3/2018**		SeqNo:	**1720265**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	109	75.9	131			
Surr: BFB	1000		1000		103	15	316			

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#: **1806157**

09-Jul-18

Client: HILCORP ENERGY

Project: Omler A 2E

Sample ID	MB-39002	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	39002	RunNo:	52464					
Prep Date:	7/2/2018	Analysis Date:	7/3/2018	SeqNo:	1720290	Units:	%Rec			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		99.9	80	120			

Sample ID	LCS-39002	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	39002	RunNo:	52464					
Prep Date:	7/2/2018	Analysis Date:	7/3/2018	SeqNo:	1720291	Units:	%Rec			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID	MB-39008	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	39008	RunNo:	52464					
Prep Date:	7/2/2018	Analysis Date:	7/3/2018	SeqNo:	1720312	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	1.0		1.000		102	80	120			

Sample ID	LCS-39008	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	39008	RunNo:	52464					
Prep Date:	7/2/2018	Analysis Date:	7/3/2018	SeqNo:	1720313	Units:	mg/Kg			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	96.7	77.3	128			
Toluene	0.99	0.050	1.000	0	98.7	79.2	125			
Ethylbenzene	0.98	0.050	1.000	0	97.7	80.7	127			
Xylenes, Total	3.0	0.10	3.000	0	99.1	81.6	129			
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID	1806157-001AMS	SampType:	MS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	BH-7 @ 15'-20'	Batch ID:	39008	RunNo:	52464					
Prep Date:	7/2/2018	Analysis Date:	7/3/2018	SeqNo:	1720315	Units:	mg/Kg			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.024	0.9542	0.03301	103	68.5	133			
Toluene	1.0	0.048	0.9542	0.02905	106	75	130			
Ethylbenzene	1.1	0.048	0.9542	0.03504	107	79.4	128			
Xylenes, Total	3.5	0.095	2.863	0.2584	112	77.3	131			

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#: **1806I57**

09-Jul-18

Client: HILCORP ENERGY

Project: Omler A 2E

Sample ID **1806I57-001AMS** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH-7 @ 15'-20'** Batch ID: **39008** RunNo: **52464**

Prep Date: **7/2/2018** Analysis Date: **7/3/2018** SeqNo: **1720315** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		0.9542		111	80	120			

Sample ID **1806I57-001AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH-7 @ 15'-20'** Batch ID: **39008** RunNo: **52464**

Prep Date: **7/2/2018** Analysis Date: **7/3/2018** SeqNo: **1720316** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.024	0.9515	0.03301	102	68.5	133	0.879	20	
Toluene	1.1	0.048	0.9515	0.02905	107	75	130	1.23	20	
Ethylbenzene	1.1	0.048	0.9515	0.03504	107	79.4	128	0.141	20	
Xylenes, Total	3.5	0.095	2.854	0.2584	114	77.3	131	1.67	20	
Surr: 4-Bromofluorobenzene	1.1		0.9515		111	80	120	0	0	

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: HILCORP ENERGY FAR Work Order Number: 1806I57 RcptNo: 1

Received By: **Erin Melendrez** 6/30/2018 10:15:00 AM

Completed By: **Erin Melendrez** 6/30/2018 1:42:30 PM

Reviewed By: ENM 7/2/18

LB: 07/02/18

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: 07/02/18

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	3.9	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp Energy Company
☆ - Direct Bill to Hilcorp
Mailing Address: 382 CR 3100
Aztec, NM 87410
Phone #: 505-793-2784
email or Fax#: ccardoza@hilcorp.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush _____
Project Name: Omler A #2E
Project #: 017818006
Project Manager: Clara Cardoza - Hilcorp
Danny Burns - LT Environmental
Sampler: D. Burns 701-570-4727
On Ice: ☒ Yes ☐ No
Sample Temperature: 3.9

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. 1806I57	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)	Air Bubbles (Y or N)
6-28	1000	S	BH-7@15'-20'	1-4oz	cool	-001	X		X									
	1100		BH-8@15-20'			-002												
	1300		BH-9@15-20'			-003												
	1200		BH-10@15-20'			-004												
	1420		BH-11@10-15'			-005												
	1500		BH-12@5-10'			-006												
	~~1515~~ 1520 DG		BH-12@10-15'			-007												
	1520		BH-12@15-17'			-008												
↓	1530	↓	BH-12@18-20'	↓	↓	-009	↓		↓									

Date:	Time:	Relinquished by:	Received by:	Date	Time
6-29-18	1633			6/29/18	1633
Date:	Time:	Relinquished by:	Received by:	Date	Time
6/29/18	1852			6/30/18	1015

Remarks: cc: results
dburns@ltenv.com
aager@ltenv.com
dhencmann@ltenv.com
ccardoza@hilcorp.com
Direct Bill Hilcorp

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: Hilcorp Energy Company
☆ Direct Bill to Hilcorp

Mailing Address:

Phone #:

email or Fax#: CCardoza@hilcorp.com

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

Accreditation
☐ NELAP ☐ Other

☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Omler A #2E

Project #: 01781800b

Project Manager: Danny Burns - LT Environmental

Sampler: D. Burns 701-570-4727

On Ice: ☒ Yes ☐ No

Sample Temperature: 3.9

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. 1806157	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)					Air Bubbles (Y or N)
6-29	12:00	S	BH-13@14-15'	1-4oz.	cool	-010	X		X													
	12:15		BH-13@19-20'			-011																
	12:50		BH-14@4-5'			-012																
	13:15		BH-14@14-15'			-013																
	14:20		BH-15@19-20'			-014																
	15:00	↓	BH-16@19-20'	↓	↓	-015	↓		↓													

Date:	Time:	Relinquished by:	Received by:	Date	Time
6-29-18	1637	D. B		6/29/18	1637
6/29/18	1852			6/30/18	1015

Remarks: see notes on pg. 1 of 2

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.