



June 5, 2024

New Mexico Oil Conservation Division

New Mexico Energy, Minerals, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Updated Site Investigation Report and Remediation Work Plan

L C Kelly 1E
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: nAPP2308124076

To Whom it May Concern:

Ensolum, LLC. (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *Updated Site Investigation Report and Remediation Work Plan* for the L C Kelly 1E natural gas production well (Site). The Site is located on land managed by the Bureau of Land Management (BLM) in Unit C, Section 5, Township 30 North, Range 12 West in San Juan County, New Mexico (Figure 1).

SITE BACKGROUND

On March 8, 2023, Hilcorp personnel discovered approximately 45 barrels (bbls) of fluid (35.07 bbls of condensate and 10.02 bbls of produced water) released from a drain valve on a 300-bbls condensate storage tank. Due to freezing temperatures, ice had formed on the inside of the drain valve, subsequently causing the valve to rupture. The released fluids remained within the secondary containment earthen berm, with the observed impacted area measuring approximately 20 feet by 6 feet in areal extent. No fluids were recovered after discovery of the release. The release volume was determined based on the operator's monthly tank gauging data.

Initial Site investigations were conducted in April 2023 to assess and delineate the vertical and lateral extent of impacts originating from the release. Based on field screening observations and analytical data collected from soil borings BH01 through BH06, boring BH01 was completed as nested soil vapor extraction (SVE) wells SVE01 and SVE02. Additionally, borings BH02 (SVE03), BH04 (SVE04), BH05 (SVE05), and BH06 (SVE06) were completed as SVE wells to be used for future remediation. Slotted casing was installed across the subsurface interval with the highest petroleum hydrocarbon impacts based on photoionization detector (PID) readings in order to direct the applied vacuum to these depth intervals. SVE wells were constructed with 2-inch diameter Schedule 40 polyvinyl chloride (PVC) casing and 2-inch Schedule 40 PVC 0.010-inch slotted screen. Wells were completed with 10-20 silica sand pack to 2 feet above the screened interval, then hydrated bentonite seal to the ground surface.

A *Site Investigation Report and Remediation Work Plan* (dated May 2, 2023) was prepared by Ensolum and subsequently approved by the New Mexico Oil Conservation Division (NMOCD) and BLM. Additional information regarding the Site including the release background, Site investigation data, results, and recommendations is presented in the May 2023 work plan.

SITE CLOSURE CRITERIA

As presented in the May 2023 work plan, the following Closure Criteria apply to the Site in accordance with *Table I, Closure Criteria for Soils Impacted by a Release* (Table I Closure Criteria), 19.15.29.12 of the New Mexico Administrative Code (NMAC):

- Chloride: 20,000 milligrams per kilogram (mg/kg)
- Total Petroleum Hydrocarbons (TPH) as a combination of gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO): 2,500 mg/kg
- TPH-GRO + TPH-DRO: 1,000 mg/kg
- A combination of benzene, toluene, ethylbenzene, and xylenes (BTEX): 50 mg/kg
- Benzene: 10 mg/kg

SVE SYSTEM PILOT TESTING RESULTS

To determine if SVE would effectively remediate the Site in a reasonable timeframe and to aid in system design, Ensolum conducted a pilot test on July 13, 2023, to determine the optimal flow rate and applied vacuum required to volatilize and remove petroleum hydrocarbons from the impacted subsurface soils. Pilot test data was also used to estimate the system's radius-of-influence (ROI) and radius-of-effect (ROE) and to determine whether additional SVE wells are needed at the Site. Based on the favorable, observed, and calculated ROI/ROE of 30 feet, as well as the analytical results gathered during the pilot test, SVE was determined to be a viable remediation technique. Details of the pilot test were provided in the *Soil Vapor Extraction Pilot Test Report* prepared by Ensolum and submitted to the NMOCD on September 8, 2023.

ADDITIONAL DELINEATION ACTIVITIES AND RESULTS

As proposed in the May 2023 work plan, additional drilling and delineation activities were performed once the pilot test was completed and access to off-pad areas was approved by the BLM. Ensolum submitted notice of sampling to the NMOCD and BLM on October 11, 2023 (Appendix A). Drilling was performed by Enviro-Drill, Inc. using a Central Mining Equipment (CME)-75 hollow-stem auger drill rig. Five additional borings (BH07 through BH11) were advanced at the Site to depths ranging from 35 feet to 48 feet below ground surface (bgs) during this investigation in the locations presented on Figure 2.

During drilling, an Ensolum geologist logged soil lithology and inspected the soil for petroleum hydrocarbon staining and odors. Soil descriptions were noted in field books/boring logs and generally followed the Unified Soil Classification System (USCS), as specified in American Society for Testing and Materials (ASTM) method D2488. Soil samples were also field screened for the presence of organic vapors using a calibrated PID, with results noted on the field boring logs (attached as Appendix B). In general, soil samples were collected from depth intervals indicating the greatest impacts based on field screening and PID measurements. Soil samples were collected directly into laboratory-provided jars and immediately placed on ice. Samples were submitted to Envirotech Laboratory (Envirotech) for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8260B, TPH-GRO, TPH-DRO, TPH-MRO following EPA Method 8015D, and chloride following EPA Method 300.0.

In general, fine to coarse-grained, poorly sorted sand and silty sand were encountered in all borings at the Site. Groundwater was not encountered in any of the borings during drilling. Concentrations of benzene, total BTEX, TPH-GRO+DRO, Total TPH, and chloride were not detected in any of the analyzed samples exceeding the NMOCD Table I Closure Criteria. A

summary of analytical results is presented in Table 1 and depicted on Figure 2. Complete laboratory reports are attached as Appendix C. Based on the delineation activities described above, impacted soil at the Site has been successfully delineated. Based on the areal extent and depth of impacts, an estimated 1,500 cubic yards of impacted soil are present at the Site.

All borings advanced in October 2023 were completed as SVE wells for potential use during future remediation. Slotted casing was installed across the subsurface interval with the highest petroleum hydrocarbon impacts based on PID readings in order to direct the applied vacuum to these depth intervals. SVE wells were constructed with 2-inch diameter Schedule 40 polyvinyl chloride (PVC) casing and 2-inch Schedule 40 PVC 0.010-inch slotted screen. Wells were completed with 10-20 silica sand pack to 2 feet above the screened interval, then hydrated bentonite seal to the ground surface.

UPDATED REMEDIATION WORK PLAN

As stated above, SVE is a viable technology to remediate subsurface impacts at the Site. Based on the pilot test results, the SVE system should be sized to apply a minimum of 100 inches of water column (IWC) vacuum and a flow rate of 150 inlet cubic feet per minute (icfm) and approximately 85 standard cubic feet per minute (scfm). Based on the areas of impacted soil, the system will be initially constructed to induce flow and vacuum on SVE wells SVE01, SVE02, and SVE04 through SVE11 concurrently (shown on Figure 3); however, an adjustable manifold will be constructed for the system allowing the wells to be cycled, if necessary. At the elevation corrected flow rate and with the 10 wells each operating at 7.5 scfm (for a combined system flow rate of approximately 82.5 scfm), the system can achieve the ROE, annual pore volume exchanges, and pore velocities required for Site remediation. If an increase in individual well flow rate is observed after initial SVE system startup, the system will be designed so that SVE wells can be cycled to operate two at a time and induce the required vacuum.

OPERATIONS AND MAINTENANCE PLAN

Regular operation and maintenance (O&M) visits will be conducted at the Site to ensure the system is operating properly and assess for any required maintenance. Specifically, personnel will check that the SVE system is operating within normal working temperature, pressure, and vacuum range. System runtime will be recorded during each visit and vapor concentrations will be periodically measured with a PID from a sampling port located on the inlet side of the vacuum blower and prior to the dilution valve. Vacuum, temperature, and flow measurements will also be recorded. Any deviations from normal operating parameters will be recorded and corrected by on-site personnel, if possible. The SVE system will also be connected to Hilcorp's telemetry network so that Hilcorp personnel will be notified immediately of any system downtime via email. Immediate notification will allow for quick response to maximize system runtime.

FUTURE RUNTIME CALCULATIONS AND PROPOSED REMEDIATION TIMELINE

The SVE system will be powered by a dedicated generator to allow the system to operate for 24 hours per day. A backup generator will also be placed at the Site in order to minimize downtime if maintenance issues are required. Based on 24 hours of available runtime, the system will have to operate a minimum of 7,884 hours per year to maintain a 90% efficiency. A runtime meter will be installed on the SVE system in a location accessible to the NMOCD and will be used to track runtime hours. Downtime outside of Hilcorp's control (i.e., equipment failure) will be accounted for and the total available annual runtime hours will be adjusted. This information will be detailed and submitted to the NMOCD in quarterly Site reports.

The United States Army Corps of Engineers, *Soil Vapor Extraction and Bioventing – Engineer Manual*, dated June 3, 2002, states "Unless target cleanup goals are low or initial concentrations

are very high, 1,000 to 1,500 pore volumes would be a good estimate of the required air exchanges". Although the calculated annual pore volume exchanges presented in the *Soil Vapor Extraction Pilot Test Report*, dated September 8, 2023, are less than the recommended value of 500, Ensolum recommends the installation of an SVE system at the Site based on the favorable, observed and calculated ROI of 30 feet, as well as the mass removal analytical results obtained during pilot testing. Assuming the SVE system is able to achieve the anticipated flow and vacuum presented above, the system should be able to achieve between 1,000 and 1,500 pore volume exchanges in 4 to 5 years of operation if 100% operational runtime is achieved. If TPH-GRO concentrations collected from the system become asymptotic before the estimated closure date, the system will be adjusted in attempts to maximize performance and increase mass removal.

Once the system is operational, quarterly reports will be prepared and submitted to the NMOCD to present air sample results, mass removal calculations, and any system adjustments required during the previous quarter of operation. Based on the above assumptions, the following general timeline is anticipated for the operation of the system. Day zero (0) is the date on which the NMOCD and the BLM approve this report and work plan.

- Months 0 to 6 – Acquire/construct and install the SVE system and generators per the specifications outlined in this report.
- 6 Months to 1.0 Years – Collect regular air samples from the SVE system at a location upstream of the blower and any dilution valves. Assess system efficacy and update the remediation timeline based on sampling analytical results after 6 to 12 months of operation. Perform system maintenance and optimize system operation, as necessary. Continue O&M visits to monitor system performance and prepare quarterly reports.
- 1.0 Years to 4.5 Years – At any point, if air concentrations of TPH-GRO collected from the system become asymptotic and/or are below 1.0 milligrams per liter (mg/L), soil samples can be collected and analyzed for TPH and BTEX constituents to determine if concentrations are below NMOCD Table I Closure Criteria (as described below). Additionally, the system will be adjusted to maximize performance and address areas with remaining soil impacts. Continue air sample collection, monitoring, and reporting as necessary.
- Year 4.5 – Collect soil confirmation samples and analyze for TPH and BTEX constituents as described below. Request Site closure if soil sample results are below NMOCD Table I Closure Criteria. If soil concentrations are above Closure Criteria, the remediation timeline will be reviewed, and the system will be adjusted to maximize performance and address areas with remaining soil impacts. Continue quarterly air sample collection, monitoring, and reporting as necessary.

REFERENCES

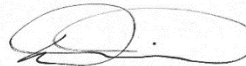
United States Army Corps of Engineers (USACE), 2002. Engineering and Design, Soil Vapor Extraction and Bioventing - Engineer Manual, Document EM 1110-1-4001. June 3, 2002.

We appreciate the opportunity to provide this report to the NMOCD. If you should have any questions or comments regarding this document, please contact the undersigned.

Sincerely,
Ensolum, LLC



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Attachments:

- Figure 1: Site Location Map
Figure 2: Soil Analytical Results
Figure 3: SVE System Radius of Influence and Radius of Effect

Table 1: Soil Analytical Results

Appendix A: NMOCD Correspondences
Appendix B: Lithologic/Soil Sampling Logs
Appendix C: Laboratory Analytical Report

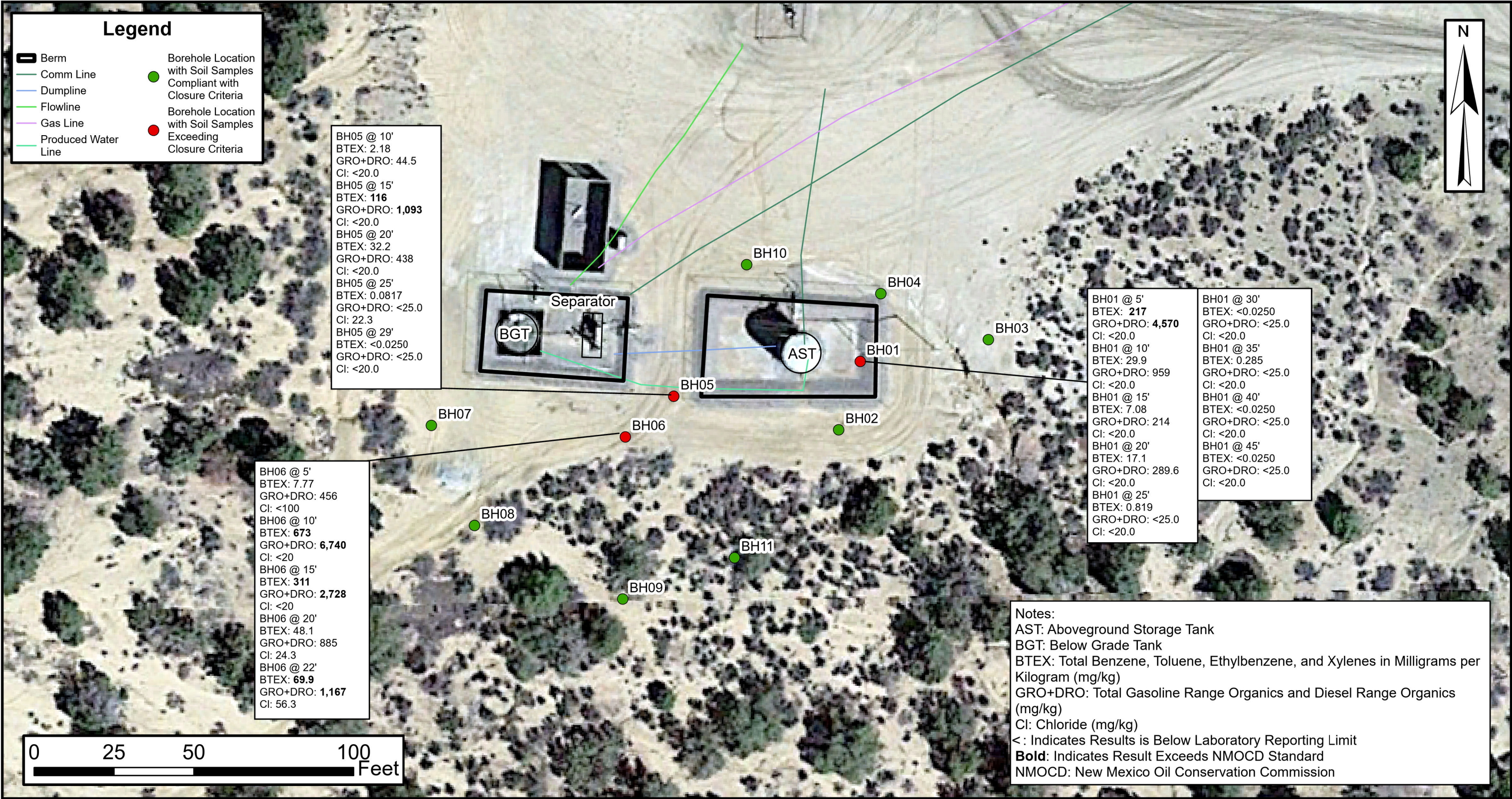


FIGURES



36.84600, -108.12450
Unit C, Sec 05, T30N, R12W
San Juan County, New Mexico

1



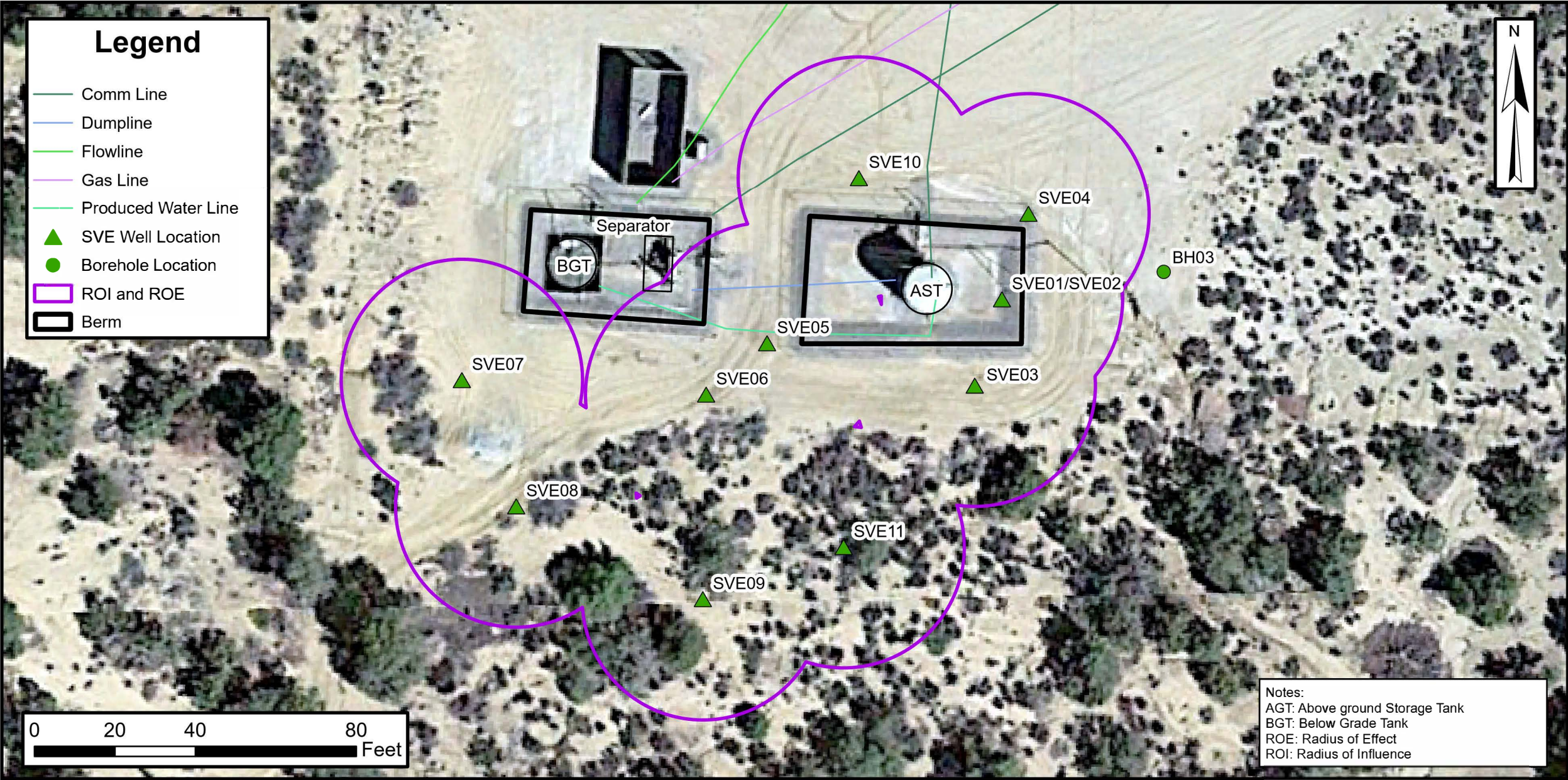
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Soil Analytical Results

L C Kelly 1E
Hilcorp Energy Company
36.84600, -108.12450
Unit C, Sec 05, T30N, R12W
San Juan County, New Mexico

FIGURE
2



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ENSOLUM
Environmental, Engineering and
Hydrogeologic Consultants

SVE System Radius of Influence and Radius of Effect
L C Kelly 1E
Hilcorp Energy Company
36.84600, -108.12450
Unit C, Sec 05, T30N, R12W
San Juan County, New Mexico

FIGURE
3



TABLES



TABLE 1 DELINEATION SOIL SAMPLE ANALYTICAL RESULTS L C Kelly 1E Hilcorp Energy Company San Juan County, New Mexico										
Sample Designation	Date	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	TPH GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Closure Criteria for Soils Impacted by a Release			10	50	NE	NE	NE	1,000	2,500	20,000
BH01 @ 5'	4/11/2023	5	<1.25	217	2,130	2,440	50.4	4,570	4,620	<20.0
BH01 @ 10'	4/11/2023	10	<0.0500	29.9	433	526	<50.0	959	959	<20.0
BH01 @ 15'	4/11/2023	15	<0.0250	7.08	120	94.2	<50.0	214	214	<20.0
BH01 @ 20'	4/11/2023	20	<0.0250	17.1	260	29.6	<50.0	289.6	289.6	<20.0
BH01 @ 25'	4/11/2023	25	<0.0250	0.819	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH01 @ 30'	4/11/2023	30	<0.0250	<0.0250	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH01 @ 35'	4/11/2023	35	<0.0250	0.285	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH01 @ 40'	4/11/2023	40	<0.0250	<0.0250	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH01 @ 45'	4/11/2023	45	<0.0250	<0.0250	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH02 @ 10'	4/12/2023	10	<0.0250	<0.0250	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH02 @ 25'	4/12/2023	25	<0.0250	<0.0250	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH02 @ 30'	4/12/2023	30	<0.0250	<0.0250	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH02 @ 33'	4/12/2023	33	<0.0250	1.938	56.4	105	<50.0	161.4	161.4	<20.0
BH03 @ 15'	4/12/2023	15	<0.0250	<0.0250	<20.0	<25.0	<50.0	<25.0	<50.0	31.7
BH03 @ 35'	4/12/2023	35	<0.0250	<0.0250	<20.0	<25.0	<50.0	<25.0	<50.0	<40.0
BH04 @ 30'	4/12/2023	30	<0.0250	0.0329	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH04 @ 35'	4/12/2023	35	0.0455	0.773	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH04 @ 38'	4/12/2023	38	<0.0250	<0.0250	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH05 @ 10'	4/13/2023	10	<0.0250	2.18	44.5	<25.0	<50.0	44.5	44.5	<20.0
BH05 @ 15'	4/13/2023	15	1.22	116	937	156	<50.0	1,093	1,093	<20.0
BH05 @ 20'	4/13/2023	20	0.974	32.2	202	236	<50.0	438	438	<20.0
BH05 @ 25'	4/13/2023	25	<0.0250	0.0817	<20.0	<25.0	<50.0	<25.0	<50.0	22.3
BH05 @ 29'	4/13/2023	29	<0.0250	<0.0250	<20.0	<25.0	<50.0	<25.0	<50.0	<20.0
BH06 @ 5'	4/13/2023	5	<0.0250	7.77	181	275	<50.0	456	456	<100
BH06 @ 10'	4/13/2023	10	12.2	673	5,360	1,380	<50.0	6,740	6,740	<20.0
BH06 @ 15'	4/13/2023	15	5.49	311	2,280	448	<50.0	2,728	2,728	<20.0
BH06 @ 20'	4/13/2023	20	0.448	48.1	515	370	<50.0	885	885	24.3
BH06 @ 22'	4/13/2023	22	0.333	69.9	651	516	138	1,167	1,305	56.3
BH07 @ 30'	10/16/2023	30	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	21.4
BH07 @ 35'	10/16/2023	35	<0.0250	0.171	<20.0	61.4	<50.0	61.4	61.4	<20.0
BH07 @ 40'	10/16/2023	40	<0.0250	3.94	145	49.7	<50.0	195	195	<20.0
BH07 @ 45'	10/16/2023	45	<0.0250	0.120	<20.0	<25.0	<50.0	<50.0	<50.0	<20.0
BH08 @ 44-46'	10/17/2023	44 - 46	<0.0250	0.166	<20.0	41.6	<50.0	41.6	41.6	20.9
BH08 @ 48'	10/17/2023	48	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	<20.0
BH09 @ 25'	10/18/2023	25	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	55.2
BH09 @ 30'	10/18/2023	30	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	44
BH09 @ 35'	10/18/2023	35	<0.0250	0.920	<20.0	<25.0	<50.0	<50.0	<50.0	27.7
BH09 @ 40'	10/18/2023	40	<0.0250	0.772	<20.0	<25.0	<50.0	<50.0	<50.0	23.6
BH09 @ 45'	10/18/2023	45	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	24.1
BH10 @ 5'	10/18/2023	5	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	<20.0
BH10 @ 10'	10/18/2023	10	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	<20.0
BH10 @ 25'	10/18/2023	25	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	<20.0
BH10 @ 35'	10/18/2023	35	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	<20.0
BH11 @ 25'	10/18/2023	25	<0.0250	<0.0250	<20.0	25.4	<50.0	25.4	25.4	<20.0
BH11 @ 30'	10/18/2023	30	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	<20.0
BH11 @ 40'	10/18/2023	40	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	<20.0
BH11 @ 45'	10/18/2023	45	<0.0250	<0.0250	<20.0	<25.0	<50.0	<50.0	<50.0	<20.0

Notes:

bgs: below ground surface
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
mg/kg: milligrams per kilogram
NA: Not Analyzed
NE: Not Established
NMOCD: New Mexico Oil Conservation Division
' : feet

GRO: Gasoline Range Organics
DRO: Diesel Range Organics
MRO: Motor Oil/Lube Oil Range Organics
TPH: Total Petroleum Hydrocarbon
< : indicates result less than the stated laboratory reporting limit (RL)

Concentrations in **bold** and shaded exceed the New Mexico Oil Conservation Division Table 1 Closure Criteria for Soils Impacted by a Release



APPENDIX A

NMOCD Correspondences

From: [Stuart Hyde](#)
To: [Velez, Nelson, EMNRD](#); [Adeloye, Abiodun A](#)
Cc: [Zach Myers](#); [Eric Carroll](#); [Devin Hencmann](#); [Mitch Killough](#); [Christopher Bramwell](#); [Ray Shelby](#)
Subject: L C Kelly 1E (nAPP2308124076) - Additional Drilling and Sampling Notification
Date: Wednesday, October 11, 2023 4:35:00 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

All,

On behalf of Hilcorp Energy Company, Ensolum is providing this drilling and sampling notification for work at the L C Kelly 1E (nAPP2308124076) site located at coordinates 36.8460274, -108.1248856 in rural San Juan County. Work is scheduled to begin on Monday October 16, 2023 at 10 AM. Please reach out with any questions or comments. Thanks.



Stuart Hyde, LG

Senior Geologist

970-903-1607

Ensolum, LLC

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APPENDIX B

Lithologic/Soil Sampling Logs

ENSOLUM					Client: Hilcorp Energy Co. Project Name: LC Kelly 1E Project Location: 36 84615" N, 108 12417" W Project Manager: Stuart Hyde		BORING LOG NUMBER BH 01 Project No.: 07A1988069	
Date Sampled: 4-11-23 Drilled By: Enviro-Drill - CME-85 HSA Driller: Juan Logged By: Danny Burns					Ground Surface Elevation: 5,990' Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: 8" Casing Diameter: 2" Well Materials: PVC sch 40 Surface Completion: 4 1/2 stick Boring Method: HSA VP	
DEPTH (FEET)	SAMPLE INTERVAL TIME	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0								
2		75%	>5,000		SW	Brown, med-coarse sand No stain, strong hydrocarbon odor. SL Moist.		
4								
6								
8		75	>5,000		SW-SM	" " SAA. Dry, no stain strong odor. w/ some fines.		
10								
12		50	2,950		SW	Brown, coarse sand w/ gravel No stain, strong odor.		
14								
16								
18		50	2,065		SW-SM	Brown med-coarse sand w/silt. No stain, strong-moderate odor.		
20								
22		100	945		SW-SM	Brown, med-coarse sand w/silt No stain, mod. odor. Dry. some compaction.		
24								
26								
28		100	253		SW-SM	Lt. gray med sand w/silt. Slt. sweet gassy odor.		
30								
32		100	732		SW-SM	Brown med-coarse sand w/silt slt. to med. HC odor, degraded.		
34								
36								
38		25	272		SW-SM	Lt. gray med sand w/silt slt gassy HC odor.		
40								
42		75	220		SW-SM	Lt-gray med. fn sand w/silt. Slt. odor.		
44								
46								
48		25	43		SW	Lt. gray. med sand. No stain/odor.		
50								

11/16"
 25/50 3"
 31/50 3"
 27/50 2"
 25/50 4"
 29/50 5"
 30/50 2"
 50 5"
 32/50 4"
 35/50 2"

20'-5' screen
 22-20 cuttings/sand
 Hydrated
 Bentonite
 24'-22'
 sand
 41'-24'
 40-25'
 screen
 backfill
 to 41'
 with
 cuttings

				Client: Hilcorp Energy Co Project Name: LC Kelly IE Project Location: 36 84615° N, 108 12417° W Project Manager: Stuart Hyde		BORING LOG NUMBER BH02 Project No.: 07A1988069	
Date Sampled: 4-12-23 Drilled By: Juan Driller: Envero-Drill CME 85 Logged By: Danny Burns				Ground Surface Elevation: 5,990' Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: 8" Casing Diameter: 2" Well Materials: PVC Surface Completion: StickUp Boring Method: HSA	
DEPTH (FEET)	SAMPLE INTERVAL TIME	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
0						Brown, med-coarse sand, some silt.	
1/2 2		100	5.6		SW	No stain/odor. Dry, unconsolidated.	
4							
6							
27/50 8		100	23.7		SW	Lt. brown coarse sand + Brown med-coarse sand. Trace silt. No s/o. Dry.	
10	0900						
12		75	17.6		SW	Lt. brown coarse sand. Dry. No s/o.	
14							
16							
39/50 18		100	30.3		SW-SM	Brown coarse sand w/ gravel and silt. No s/o	
20							
22		100	32.1		SW-SM	Lt. Brown med-coarse sand w/ silt. Dry. No stain, slight sweet gassy odor.	
24							
26	0930						
28		100	17.5		SW-SM	Lt. gray med. sand w/ silt. Some cementation. No SH. sweet gassy odor.	
30	1000						
32			48.4		SW-SM	SAA + then Lt. Brown med sand w/ silt, slt. moist. No stain, slight gassy HC odor, sweet.	
34	1010					Refusal @ 33', sand stone. Augered down for 5 min. w/ no depth progress.	
36							
38							
40							
42							
44							
46							
48							
50							


Bentonik
21'-0'


21'-33' sand


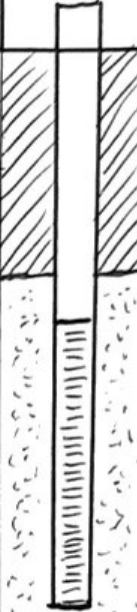
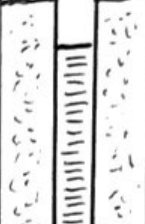



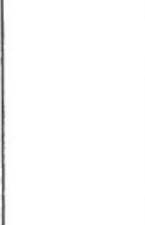
23'-33'
screen

33' Refusal

ENSOLUM					Client: Hilcorp Energy Co. Project Name: LC Kelly 1E Project Location: 36 84615" N, 108 12417" W Project Manager: Stuart Hyde		BORING LOG NUMBER BH03 Project No.: 07A1988069	
Date Sampled: 4-12-23 Drilled By: ENVILCO-DRILL Driller: Juan Logged By: Danny Burns					Ground Surface Elevation: 5,990' Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: 8" Casing Diameter: 8" Well Materials: SS Surface Completion: SS Boring Method: HSA	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0								
2		100	2.9		SW -SM	Lt. Brown med. well graded sand w/ silt. Dry, no stain/odor. Loose.		
4								
6		100	2.1		SW -SM	SAA. No s/o.	No well set.	
8								
10								
12		75	7.8		SW -SM	Brown med. - coarse sand w/ silt. Dry. No s/o	Borehole open	
14								
16								
18		50	3.2		SW -SM	SAA. Dry. No s/o.	backfilled w/ clean cuttings	
20								
22		75	2.5		SW -SM	Lt. Brown med. coarse sand w/ silt. No s/o		
24								
26								
28		25	2.3		SW -SM	SAA. No s/o		
30								
32		25	2.1		SW -SM	Lt. Brown med sand w/ silt. Semi-cemented. Dry. No s/o		
34						Very hard drilling		
36						Refusal @ 35'		
38								
40								
42								
44								
46								
48								
50								

					Client: Hilcorp Energy Co. Project Name: LC Kelly 1E Project Location: 36.84615° N, 108.12417° W Project Manager: Stuart Hyde		BORING LOG NUMBER BH04 Project No.: 07A1988069	
Date Sampled: 4-12-23 Drilled By: Enviro-Drill Driller: Sean Logged By: Danny Burns					Ground Surface Elevation: 5,990' Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: 8" Casing Diameter: 2" Well Materials: PVC Surface Completion: stick up Boring Method: HSA	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL- METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0								
10/18/30		100	1.1		SW -SM	Lt. Brown med sand w/ silt. Dry. No s/o		
29/50 4"		25	3.7		SW	Lt. Brown/tan coarse sand, some gravel. Dry. No s/o		Hydrated Bentonite plug to surface
29/45/50		100	2.3		SW	SAA. coarse sand w/ gravel No s/o		
16/25/50-5"		100	1.6		SW	Brown coarse sand, dense. SL. moist. No stain/odor.		
50-5"		25	4.3		SW	Brown coarse sand. Dense. Dry. No s/o		
50-4"		25	8.5		SW	SAA, w/ gravel. SL. moist. NO s/o		26' sand
50-4"	1500	25	55.8		SW -SM	Brown. med-coarse sand w/ silt. Dry. Dense No stain. slight Degraded HC color.		
50-4"	1540	25'	5.1		SW -SM	Lt. gray med sand w/ silt. Dense, some cementation. Dry. NO s/o. Refusal w/ HSA @ 38'		38'-28' screen
						Well set @ 38'-28' 10' screen		

 ENSOLUM					Client: Hilcorp Energy Co. Project Name: LC Kelly 1E Project Location: 36 84615" N, 108 12417" W Project Manager: Stuart Hyde		BORING LOG NUMBER BH05 Project No.: 07A1988069	
Date Sampled: 4-13-23 Drilled By: Envirow-Dr. II Driller: Jann Logged By: Danny Burns					Ground Surface Elevation: 5,990' Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: 8" Casing Diameter: 2" Well Materials: pvc Surface Completion: stick up Boring Method: HSA	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0							stick up	
2								
4		100	0.1		SW -SM	Brown, med. sand w/ silt. Sl. moist, No stain/odor.		
6		50			SW	Gray + brown med-coarse sand. Tr. silt. Dry. Slight stain + odor.		
8	50-5"	100 1,226						
10	0930							
12	50-5"	50	3,823		SW -SM	Gray med-coarse sand w/ silt. Moderate ^{stain} stain/odor. Dry.		
14	0950							
16								
18	26/50-4"	75	4,103		SW -SM	Dark gray and brown interspersed med-coarse sand. Mod. s/o. Dry.		
20	1000							
22								
24	39/50-4"	100	584			Gray fine-med sand w/ silt. Mod. s/o. Dry some cementation	Backfill to 20' w/ cuttings	
26	1020							
28	50-4"	25	102			Gray, fm-med sand w/ silt. Dense, compacted, some cement. Dry, mod stain, silt. odor. Refusal @ 29'	29' Refusal	
30	1135							
32						Set SVE well 20'-10' 10' screen		
34								
36								
38								
40								
42								
44								
46								
48								
50								

					Client: Hilcorp Energy Co Project Name: LC Kelly IE Project Location: 36 84615° N, 108.12417° W Project Manager: Stuart Hyde		BORING LOG NUMBER BH06	
					Date Sampled: 4-13-23 Drilled By: Enviro-Drill Driller: Juan Logged By: Danny Burns		Ground Surface Elevation: 5,990' Top of Casing Elevation: North Coordinate: West Coordinate:	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0					SW	Brown med-coarse sand w/silt		
2					SM	sl. moist.		
4	1230	100	1,324			@5' - Lt. gray coarse sand w/silt		
6						mod. stain & odor.		
8	1245	100	2,066		SW	Lt. gray med. sand.		
10						Tr. silt. Mod. S/O.		
12	1255	50	2,936		SW	Lt. gray med. - coarse sand.		
14						Mod. S/O.		
16					SW	Brown med-coarse sand.		
18		25	3,214			No stain, mod. odor.		
20	1305	25	2,018		SW	Lt. Brown med & med-coarse		
22	1325					sand. No stain, mod. odor.		
24						Refusal @ 22'		
26								
28								
30								
32								
34								
36								
38								
40								
42								
44								
46								
48								
50								

6/7/13


36/50-4"

50-5"

50-5"


50-5"

Bentonite
plug
8'-0'Sand
8'-22'Screen
20'-10'cutofftings
backfill
to 20'

		Client: <u>HEC</u>		BORING LOG NUMBER				
		Project Name: <u>LC Kelly IE</u>		<u>BH01</u>				
Date Sampled: <u>10-16-23</u>		Project Location: <u>Flora Vista, NM</u>		Project No.:				
Drilled By: <u>EDI</u>		Project Manager: <u>Stuart Hyde</u>		Borehole Diameter: <u>8"</u>				
Driller: <u>Juan</u>		Ground Surface Elevation:		Casing Diameter: <u>2"</u>				
Logged By: <u>E. Carroll</u>		Top of Casing Elevation:		Well Materials: <u>PVC</u>				
		North Coordinate:		Surface Completion: <u>Stick up</u>				
		West Coordinate:		Boring Method: <u>HSA</u>				
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0								
1	3-5	100%	6.3		S.M	lt. yellow brown moist med coarse sand NO stain/odor		
2								
3								
4								
5								
6								
7								
8								
9								
10	10-12.5	100%	1.9		S.M	S.A.A. NO stain/odor		
11								
12								
13								
14								
15	15-17.5	50%	7.7		S.M	DRY lt brown/white coarse sand NO stain/odor		
16								
17								
18								
19								
20	20-22.5	100%	12.3		S.M	moist brown coarse sand few gravel NO stain/odor		
21								
22								
23								
24	25-27.5	70%	28.9		S.M	moist red/brown coarse sand NO stain/odor		
25								


BH 07


DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
30	30 - 32.5	100%	112		S.M	Red brown moist Sand few gravel No stain slight odor	B
31							B
32							B
33							B
34							
35	35 - 37.5	100%	>5000		S.M	SAA NO stain SET only odor	
36							
37							
38			1985		S.M	SAA	
39	40 - 42.5	100%				41-42.5 ft gray clay dry sett	
40							
41							
42							
43	42.5 - 44	100%	3172			gray stained medium Sand slight odor	
44							
45	45 - 47	100%	6960 68.0			gray stained sand Some cementation slight odor	
46							
47							
48							
49							
50						TD = 45'	
51							
52							
53							
54							
55							


		Client: <u>HEC</u>		BORING LOG NUMBER			
		Project Name: <u>LC Kelly IE</u> Project Location: <u>Flora Vista, NM</u> Project Manager: <u>Stuart Hyde</u>		<u>BH08</u> Project No.:			
Date Sampled: <u>10-17</u> Drilled By: <u>Enviro-drill</u> Driller: <u>Juan</u> Logged By: <u>ZM</u>		Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: <u>8"</u> Casing Diameter: <u>2"</u> Well Materials: <u>PVC</u> Surface Completion: <u>stick up</u> Boring Method: <u>HSA</u>			
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
0							
1							
2							
3						loose, fn-cs sand, tan/brown	
4						no stain, no odor	
5		75%	7.6			11 blows	
6							
7							
8						@ 9.5' loose, fn-mid sand, tan/brown	
9			4.1			NS, NO	
10		75%				@ 10' mid-cs, white-grey sand, rare clay	
11						NS, NO	
12						10-22-32	
13						@ 14' dense, fn-mid sand, tan/brown	
14		100%	15.8			no stain, no odor	
15						rare clay/silt	
16						18-35-35	
17						mid dense	
18						fn-cs sand, tan/brown	
19		100%	14.1			rare clay/silt, no stain, no odor	
20							
21						20-38-50	
22						24-25 mid dense	
23		100%				fn-mid sand w/silt, tan/brown	
24			32.7			@ 25' - 1" of fn sand, grey	
25						25-25.5' mid dense, fn-mid sand w/silt	
						25.5-26' loose, cs sand, grey/brown	
						31-44' fn-cs NS-NO	
						50 hr 4"	

BH08

	DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
25	30	X	-	-	-	-	-	
26	31		-	-	-	-	29-30' med dense, fn sand w/ silt	
27	32		-	-	-	-	and some clay, brown, no stain, no odor	
28	33		100%	4.8	-	-	30-31' loose, med. cs sand	
29	34		-	-	-	-	grey-tan, no stain, no odor	
30	35	X	-	-	-	-	48- 50 50 for 4"	
31	36		-	-	-	-	34-35 34-35	
32	37		-	-	-	-	med dense, fn sand w/ silt + clay	
33	38		100%	16.8	-	-	tan-brown NS-NO	
34	39		-	-	-	-	very dense grey SS cobble at 35	
35	40	X	-	-	-	-	35-36 is grey sand, no-NO	
36	41		-	-	-	-	30- 40 50 for 2"	
37	42		-	-	-	-	40-40.5' med dense fn sand	
38	43		-	-	-	-	w/ silt + clay, brown-tan NS-NO	
39	44		40%	3.5	-	-	40.5-41' med dense cs sand, grey	
40	45	X	-	-	-	-	NS-NO	
41	46		-	-	-	-	50 for 5"	
42	47		-	-	-	-	44-45' med dense fn sand w/ silt + clay	
43	48		-	-	-	-	brown-tan, NS-NO	
44	49		100%	1,295	-	-	@45' cs sand w/ brown staining	
45	50	X	-	-	-	-	strong odor ~ 4" + gravel	
46	51		-	-	-	-	45.5-46' fn sand w/ silt + clay, grey	
47	52		50%	18.4	-	-	NS-NO	
48	53	X	-	-	-	-	36 - 50 for 5"	
49	54		-	-	-	-	med dense, fn sand, grey	
50	55		-	-	-	-	NS-NO	
			-	-	-	-	33-50 for 4"	
			-	-	-	-	rebound @ 48'	



				Client: HEC Project Name: LC Kelly IE Project Location: Project Manager: Stuart Hyde		BORING LOG NUMBER BHO 9 Project No.:	
Date Sampled: 10-18 Drilled By: Enviro drill Driller: Juan Logged By: AT				Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: 8" Casing Diameter: 2" Well Materials: PVC Surface Completion: Stick up Boring Method: HSA	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
0							
1							
2							
3							
4							
5							
6		60%	2.0			- coarse ✓ @ 5' - poorly sorted med sand Brown. No odor some gravel, some fines	
7							
8							
9							
10							
11		100%	4.5			med/fine sand. Brown No odor. No stain. some gravel	
12							
13							
14							
15							
16		100%	4.0			SAA. No odor/stain	
17							
18							
19							
20							
21			16.8			Brown/tan coarse sand w/ fines. No odor/stain	
22							
23							
24							
25							


						Client: Hilcorp Project Name: San Juan 30-6 #31A Project Location: <u>LC Kelly IE</u> Project Manager: Stuart Hyde		BORING LOG NUMBER <u>BH09</u> Project No:	
Date Sampled: <u>10-18</u> Drilled By: <u>EnviroDrill</u> Driller: Logged By: <u>AT</u>						Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: Casing Diameter: Well Materials: Surface Completion: Boring Method:	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION		
25									
50/6		60%	7.5			Brown med-sand w/ fine clay and gravel. No odor/stain			
26									
27									
28									
29									
30									
50/6		100%	363			Moist tan med-sand w/ clay. Mod odor slight stain/oxidation			
31									
32									
33									
34									
35									
50/4		100%	202			35-37.5 SS 35-35.15 35-35.15 35-37.5 - Gray slightly cemented SS w/ coal clasts and clay (sampled above this layer)			
36									
37									
38									
39									
40									
50/5		100%	145			Moist tan/brown med-sand w/ clays. Slight odor slight stain/oxidation			
41									
42									
43									
44									
45									
50/4			23.0			gray immature SS med-grained No odor. possibly stained?			
46									
47									
48									
49									
50									


					Client: <u>HEC</u> Project Name: <u>LC Kelly IE</u> Project Location: Project Manager: <u>Stuart Hyde</u>		BORING LOG NUMBER <u>BH10</u> Project No.:	
Date Sampled: <u>10-18</u> Drilled By: <u>Hydrovac/EnviroDrill</u> Driller: Logged By: <u>AT</u>					Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: <u>8"</u> Casing Diameter: <u>2"</u> Well Materials: <u>PVC</u> Surface Completion: <u>stick up</u> Boring Method: <u>HSA</u>	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								

50/6

50/4

 ENSOLUM					Client: Hilcorp Project Name: San Juan 30-6 #31A Project Location: Project Manager: Stuart Hyde		BORING LOG NUMBER BH10	
					Date Sampled: Drilled By: Driller: Logged By:		Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
25		100%	49.3			Brown moist clayey sand med grain. No odor/stain		
26								
27								
28								
29								
30								
31		100%	8.8			Moist gray med-fine clayey sand. Slight odor. Potentially stained		
32								
33								
34								
35		100%	6.9			SAA		
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								

					Client: <u>HEC</u> Project Name: <u>LC Kelly 2E</u> Project Location: Project Manager:		BORING LOG NUMBER <u>BH 11</u> Project No.:	
Date Sampled: <u>10-19</u> Drilled By: Driller: <u>ENVIO Drill</u> Logged By: <u>AT</u>					Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: <u>8"</u> Casing Diameter: <u>2"</u> Well Materials: <u>PVC</u> Surface Completion: <u>stick up</u> Boring Method: <u>HSA</u>	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0								
1								
2								
3								
4								
5								
6		100%	4.4			tan med-fine sand w/ coarse No odor/stain		
7								
8								
9								
10		100%	5.7			light tan med-coarse sand no odor/stain		
11								
12								
13								
14								
15		100	24.2			Reddish tan med-fine sand No odor/stain. Oxidized Fe		
16								
17								
18								
19								
20		90	19.6			SAA - some clay		
21								
22								
23								
24								
25								

						Client: Hilcorp Project Name: <u>San Juan 30-6 #11A</u> Project Location: Project Manager: <u>Stuart Hyde</u>		BORING LOG NUMBER <u>BH 11</u> Project No:	
Date Sampled: <u>10-19</u> Drilled By: <u>EnviroDrill</u> Driller: Logged By: <u>AT</u>						Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: Casing Diameter: Well Materials: Surface Completion: Boring Method:	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION		
25		90	164.4			Reddish-Brown coarse sand w/ gravel and clay no odor / stain slight no	B	B	
26									
27									
28									
29									
30		100	248			gray med-fine sand slight odor, potentially sticky w/ clay			
31									
32									
33									
34									
35		100	126.9			Reddish-tan med-fine sand slight odor, no stain w/ clay			
36									
37									
38									
39									
40						SAA - mod odor			
41		100	298						
42									
43									
44									
45		100	78.9			Light tan med-fine sand w/ some clay and oxidized Fe slight odor, no stain.			
46									
47									
48									
49									
50						TD: 45'			



APPENDIX C

Laboratory Analytical Report

Report to:
Stuart Hyde



envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Hilcorp Energy Co

Project Name: LC Kelly #1E

Work Order: E310119

Job Number: 17051-0002

Received: 10/18/2023

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
10/19/23

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com



Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.
Statement of Data Authenticity: Envirotech Inc. attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.
Envirotech Inc. holds the Utah TNI certification NM00979 for data reported.
Envirotech Inc. holds the Texas TNI certification T104704557 for data reported.

Date Reported: 10/19/23

Stuart Hyde
PO Box 61529
Houston, TX 77208



Project Name: LC Kelly #1E
Workorder: E310119
Date Received: 10/18/2023 10:01:00AM

Stuart Hyde,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 10/18/2023 10:01:00AM, under the Project Name: LC Kelly #1E.

The analytical test results summarized in this report with the Project Name: LC Kelly #1E apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues regarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

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Sample Summary

Hilcorp Energy Co	Project Name:	LC Kelly #1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/19/23 17:45

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BH07 @ 30'	E310119-01A	Soil	10/16/23	10/18/23	Glass Jar, 4 oz.
BH07 @ 35'	E310119-02A	Soil	10/16/23	10/18/23	Glass Jar, 4 oz.
BH07 @ 40'	E310119-03A	Soil	10/16/23	10/18/23	Glass Jar, 4 oz.
BH07 @ 45'	E310119-04A	Soil	10/16/23	10/18/23	Glass Jar, 4 oz.
BH08 @ 44-46'	E310119-05A	Soil	10/17/23	10/18/23	Glass Jar, 4 oz.
BH08 @ 48'	E310119-06A	Soil	10/17/23	10/18/23	Glass Jar, 4 oz.



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly #1E	Reported: 10/19/2023 5:45:16PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH07 @ 30'

E310119-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS		Batch: 2342061	
Benzene	ND	0.0250	1	10/18/23	10/18/23	
Ethylbenzene	ND	0.0250	1	10/18/23	10/18/23	
Toluene	ND	0.0250	1	10/18/23	10/18/23	
o-Xylene	ND	0.0250	1	10/18/23	10/18/23	
p,m-Xylene	ND	0.0500	1	10/18/23	10/18/23	
Total Xylenes	ND	0.0250	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene		103 %	70-130	10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4		91.6 %	70-130	10/18/23	10/18/23	
Surrogate: Toluene-d8		97.6 %	70-130	10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS		Batch: 2342061	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene		103 %	70-130	10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4		91.6 %	70-130	10/18/23	10/18/23	
Surrogate: Toluene-d8		97.6 %	70-130	10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: KM		Batch: 2342060	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/18/23	10/18/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/18/23	10/18/23	
Surrogate: n-Nonane		90.4 %	50-200	10/18/23	10/18/23	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: IY		Batch: 2342058	
Chloride	21.4	20.0	1	10/18/23	10/19/23	



Sample Data

Hilcorp Energy Co
PO Box 61529
Houston TX, 77208

Project Name: LC Kelly #1E
Project Number: 17051-0002
Project Manager: Stuart Hyde

Reported:
10/19/2023 5:45:16PM

BH07 @ 35'

E310119-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342061
Benzene	ND	0.0250	1	10/18/23	10/18/23	
Ethylbenzene	ND	0.0250	1	10/18/23	10/18/23	
Toluene	ND	0.0250	1	10/18/23	10/18/23	
o-Xylene	0.0310	0.0250	1	10/18/23	10/18/23	
p,m-Xylene	0.140	0.0500	1	10/18/23	10/18/23	
Total Xylenes	0.171	0.0250	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene		109 %	70-130	10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4		97.0 %	70-130	10/18/23	10/18/23	
Surrogate: Toluene-d8		98.6 %	70-130	10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342061
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene		109 %	70-130	10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4		97.0 %	70-130	10/18/23	10/18/23	
Surrogate: Toluene-d8		98.6 %	70-130	10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: KM		Batch: 2342060
Diesel Range Organics (C10-C28)	61.4	25.0	1	10/18/23	10/19/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/18/23	10/19/23	
Surrogate: n-Nonane		96.5 %	50-200	10/18/23	10/19/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2342058
Chloride	ND	20.0	1	10/18/23	10/19/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly #1E	Reported: 10/19/2023 5:45:16PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH07 @ 40'
E310119-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342061
Benzene	ND	0.0250	1	10/18/23	10/18/23	
Ethylbenzene	0.198	0.0250	1	10/18/23	10/18/23	
Toluene	0.0345	0.0250	1	10/18/23	10/18/23	
o-Xylene	0.599	0.0250	1	10/18/23	10/18/23	
p,m-Xylene	3.12	0.0500	1	10/18/23	10/18/23	
Total Xylenes	3.71	0.0250	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene	90.1 %	70-130		10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4	92.6 %	70-130		10/18/23	10/18/23	
Surrogate: Toluene-d8	108 %	70-130		10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342061
Gasoline Range Organics (C6-C10)	145	20.0	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene	90.1 %	70-130		10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4	92.6 %	70-130		10/18/23	10/18/23	
Surrogate: Toluene-d8	108 %	70-130		10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: KM		Batch: 2342060
Diesel Range Organics (C10-C28)	49.7	25.0	1	10/18/23	10/19/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/18/23	10/19/23	
Surrogate: n-Nonane	101 %	50-200		10/18/23	10/19/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2342058
Chloride	ND	20.0	1	10/18/23	10/19/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly #1E	Reported: 10/19/2023 5:45:16PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH07 @ 45'
E310119-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342061	
Benzene	ND	0.0250	1	10/18/23	10/18/23	
Ethylbenzene	ND	0.0250	1	10/18/23	10/18/23	
Toluene	ND	0.0250	1	10/18/23	10/18/23	
o-Xylene	0.0250	0.0250	1	10/18/23	10/18/23	
p,m-Xylene	0.0945	0.0500	1	10/18/23	10/18/23	
Total Xylenes	0.120	0.0250	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene	102 %	70-130		10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4	93.9 %	70-130		10/18/23	10/18/23	
Surrogate: Toluene-d8	117 %	70-130		10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342061	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene	102 %	70-130		10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4	93.9 %	70-130		10/18/23	10/18/23	
Surrogate: Toluene-d8	117 %	70-130		10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: KM		Batch: 2342060	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/18/23	10/18/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/18/23	10/18/23	
Surrogate: n-Nonane	90.1 %	50-200		10/18/23	10/18/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: IY		Batch: 2342058	
Chloride	ND	20.0	1	10/18/23	10/19/23	



Sample Data

Hilcorp Energy Co
PO Box 61529
Houston TX, 77208

Project Name: LC Kelly #1E
Project Number: 17051-0002
Project Manager: Stuart Hyde

Reported:
10/19/2023 5:45:16PM

BH08 @ 44-46'

E310119-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342061
Benzene	ND	0.0250	1	10/18/23	10/18/23	
Ethylbenzene	ND	0.0250	1	10/18/23	10/18/23	
Toluene	ND	0.0250	1	10/18/23	10/18/23	
o-Xylene	0.0360	0.0250	1	10/18/23	10/18/23	
p,m-Xylene	0.130	0.0500	1	10/18/23	10/18/23	
Total Xylenes	0.166	0.0250	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene		107 %	70-130	10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4		93.3 %	70-130	10/18/23	10/18/23	
Surrogate: Toluene-d8		98.6 %	70-130	10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342061
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene		107 %	70-130	10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4		93.3 %	70-130	10/18/23	10/18/23	
Surrogate: Toluene-d8		98.6 %	70-130	10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: KM		Batch: 2342060
Diesel Range Organics (C10-C28)	41.6	25.0	1	10/18/23	10/18/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/18/23	10/18/23	
Surrogate: n-Nonane		96.4 %	50-200	10/18/23	10/18/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2342058
Chloride	20.9	20.0	1	10/18/23	10/19/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly #1E	Reported: 10/19/2023 5:45:16PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH08 @ 48'
E310119-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342061
Benzene	ND	0.0250	1	10/18/23	10/18/23	
Ethylbenzene	ND	0.0250	1	10/18/23	10/18/23	
Toluene	ND	0.0250	1	10/18/23	10/18/23	
o-Xylene	ND	0.0250	1	10/18/23	10/18/23	
p,m-Xylene	ND	0.0500	1	10/18/23	10/18/23	
Total Xylenes	ND	0.0250	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene	99.1 %	70-130		10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4	95.0 %	70-130		10/18/23	10/18/23	
Surrogate: Toluene-d8	94.1 %	70-130		10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342061
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/18/23	10/18/23	
Surrogate: Bromofluorobenzene	99.1 %	70-130		10/18/23	10/18/23	
Surrogate: 1,2-Dichloroethane-d4	95.0 %	70-130		10/18/23	10/18/23	
Surrogate: Toluene-d8	94.1 %	70-130		10/18/23	10/18/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: KM		Batch: 2342060
Diesel Range Organics (C10-C28)	ND	25.0	1	10/18/23	10/18/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/18/23	10/18/23	
Surrogate: n-Nonane	93.3 %	50-200		10/18/23	10/18/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2342058
Chloride	ND	20.0	1	10/18/23	10/19/23	



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly #1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/19/2023 5:45:16PM

Volatile Organic Compounds by EPA 8260B

Analyst: RKS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

Blank (2342061-BLK1) Prepared: 10/18/23 Analyzed: 10/18/23

Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: Bromofluorobenzene	0.547		0.500		109	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.473		0.500		94.6	70-130			
Surrogate: Toluene-d8	0.480		0.500		96.0	70-130			

LCS (2342061-BS1) Prepared: 10/18/23 Analyzed: 10/18/23

Benzene	2.54	0.0250	2.50		102	70-130			
Ethylbenzene	2.60	0.0250	2.50		104	70-130			
Toluene	2.49	0.0250	2.50		99.7	70-130			
o-Xylene	2.66	0.0250	2.50		106	70-130			
p,m-Xylene	5.23	0.0500	5.00		105	70-130			
Total Xylenes	7.88	0.0250	7.50		105	70-130			
Surrogate: Bromofluorobenzene	0.506		0.500		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.466		0.500		93.2	70-130			
Surrogate: Toluene-d8	0.485		0.500		97.0	70-130			

Matrix Spike (2342061-MS1) Source: E310119-04 Prepared: 10/18/23 Analyzed: 10/18/23

Benzene	2.55	0.0250	2.50	ND	102	48-131			
Ethylbenzene	2.60	0.0250	2.50	ND	104	45-135			
Toluene	2.30	0.0250	2.50	ND	92.1	48-130			
o-Xylene	2.66	0.0250	2.50	0.0250	105	43-135			
p,m-Xylene	5.43	0.0500	5.00	0.0945	107	43-135			
Total Xylenes	8.09	0.0250	7.50	0.120	106	43-135			
Surrogate: Bromofluorobenzene	0.530		0.500		106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.473		0.500		94.6	70-130			
Surrogate: Toluene-d8	0.457		0.500		91.3	70-130			

Matrix Spike Dup (2342061-MSD1) Source: E310119-04 Prepared: 10/18/23 Analyzed: 10/18/23

Benzene	2.59	0.0250	2.50	ND	104	48-131	1.69	23	
Ethylbenzene	2.64	0.0250	2.50	ND	106	45-135	1.55	27	
Toluene	2.77	0.0250	2.50	ND	111	48-130	18.5	24	
o-Xylene	2.67	0.0250	2.50	0.0250	106	43-135	0.470	27	
p,m-Xylene	5.31	0.0500	5.00	0.0945	104	43-135	2.25	27	
Total Xylenes	7.98	0.0250	7.50	0.120	105	43-135	1.35	27	
Surrogate: Bromofluorobenzene	0.509		0.500		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.480		0.500		95.9	70-130			
Surrogate: Toluene-d8	0.535		0.500		107	70-130			



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly #1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/19/2023 5:45:16PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: RKS

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2342061-BLK1) Prepared: 10/18/23 Analyzed: 10/18/23

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: Bromofluorobenzene	0.547		0.500		109	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.473		0.500		94.6	70-130			
Surrogate: Toluene-d8	0.480		0.500		96.0	70-130			

LCS (2342061-BS2) Prepared: 10/18/23 Analyzed: 10/18/23

Gasoline Range Organics (C6-C10)	57.8	20.0	50.0		116	70-130			
Surrogate: Bromofluorobenzene	0.554		0.500		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.494		0.500		98.7	70-130			
Surrogate: Toluene-d8	0.479		0.500		95.7	70-130			

Matrix Spike (2342061-MS2) Source: E310119-04 Prepared: 10/18/23 Analyzed: 10/18/23

Gasoline Range Organics (C6-C10)	65.0	20.0	50.0	ND	130	70-130			
Surrogate: Bromofluorobenzene	0.470		0.500		93.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.470		0.500		94.0	70-130			
Surrogate: Toluene-d8	0.497		0.500		99.4	70-130			

Matrix Spike Dup (2342061-MSD2) Source: E310119-04 Prepared: 10/18/23 Analyzed: 10/18/23

Gasoline Range Organics (C6-C10)	54.8	20.0	50.0	ND	110	70-130	17.1	20	
Surrogate: Bromofluorobenzene	0.508		0.500		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.460		0.500		92.0	70-130			
Surrogate: Toluene-d8	0.502		0.500		100	70-130			



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly #1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/19/2023 5:45:16PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: KM

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2342060-BLK1)					Prepared: 10/18/23 Analyzed: 10/18/23				
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	49.5		50.0		99.1	50-200			

LCS (2342060-BS1)					Prepared: 10/18/23 Analyzed: 10/18/23				
Diesel Range Organics (C10-C28)	269	25.0	250		108	38-132			
Surrogate: n-Nonane	46.6		50.0		93.2	50-200			

Matrix Spike (2342060-MS1)					Source: E310119-03		Prepared: 10/18/23 Analyzed: 10/19/23		
Diesel Range Organics (C10-C28)	327	25.0	250	49.7	111	38-132			
Surrogate: n-Nonane	50.5		50.0		101	50-200			

Matrix Spike Dup (2342060-MSD1)					Source: E310119-03		Prepared: 10/18/23 Analyzed: 10/19/23		
Diesel Range Organics (C10-C28)	341	25.0	250	49.7	117	38-132	4.17	20	
Surrogate: n-Nonane	51.4		50.0		103	50-200			



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly #1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/19/2023 5:45:16PM

Anions by EPA 300.0/9056A

Analyst: IY

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

Blank (2342058-BLK1)					Prepared: 10/18/23 Analyzed: 10/18/23				
Chloride	ND	20.0							
LCS (2342058-BS1)					Prepared: 10/18/23 Analyzed: 10/18/23				
Chloride	248	20.0	250		99.1	90-110			
Matrix Spike (2342058-MS1)					Source: E310118-04		Prepared: 10/18/23 Analyzed: 10/18/23		
Chloride	263	20.0	250	ND	105	80-120			
Matrix Spike Dup (2342058-MSD1)					Source: E310118-04		Prepared: 10/18/23 Analyzed: 10/18/23		
Chloride	265	20.0	250	ND	106	80-120	0.939	20	

QC Summary Report Comment:
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures.
Therefore, hand calculated values may differ slightly.



Definitions and Notes

Hilcorp Energy Co	Project Name:	LC Kelly #1E	
PO Box 61529	Project Number:	17051-0002	Reported:
Houston TX, 77208	Project Manager:	Stuart Hyde	10/19/23 17:45

- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- RPD Relative Percent Difference
- DNI Did Not Ignite
- DNR Did not react with the addition of acid or base.

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.



Chain of Custody

Page 1 of 1

Client Information					Invoice Information			Lab Use Only		TAT				State				
Client: Hilcorp Energy Company					Company: Hilcorp			Lab WO#	Job Number	1D	2D	3D	Std	NM	CO	UT	TX	
Project Name: L C Kelly 1E					Address: 1111 Travis St			E310119	17051-0002	X								
Project Manager: Stuart Hyde					City, State, Zip: Houston, TX													
Address:					Phone: 713-757-5247													
City, State, Zip:					Email: mkillough@hilcorp.com													
Phone: 970-903-1607																		
Email: shyde@ensolum.com																		
Sample Information								Analysis and Method								EPA Program		
Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/DRO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCEQ 1005 - TX	RCRA 8 Metals	SDWA	CWA	RCRA	
1300	10/16/23	Soil	14oz	BH07@30'		1	X	X	X		X							
1320				BH07@35'		2	X	X	X		X							
1340				BH07@40'		3	X	X	X		X							
1430				BH07@45'		4	X	X	X		X							
1540	10/17			BH08@44-46'		5	X	X	X		X							
1600	10/17			BH08@48'		6	X	X	X		X							
Additional Instructions: Rush TAT - 10/19 in the AM Area 2																		
I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.																		
Sampled by: Zach Myers / Al Thomson																		
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Date	Time	Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days. Lab Use Only Received on ice: <input checked="" type="radio"/> Y / <input type="radio"/> N T1 _____ T2 _____ T3 _____ AVG Temp °C 4										
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Date	Time											
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Date	Time											
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Date	Time											
Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other										Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA								
Note: Samples are discarded 14 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.																		



Envirotech Analytical Laboratory

Printed: 10/18/2023 10:11:16AM

Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.

If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Hilcorp Energy Co	Date Received:	10/18/23 10:01	Work Order ID:	E310119
Phone:	-	Date Logged In:	10/18/23 10:04	Logged In By:	Caitlin Mars
Email:	shyde@ensolum.com	Due Date:	10/19/23 17:00 (1 day TAT)		

Chain of Custody (COC)

1. Does the sample ID match the COC? Yes
2. Does the number of samples per sampling site location match the COC? Yes
3. Were samples dropped off by client or carrier? Yes
4. Was the COC complete, i.e., signatures, dates/times, requested analyses? Yes
5. Were all samples received within holding time? Yes

Note: Analysis, such as pH which should be conducted in the field, i.e., 15 minute hold time, are not included in this discussion.

Carrier: ReeseComments/Resolution

Additional Instructions from client- 10/19 in the AM.

Sample Turn Around Time (TAT)

6. Did the COC indicate standard TAT, or Expedited TAT? Yes

Sample Cooler

7. Was a sample cooler received? Yes
8. If yes, was cooler received in good condition? Yes
9. Was the sample(s) received intact, i.e., not broken? Yes
10. Were custody/security seals present? No
11. If yes, were custody/security seals intact? NA
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C Yes

Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling

13. If no visible ice, record the temperature. Actual sample temperature: 4°C

Sample Container

14. Are aqueous VOC samples present? No
15. Are VOC samples collected in VOA Vials? NA
16. Is the head space less than 6-8 mm (pea sized or less)? NA
17. Was a trip blank (TB) included for VOC analyses? NA
18. Are non-VOC samples collected in the correct containers? Yes
19. Is the appropriate volume/weight or number of sample containers collected? Yes

Field Label

20. Were field sample labels filled out with the minimum information:
 - Sample ID? Yes
 - Date/Time Collected? Yes
 - Collectors name? Yes

Sample Preservation

21. Does the COC or field labels indicate the samples were preserved? No
22. Are sample(s) correctly preserved? NA
24. Is lab filtration required and/or requested for dissolved metals? No

Multiphase Sample Matrix

26. Does the sample have more than one phase, i.e., multiphase? No
27. If yes, does the COC specify which phase(s) is to be analyzed? NA

Subcontract Laboratory

28. Are samples required to get sent to a subcontract laboratory? No
29. Was a subcontract laboratory specified by the client and if so who? NA Subcontract Lab: NA

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date



envirotech Inc.

Report to:
Stuart Hyde



envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Hilcorp Energy Co

Project Name: LC Kelly 1E

Work Order: E310177

Job Number: 17051-0002

Received: 10/19/2023

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
10/20/23

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com



Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.
Statement of Data Authenticity: Envirotech Inc. attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.
Envirotech Inc. holds the Utah TNI certification NM00979 for data reported.
Envirotech Inc. holds the Texas TNI certification T104704557 for data reported.

Date Reported: 10/20/23

Stuart Hyde
PO Box 61529
Houston, TX 77208



Project Name: LC Kelly 1E
Workorder: E310177
Date Received: 10/19/2023 11:08:00AM

Stuart Hyde,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 10/19/2023 11:08:00AM, under the Project Name: LC Kelly 1E.

The analytical test results summarized in this report with the Project Name: LC Kelly 1E apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues regarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman
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Cell: 775-287-1762
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Sample Summary

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/20/23 14:19
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BH09 @ 25'	E310177-01A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.
BH09 @ 30'	E310177-02A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.
BH09 @ 35'	E310177-03A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.
BH09 @ 40'	E310177-04A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.
BH09 @ 45'	E310177-05A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/20/2023 2:19:54PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH09 @ 25'
E310177-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	ND	0.0250	1	10/19/23	10/20/23	
Toluene	ND	0.0250	1	10/19/23	10/20/23	
o-Xylene	ND	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	ND	0.0500	1	10/19/23	10/20/23	
Total Xylenes	ND	0.0250	1	10/19/23	10/20/23	
Surrogate: 4-Bromochlorobenzene-PID	95.9 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
Surrogate: 1-Chloro-4-fluorobenzene-FID	90.3 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: KM		Batch: 2342090	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/19/23	10/19/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/19/23	10/19/23	
Surrogate: n-Nonane	96.7 %	50-200		10/19/23	10/19/23	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: IY		Batch: 2342077	
Chloride	55.2	20.0	1	10/19/23	10/20/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/20/2023 2:19:54PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH09 @ 30'
E310177-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Benzene	ND	0.0250	1	10/19/23	10/19/23	
Ethylbenzene	ND	0.0250	1	10/19/23	10/19/23	
Toluene	ND	0.0250	1	10/19/23	10/19/23	
o-Xylene	ND	0.0250	1	10/19/23	10/19/23	
p,m-Xylene	ND	0.0500	1	10/19/23	10/19/23	
Total Xylenes	ND	0.0250	1	10/19/23	10/19/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	93.9 %	70-130		10/19/23	10/19/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/19/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	90.4 %	70-130		10/19/23	10/19/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: KM		Batch: 2342090	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/19/23	10/19/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/19/23	10/19/23	
<i>Surrogate: n-Nonane</i>						
	95.1 %	50-200		10/19/23	10/19/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: IY		Batch: 2342077	
Chloride	44.0	20.0	1	10/19/23	10/19/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/20/2023 2:19:54PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH09 @ 35'
E310177-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	0.0537	0.0250	1	10/19/23	10/20/23	
Toluene	0.0702	0.0250	1	10/19/23	10/20/23	
o-Xylene	0.0999	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	0.696	0.0500	1	10/19/23	10/20/23	
Total Xylenes	0.796	0.0250	1	10/19/23	10/20/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	99.8 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	89.9 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: KM		Batch: 2342090	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/19/23	10/19/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/19/23	10/19/23	
<i>Surrogate: n-Nonane</i>						
	98.0 %	50-200		10/19/23	10/19/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: IY		Batch: 2342077	
Chloride	27.7	20.0	1	10/19/23	10/20/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/20/2023 2:19:54PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH09 @ 40'
E310177-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342089
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	0.0435	0.0250	1	10/19/23	10/20/23	
Toluene	0.138	0.0250	1	10/19/23	10/20/23	
o-Xylene	0.0981	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	0.492	0.0500	1	10/19/23	10/20/23	
Total Xylenes	0.590	0.0250	1	10/19/23	10/20/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	97.1 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342089
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	89.6 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: KM		Batch: 2342090
Diesel Range Organics (C10-C28)	ND	25.0	1	10/19/23	10/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/19/23	10/20/23	
<i>Surrogate: n-Nonane</i>						
	92.1 %	50-200		10/19/23	10/20/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2342077
Chloride	23.6	20.0	1	10/19/23	10/20/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/20/2023 2:19:54PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH09 @ 45'
E310177-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	ND	0.0250	1	10/19/23	10/20/23	
Toluene	ND	0.0250	1	10/19/23	10/20/23	
o-Xylene	ND	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	ND	0.0500	1	10/19/23	10/20/23	
Total Xylenes	ND	0.0250	1	10/19/23	10/20/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	96.2 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	91.4 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: KM		Batch: 2342090	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/19/23	10/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/19/23	10/20/23	
<i>Surrogate: n-Nonane</i>						
	91.6 %	50-200		10/19/23	10/20/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: IY		Batch: 2342077	
Chloride	24.1	20.0	1	10/19/23	10/20/23	



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/20/2023 2:19:54PM

Volatile Organics by EPA 8021B

Analyst: RKS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

Blank (2342089-BLK1) Prepared: 10/19/23 Analyzed: 10/20/23

Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: 4-Bromochlorobenzene-PID	7.60		8.00		95.0	70-130			

LCS (2342089-BS1) Prepared: 10/19/23 Analyzed: 10/20/23

Benzene	4.72	0.0250	5.00		94.4	70-130			
Ethylbenzene	4.53	0.0250	5.00		90.5	70-130			
Toluene	4.71	0.0250	5.00		94.2	70-130			
o-Xylene	4.67	0.0250	5.00		93.3	70-130			
p,m-Xylene	9.37	0.0500	10.0		93.7	70-130			
Total Xylenes	14.0	0.0250	15.0		93.5	70-130			
Surrogate: 4-Bromochlorobenzene-PID	7.67		8.00		95.9	70-130			

Matrix Spike (2342089-MS1) Source: E310177-01 Prepared: 10/19/23 Analyzed: 10/20/23

Benzene	4.70	0.0250	5.00	ND	93.9	54-133			
Ethylbenzene	4.49	0.0250	5.00	ND	89.8	61-133			
Toluene	4.68	0.0250	5.00	ND	93.5	61-130			
o-Xylene	4.64	0.0250	5.00	ND	92.7	63-131			
p,m-Xylene	9.29	0.0500	10.0	ND	92.9	63-131			
Total Xylenes	13.9	0.0250	15.0	ND	92.8	63-131			
Surrogate: 4-Bromochlorobenzene-PID	7.68		8.00		96.0	70-130			

Matrix Spike Dup (2342089-MSD1) Source: E310177-01 Prepared: 10/19/23 Analyzed: 10/20/23

Benzene	4.98	0.0250	5.00	ND	99.5	54-133	5.80	20	
Ethylbenzene	4.77	0.0250	5.00	ND	95.4	61-133	6.00	20	
Toluene	4.96	0.0250	5.00	ND	99.2	61-130	5.89	20	
o-Xylene	4.90	0.0250	5.00	ND	97.9	63-131	5.45	20	
p,m-Xylene	9.85	0.0500	10.0	ND	98.5	63-131	5.82	20	
Total Xylenes	14.7	0.0250	15.0	ND	98.3	63-131	5.70	20	
Surrogate: 4-Bromochlorobenzene-PID	7.67		8.00		95.9	70-130			



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/20/2023 2:19:54PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: RKS

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2342089-BLK1) Prepared: 10/19/23 Analyzed: 10/20/23

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.25		8.00		90.6	70-130			

LCS (2342089-BS2) Prepared: 10/19/23 Analyzed: 10/20/23

Gasoline Range Organics (C6-C10)	46.4	20.0	50.0		92.8	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.34		8.00		91.7	70-130			

Matrix Spike (2342089-MS2) Source: E310177-01 Prepared: 10/19/23 Analyzed: 10/20/23

Gasoline Range Organics (C6-C10)	45.3	20.0	50.0	ND	90.6	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.33		8.00		91.6	70-130			

Matrix Spike Dup (2342089-MSD2) Source: E310177-01 Prepared: 10/19/23 Analyzed: 10/20/23

Gasoline Range Organics (C6-C10)	44.9	20.0	50.0	ND	89.7	70-130	0.938	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.34		8.00		91.8	70-130			



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/20/2023 2:19:54PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: KM

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2342090-BLK1)					Prepared: 10/19/23 Analyzed: 10/19/23				
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	50.6		50.0		101	50-200			

LCS (2342090-BS1)					Prepared: 10/19/23 Analyzed: 10/19/23				
Diesel Range Organics (C10-C28)	253	25.0	250		101	38-132			
Surrogate: n-Nonane	53.5		50.0		107	50-200			

Matrix Spike (2342090-MS1)				Source: E310177-04		Prepared: 10/19/23 Analyzed: 10/19/23			
Diesel Range Organics (C10-C28)	263	25.0	250	ND	105	38-132			
Surrogate: n-Nonane	50.2		50.0		100	50-200			

Matrix Spike Dup (2342090-MSD1)				Source: E310177-04		Prepared: 10/19/23 Analyzed: 10/19/23			
Diesel Range Organics (C10-C28)	265	25.0	250	ND	106	38-132	0.508	20	
Surrogate: n-Nonane	52.2		50.0		104	50-200			



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/20/2023 2:19:54PM

Anions by EPA 300.0/9056A

Analyst: IY

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2342077-BLK1)					Prepared: 10/19/23 Analyzed: 10/20/23				
Chloride	ND	20.0							
LCS (2342077-BS1)					Prepared: 10/19/23 Analyzed: 10/20/23				
Chloride	253	20.0	250		101	90-110			
Matrix Spike (2342077-MS1)					Source: E310127-01		Prepared: 10/19/23 Analyzed: 10/20/23		
Chloride	688	20.0	250	253	174	80-120			M1
Matrix Spike Dup (2342077-MSD1)					Source: E310127-01		Prepared: 10/19/23 Analyzed: 10/20/23		
Chloride	732	20.0	250	253	192	80-120	6.32	20	M1

QC Summary Report Comment:
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures.
Therefore, hand calculated values may differ slightly.



Definitions and Notes

Hilcorp Energy Co	Project Name:	LC Kelly 1E	
PO Box 61529	Project Number:	17051-0002	Reported:
Houston TX, 77208	Project Manager:	Stuart Hyde	10/20/23 14:19

- M1 Matrix spike recovery was above acceptance limits. The associated LCS spike recovery was acceptable.
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- RPD Relative Percent Difference
- DNI Did Not Ignite
- DNR Did not react with the addition of acid or base.

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.

Client Information				Invoice Information				Lab Use Only				TAT				State							
Client: Hilcorp				Company: Hilcorp				Lab WO# E31077				Job Number 17051-0002				NM CO UT TX							
Project Name: Stuart Hyde				Address: 1111 Travis St								1D 2D 3D Std				X							
Project Manager: K Kelly TE				City, State, Zip: Houston TX																			
Address:				Phone: 713-757-3247																			
City, State, Zip:				Email: mkillough@hilcorp																			
Phone:				Miscellaneous: Area 2																			
Email: sh Hyde@ensolum.com																							
Sample Information												Analysis and Method								EPA Program			
Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCEQ 1005 - TX	RCRA 8 Metals	SDWA	CWA	RCRA						
1100	10/18/23	Soil	1-4oz	BH09 @ 25'		1	X	X	X														
1115				BH09 @ 30'		2	X	X	X														
1130				BH09 @ 35'		3	X	X	X														
1200				BH09 @ 40'		4	X	X	X														
1330				BH09 @ 45'		5	X	X	X														
Additional Instructions: Rush results by 10/20 AM via ice cooler.																							
I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.																							
Sampled by: Al Thomson by 10:00 AM																							
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time		Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days. Lab Use Only Received on ice: (Y) N T1 T2 T3 AVG Temp °C 4.0											
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time													
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time													
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time													
Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other																							
Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA																							
Note: Samples are discarded 14 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.																							



Envirotech Analytical Laboratory

Printed: 10/19/2023 11:28:57AM

Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.

If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Hilcorp Energy Co	Date Received:	10/19/23 11:08	Work Order ID:	E310177
Phone:	-	Date Logged In:	10/19/23 11:23	Logged In By:	Caitlin Mars
Email:	shyde@ensolum.com	Due Date:	10/20/23 17:00 (1 day TAT)		

Chain of Custody (COC)

1. Does the sample ID match the COC? Yes
2. Does the number of samples per sampling site location match the COC? Yes
3. Were samples dropped off by client or carrier? Yes
4. Was the COC complete, i.e., signatures, dates/times, requested analyses? Yes
5. Were all samples received within holding time? Yes

Note: Analysis, such as pH which should be conducted in the field, i.e., 15 minute hold time, are not included in this discussion.

Carrier: ReeseComments/Resolution

Client remarks: Sample 1,3,4,5 Standard TAT. Sample #2 Rush TAT

Sample Turn Around Time (TAT)

6. Did the COC indicate standard TAT, or Expedited TAT? Yes

Sample Cooler

7. Was a sample cooler received? Yes
8. If yes, was cooler received in good condition? Yes
9. Was the sample(s) received intact, i.e., not broken? Yes
10. Were custody/security seals present? No
11. If yes, were custody/security seals intact? NA
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C Yes

Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling

13. If no visible ice, record the temperature. Actual sample temperature: 4°C

Sample Container

14. Are aqueous VOC samples present? No
15. Are VOC samples collected in VOA Vials? NA
16. Is the head space less than 6-8 mm (pea sized or less)? NA
17. Was a trip blank (TB) included for VOC analyses? NA
18. Are non-VOC samples collected in the correct containers? Yes
19. Is the appropriate volume/weight or number of sample containers collected? Yes

Field Label

20. Were field sample labels filled out with the minimum information:
 - Sample ID? Yes
 - Date/Time Collected? Yes
 - Collectors name? Yes

Sample Preservation

21. Does the COC or field labels indicate the samples were preserved? No
22. Are sample(s) correctly preserved? NA
24. Is lab filtration required and/or requested for dissolved metals? No

Multiphase Sample Matrix

26. Does the sample have more than one phase, i.e., multiphase? No
27. If yes, does the COC specify which phase(s) is to be analyzed? NA

Subcontract Laboratory

28. Are samples required to get sent to a subcontract laboratory? No
29. Was a subcontract laboratory specified by the client and if so who? NA Subcontract Lab: na

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date



envirotech Inc.

Chain of Custody

Page 1 of 1

Client Information					Invoice Information		Lab Use Only		TAT		State							
Client: <u>Hilcorp</u>					Company: <u>Hilcorp</u>		Lab WO#	Job Number	1D	2D	3D	Std	NM	CO	UT	TX		
Project Name: <u>Stuart Hyde</u>					Address: <u>1111 Travis St</u>		<u>E31077</u>	<u>7051-0002</u>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Project Manager: <u>K Kelly TE</u>					City, State, Zip: <u>Houston TX</u>													
Address:					Phone: <u>713-757-5247</u>													
City, State, Zip:					Email: <u>m.killough@hilcorp</u>													
Phone:					Miscellaneous: <u>Area 2</u>													
Email: <u>shyde@ensolum.com</u>																		
Sample Information							Analysis and Method						EPA Program					
Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCEQ 1005 - TX	RCRA 8 Metals	SDWA	CWA	RCRA	
1100	10/18/23	Soil	1-4oz	BH09 @ 25'		1	X	X	X		X							Standard TAT
1115	↓	↓	↓	BH09 @ 30'		2	X	X	X		X							★ Rush TAT
1130	↓	↓	↓	BH09 @ 35'		3	X	X	X		X							Standard TAT
1200	↓	↓	↓	BH09 @ 40'		4	X	X	X		X							↓
1330	↓	↓	↓	BH09 @ 45'		5	X	X	X		X							↓
																		Client asked to add Chlorides.
																		10/19/23 CMU
Additional Instructions: <u>Rush results by 10/20 AM via ice cooler.</u>																		
I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.																		
Sampled by: <u>Al Thomson</u> by <u>10/20 AM</u>																		
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time		Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent date. Lab Use Only Received on ice: <input checked="" type="checkbox"/> Y / N T1 _____ T2 _____ T3 _____ AVG Temp °C <u>4.0</u>						
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time								
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time								
Relinquished by: (Signature)		Date		Time		Received by: (Signature)		Date		Time								
Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other																		
Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA																		
Note: Samples are discarded 14 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.																		



envirotech

Report to:
Stuart Hyde



envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Hilcorp Energy Co

Project Name: LC Kelly 1E

Work Order: E310181

Job Number: 17051-0002

Received: 10/19/2023

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
10/26/23

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com



Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.
Statement of Data Authenticity: Envirotech Inc. attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.
Envirotech Inc. holds the Utah TNI certification NM00979 for data reported.
Envirotech Inc. holds the Texas TNI certification T104704557 for data reported.

Date Reported: 10/26/23

Stuart Hyde
PO Box 61529
Houston, TX 77208



Project Name: LC Kelly 1E
Workorder: E310181
Date Received: 10/19/2023 4:15:00PM

Stuart Hyde,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 10/19/2023 4:15:00PM, under the Project Name: LC Kelly 1E.

The analytical test results summarized in this report with the Project Name: LC Kelly 1E apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues regarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman
Laboratory Director
Office: 505-632-1881
Cell: 775-287-1762
whinchman@envirotech-inc.com

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Sample Summary

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/26/23 14:15
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BH10 @ 5'	E310181-01A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.
BH10 @ 10'	E310181-02A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.
BH10 @ 25'	E310181-03A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.
BH10 @ 35'	E310181-04A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.
BH11 @ 25'	E310181-05A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.
BH11 @ 30'	E310181-06A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.
BH11 @ 40'	E310181-07A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.
BH11 @ 45'	E310181-08A	Soil	10/18/23	10/19/23	Glass Jar, 4 oz.



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	
PO Box 61529	Project Number:	17051-0002	Reported:
Houston TX, 77208	Project Manager:	Stuart Hyde	10/26/2023 2:15:36PM

BH10 @ 5'

E310181-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg		Analyst: RKS		Batch: 2342089
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	ND	0.0250	1	10/19/23	10/20/23	
Toluene	ND	0.0250	1	10/19/23	10/20/23	
o-Xylene	ND	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	ND	0.0500	1	10/19/23	10/20/23	
Total Xylenes	ND	0.0250	1	10/19/23	10/20/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>	96.4 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg		Analyst: RKS		Batch: 2342089
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>	88.4 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg		Analyst: KM		Batch: 2342115
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/23	10/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/23	10/20/23	
<i>Surrogate: n-Nonane</i>	106 %	50-200		10/20/23	10/20/23	
Anions by EPA 300.0/9056A	mg/kg	mg/kg		Analyst: RAS		Batch: 2343051
Chloride	ND	20.0	1	10/24/23	10/25/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/26/2023 2:15:36PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH10 @ 10'
E310181-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	ND	0.0250	1	10/19/23	10/20/23	
Toluene	ND	0.0250	1	10/19/23	10/20/23	
o-Xylene	ND	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	ND	0.0500	1	10/19/23	10/20/23	
Total Xylenes	ND	0.0250	1	10/19/23	10/20/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	96.4 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	87.4 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: KM		Batch: 2342115	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/23	10/21/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/23	10/21/23	
<i>Surrogate: n-Nonane</i>						
	107 %	50-200		10/20/23	10/21/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2343051	
Chloride	ND	20.0	1	10/24/23	10/25/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/26/2023 2:15:36PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH10 @ 25'
E310181-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	ND	0.0250	1	10/19/23	10/20/23	
Toluene	ND	0.0250	1	10/19/23	10/20/23	
o-Xylene	ND	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	ND	0.0500	1	10/19/23	10/20/23	
Total Xylenes	ND	0.0250	1	10/19/23	10/20/23	
Surrogate: 4-Bromochlorobenzene-PID	95.5 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
Surrogate: 1-Chloro-4-fluorobenzene-FID	89.0 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: KM		Batch: 2342115	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/23	10/21/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/23	10/21/23	
Surrogate: n-Nonane	105 %	50-200		10/20/23	10/21/23	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: RAS		Batch: 2343051	
Chloride	ND	20.0	1	10/24/23	10/25/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/26/2023 2:15:36PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH10 @ 35'
E310181-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	ND	0.0250	1	10/19/23	10/20/23	
Toluene	ND	0.0250	1	10/19/23	10/20/23	
o-Xylene	ND	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	ND	0.0500	1	10/19/23	10/20/23	
Total Xylenes	ND	0.0250	1	10/19/23	10/20/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	95.8 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	89.1 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: KM		Batch: 2342115	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/23	10/21/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/23	10/21/23	
<i>Surrogate: n-Nonane</i>						
	108 %	50-200		10/20/23	10/21/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2343051	
Chloride	ND	20.0	1	10/24/23	10/25/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/26/2023 2:15:36PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH11 @ 25'
E310181-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	ND	0.0250	1	10/19/23	10/20/23	
Toluene	ND	0.0250	1	10/19/23	10/20/23	
o-Xylene	ND	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	ND	0.0500	1	10/19/23	10/20/23	
Total Xylenes	ND	0.0250	1	10/19/23	10/20/23	
Surrogate: 4-Bromochlorobenzene-PID	97.1 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
Surrogate: 1-Chloro-4-fluorobenzene-FID	88.9 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: KM		Batch: 2342115	
Diesel Range Organics (C10-C28)	25.4	25.0	1	10/20/23	10/21/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/23	10/21/23	
Surrogate: n-Nonane	104 %	50-200		10/20/23	10/21/23	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: RAS		Batch: 2343051	
Chloride	ND	20.0	1	10/24/23	10/25/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/26/2023 2:15:36PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH11 @ 30'
E310181-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	ND	0.0250	1	10/19/23	10/20/23	
Toluene	ND	0.0250	1	10/19/23	10/20/23	
o-Xylene	ND	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	ND	0.0500	1	10/19/23	10/20/23	
Total Xylenes	ND	0.0250	1	10/19/23	10/20/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	95.5 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2342089	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	90.0 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: KM		Batch: 2342115	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/23	10/21/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/23	10/21/23	
<i>Surrogate: n-Nonane</i>						
	110 %	50-200		10/20/23	10/21/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2343051	
Chloride	ND	20.0	1	10/24/23	10/25/23	



Sample Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported: 10/26/2023 2:15:36PM
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	

BH11 @ 40'
E310181-07

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342089
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	ND	0.0250	1	10/19/23	10/20/23	
Toluene	ND	0.0250	1	10/19/23	10/20/23	
o-Xylene	ND	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	ND	0.0500	1	10/19/23	10/20/23	
Total Xylenes	ND	0.0250	1	10/19/23	10/20/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	95.4 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342089
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	90.2 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: KM		Batch: 2342115
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/23	10/21/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/23	10/21/23	
<i>Surrogate: n-Nonane</i>						
	108 %	50-200		10/20/23	10/21/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2343051
Chloride	ND	20.0	1	10/24/23	10/25/23	



Sample Data

Hilcorp Energy Co
PO Box 61529
Houston TX, 77208

Project Name: LC Kelly 1E
Project Number: 17051-0002
Project Manager: Stuart Hyde

Reported:
10/26/2023 2:15:36PM

BH11 @ 45'**E310181-08**

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342089
Benzene	ND	0.0250	1	10/19/23	10/20/23	
Ethylbenzene	ND	0.0250	1	10/19/23	10/20/23	
Toluene	ND	0.0250	1	10/19/23	10/20/23	
o-Xylene	ND	0.0250	1	10/19/23	10/20/23	
p,m-Xylene	ND	0.0500	1	10/19/23	10/20/23	
Total Xylenes	ND	0.0250	1	10/19/23	10/20/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	95.2 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2342089
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/19/23	10/20/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	89.4 %	70-130		10/19/23	10/20/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: KM		Batch: 2342115
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/23	10/21/23	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/23	10/21/23	
<i>Surrogate: n-Nonane</i>						
	100 %	50-200		10/20/23	10/21/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2343051
Chloride	ND	20.0	1	10/24/23	10/25/23	



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/26/2023 2:15:36PM

Volatile Organics by EPA 8021B

Analyst: RKS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

Blank (2342089-BLK1) Prepared: 10/19/23 Analyzed: 10/20/23

Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: 4-Bromochlorobenzene-PID	7.60		8.00		95.0	70-130			

LCS (2342089-BS1) Prepared: 10/19/23 Analyzed: 10/20/23

Benzene	4.72	0.0250	5.00		94.4	70-130			
Ethylbenzene	4.53	0.0250	5.00		90.5	70-130			
Toluene	4.71	0.0250	5.00		94.2	70-130			
o-Xylene	4.67	0.0250	5.00		93.3	70-130			
p,m-Xylene	9.37	0.0500	10.0		93.7	70-130			
Total Xylenes	14.0	0.0250	15.0		93.5	70-130			
Surrogate: 4-Bromochlorobenzene-PID	7.67		8.00		95.9	70-130			

Matrix Spike (2342089-MS1) Source: E310177-01 Prepared: 10/19/23 Analyzed: 10/20/23

Benzene	4.70	0.0250	5.00	ND	93.9	54-133			
Ethylbenzene	4.49	0.0250	5.00	ND	89.8	61-133			
Toluene	4.68	0.0250	5.00	ND	93.5	61-130			
o-Xylene	4.64	0.0250	5.00	ND	92.7	63-131			
p,m-Xylene	9.29	0.0500	10.0	ND	92.9	63-131			
Total Xylenes	13.9	0.0250	15.0	ND	92.8	63-131			
Surrogate: 4-Bromochlorobenzene-PID	7.68		8.00		96.0	70-130			

Matrix Spike Dup (2342089-MSD1) Source: E310177-01 Prepared: 10/19/23 Analyzed: 10/20/23

Benzene	4.98	0.0250	5.00	ND	99.5	54-133	5.80	20	
Ethylbenzene	4.77	0.0250	5.00	ND	95.4	61-133	6.00	20	
Toluene	4.96	0.0250	5.00	ND	99.2	61-130	5.89	20	
o-Xylene	4.90	0.0250	5.00	ND	97.9	63-131	5.45	20	
p,m-Xylene	9.85	0.0500	10.0	ND	98.5	63-131	5.82	20	
Total Xylenes	14.7	0.0250	15.0	ND	98.3	63-131	5.70	20	
Surrogate: 4-Bromochlorobenzene-PID	7.67		8.00		95.9	70-130			



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/26/2023 2:15:36PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: RKS

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2342089-BLK1) Prepared: 10/19/23 Analyzed: 10/20/23

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.25		8.00		90.6	70-130			

LCS (2342089-BS2) Prepared: 10/19/23 Analyzed: 10/20/23

Gasoline Range Organics (C6-C10)	46.4	20.0	50.0		92.8	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.34		8.00		91.7	70-130			

Matrix Spike (2342089-MS2) Source: E310177-01 Prepared: 10/19/23 Analyzed: 10/20/23

Gasoline Range Organics (C6-C10)	45.3	20.0	50.0	ND	90.6	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.33		8.00		91.6	70-130			

Matrix Spike Dup (2342089-MSD2) Source: E310177-01 Prepared: 10/19/23 Analyzed: 10/20/23

Gasoline Range Organics (C6-C10)	44.9	20.0	50.0	ND	89.7	70-130	0.938	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.34		8.00		91.8	70-130			



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/26/2023 2:15:36PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: KM

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2342115-BLK1)					Prepared: 10/20/23 Analyzed: 10/20/23				
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	53.0		50.0		106	50-200			

LCS (2342115-BS1)					Prepared: 10/20/23 Analyzed: 10/20/23				
Diesel Range Organics (C10-C28)	276	25.0	250		110	38-132			
Surrogate: n-Nonane	55.2		50.0		110	50-200			

Matrix Spike (2342115-MS1)					Source: E310181-06		Prepared: 10/20/23 Analyzed: 10/20/23		
Diesel Range Organics (C10-C28)	286	25.0	250	ND	115	38-132			
Surrogate: n-Nonane	56.4		50.0		113	50-200			

Matrix Spike Dup (2342115-MSD1)					Source: E310181-06		Prepared: 10/20/23 Analyzed: 10/20/23		
Diesel Range Organics (C10-C28)	275	25.0	250	ND	110	38-132	4.17	20	
Surrogate: n-Nonane	53.6		50.0		107	50-200			



QC Summary Data

Hilcorp Energy Co	Project Name:	LC Kelly 1E	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Stuart Hyde	10/26/2023 2:15:36PM

Anions by EPA 300.0/9056A

Analyst: RAS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

Blank (2343051-BLK1)					Prepared: 10/24/23 Analyzed: 10/25/23				
Chloride	ND	20.0							
LCS (2343051-BS1)					Prepared: 10/24/23 Analyzed: 10/25/23				
Chloride	248	20.0	250		99.1	90-110			
Matrix Spike (2343051-MS1)					Source: E310181-01		Prepared: 10/24/23 Analyzed: 10/25/23		
Chloride	247	20.0	250	ND	98.9	80-120			
Matrix Spike Dup (2343051-MSD1)					Source: E310181-01		Prepared: 10/24/23 Analyzed: 10/25/23		
Chloride	247	20.0	250	ND	98.8	80-120	0.173	20	

QC Summary Report Comment:
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures.
Therefore, hand calculated values may differ slightly.



Definitions and Notes

Hilcorp Energy Co	Project Name:	LC Kelly 1E	
PO Box 61529	Project Number:	17051-0002	Reported:
Houston TX, 77208	Project Manager:	Stuart Hyde	10/26/23 14:15

- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- RPD Relative Percent Difference
- DNI Did Not Ignite
- DNR Did not react with the addition of acid or base.

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.



Chain of Custody



Envirotech Analytical Laboratory

Printed: 10/19/2023 4:35:26PM

Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.

If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Hilcorp Energy Co	Date Received:	10/19/23 16:15	Work Order ID:	E310181
Phone:	-	Date Logged In:	10/19/23 16:24	Logged In By:	Caitlin Mars
Email:	shyde@ensolum.com	Due Date:	10/26/23 17:00 (5 day TAT)		

Chain of Custody (COC)

1. Does the sample ID match the COC? Yes
2. Does the number of samples per sampling site location match the COC? Yes
3. Were samples dropped off by client or carrier? Yes
4. Was the COC complete, i.e., signatures, dates/times, requested analyses? Yes
5. Were all samples received within holding time? Yes

Note: Analysis, such as pH which should be conducted in the field, i.e., 15 minute hold time, are not included in this discussion.

Carrier: Al ThompsonComments/ResolutionSample Turn Around Time (TAT)

6. Did the COC indicate standard TAT, or Expedited TAT? Yes

Sample Cooler

7. Was a sample cooler received? Yes
8. If yes, was cooler received in good condition? Yes
9. Was the sample(s) received intact, i.e., not broken? Yes
10. Were custody/security seals present? No
11. If yes, were custody/security seals intact? NA
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C? Yes

Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling

13. If no visible ice, record the temperature. Actual sample temperature: 4°C

Sample Container

14. Are aqueous VOC samples present? No
15. Are VOC samples collected in VOA Vials? NA
16. Is the head space less than 6-8 mm (pea sized or less)? NA
17. Was a trip blank (TB) included for VOC analyses? NA
18. Are non-VOC samples collected in the correct containers? Yes
19. Is the appropriate volume/weight or number of sample containers collected? Yes

Field Label

20. Were field sample labels filled out with the minimum information:
Sample ID? Yes
Date/Time Collected? Yes
Collectors name? Yes

Sample Preservation

21. Does the COC or field labels indicate the samples were preserved? No
22. Are sample(s) correctly preserved? NA
24. Is lab filtration required and/or requested for dissolved metals? No

Multiphase Sample Matrix

26. Does the sample have more than one phase, i.e., multiphase? No
27. If yes, does the COC specify which phase(s) is to be analyzed? NA

Subcontract Laboratory

28. Are samples required to get sent to a subcontract laboratory? No
29. Was a subcontract laboratory specified by the client and if so who? NA Subcontract Lab: NA

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date



envirotech Inc.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 351064

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 351064
	Action Type: [REPORT] Alternative Remediation Report (C-141AR)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Proceed with recommendations offered within the "FUTURE RUNTIME CALCULATIONS AND PROPOSED REMEDIATION TIMELINE" section of report. Submit next quarterly report to OCD no later than October 15, 2024.	7/16/2024