State of New Mexico Energy, Minerals and Natural Resources Department

Michele Lujan Grisham Governor

Sarah Cottrell Propst Cabinet Secretary

Todd E. Leahy, JD, PhD Deputy Cabinet Secretary **Dylan Fuge** Director, Oil Conservation Division



Mitch Killough - Environmental Specialist Hilcorp Energy Company 1111 Travis Street Houston, TX 77002

RE: Conditional Approval of Dual Phase Extraction/Soil Vapor Extraction (SVE) Remediation Method for Hare #015; (API #: 30-045-08646; Incident #: nRM2020945060; Application ID: 210365)

Mr. Killough,

The Oil Conservation Division (OCD) has reviewed and approved the subject work plan with the following conditions;

- 1. Hilcorp's SVE system must be designed to have a minimum of 90% operational runtime, 24/7, start to finish.
- 2. On-site analog or digital runtime counter must be installed and viewable to OCD personnel. Any alternative method must be explained and pre-approved by OCD.
- 3. The following field data measurement parameters will be required and reported (prior to reaching vacuum pump);
 - a. Total Extracted Flow Rate via a Flow Meter
 - b. Flow Rates from each vapor extraction point/well (VEP)
 - c. Volatile Organic Compound (VOC) Concentrations for each VEP and/or VEP cluster being implemented via Handheld Gas Analyzer (e.g. Photo Ionization Detector (PID)
 - d. Record vacuum pressure at each VEP and/or VEP cluster being implemented
 - e. Oxygen (O₂) and carbon di-oxide (CO₂) levels via hand-held analyzers from each VEP and/or VEP cluster being implemented, prior to reaching vacuum pump and at discharge orifice or vent stack
- 4. The following minimum timeline will be required for the above data recordings;
 - a. Daily for the first week
 - b. Weekly for the next three (3) months
 - c. Monthly thereafter for the first calendar year
 - d. Then contingent upon the recorded data output
- 5. Any water condensation will be categorized as oil field waste and must be disposed of accordingly. System modifications to address increased water collection and disposal must be pre-approved by OCD.
- 6. Extracted vapor sampling (prior to reaching vacuum pump) for laboratory testing will be required as follows;
 - a. Approximately 15-30 minutes and approximately 8-10 hours after startup (or at the end of the same day if initial sample collected in early morning), one full round of sampling for constituents noted in b, c, & d below
 - b. BTEX per US EPA Method 8021B or 8260B
 - c. TPH per US EPA Method 8015M
 - d. O_2 and CO_2

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RE: Conditional Approval of Dual Phase Extraction/Soil Vapor Extraction (SVE) Remediation Method for Hare #015; (API #: 30-045-08646; Incident #: nRM2020945060; Application ID: 210365)

- 7. The following timeline will be required for the above laboratory sampling elements;
 - a. Weekly next three (3) weeks (first month)
 - b. Bi-weekly (twice a month) next two (2) months (first quarter)
 - c. Bi-Monthly (every other month) next nine (9) months (first year)
 - d. Quarterly Year #2 until diminishing returns has been consistently documented
- 8. Hilcorp must submit to OCD quarterly reports for the first 2 years of operation, then bi-annual thereafter, detailing the following;
 - a. Summary of remediation activity
 - b. Chart of O₂ & CO₂ levels over time
 - c. SVE runtime
 - d. SVE mass removal
 - e. Product recovery, if applicable
 - f. Laboratory air sample analysis, if applicable
- 9. Hilcorp must notify OCD of its initial system startup which is required within 90 days of this approval. If this cannot be achieved, Hilcorp must verify the delay within its request for a time extension.
- 10. Hilcorp must submit to OCD a closure plan prior to initiating confirmation sampling for final remediation termination.

These conditions by the OCD does not relieve Hilcorp of responsibility for compliance with any federal, state, or local law.

If you have any questions, please contact Nelson Velez of the Environmental Incident Group at (505) 469-6146 or by email at <u>nelson.velez@emnrd.nm.gov.</u>

Respectfully,

Ally Brooser

Michael Bratcher Incident Group Supervisor (575) 626-0857

Nelson Velez

Nelson Velez Environmental Specialist – Adv (505) 469-6146



April 17, 2023

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

Re: Dual-Phase Extraction (DPE) Pilot Test Report and Final Remediation Work Plan Hare 15 San Juan County, New Mexico Hilcorp Energy Company NMOCD Incident No: NRM2020945060

To Whom it May Concern:

On behalf of Hilcorp Energy Company (Hilcorp), Ensolum, LLC. (Ensolum) has prepared this *Dual-Phase Extraction (DPE) Pilot Test Report and Final Remediation Work Plan* for the Hare 15 natural gas production well (Site) on land managed by the Bureau of Land Management (BLM). The Site is located in Unit M, Section 3, Township 29 North, Range 10 West in San Juan County, New Mexico (Figure 1).

SITE BACKGROUND

On July 15, 2020, vandalism of an aboveground storage tank (AST) caused a failure and release of approximately 115 barrels (bbls) of natural gas condensate. The release occurred on the well pad and remained inside the secondary containment. Upon discovery, Hilcorp removed the liquids remaining from inside of the AST; however, no other liquids were recovered during initial emergency response efforts. Hilcorp reported the release to the New Mexico Oil Conservation Division (NMOCD) by submitting a Release Notification and Corrective Action Form C-141 (Form C-141) on July 27, 2020. The release was assigned Incident Number NRM2020945060.

Between August 2020 and August 2022, Hilcorp retained various consultants to perform delineation activities and identify the horizontal and vertical extent of impacts related to the Site release. In total, thirty-eight borings, BH01 through BH38, were advanced to depths up to 55 feet below ground surface (bgs) in the locations presented on Figure 2. All borings that were converted to monitoring wells retained their original number identification so that monitoring well MW01 was constructed in boring BH01. All borings except BH05, BH12, BH17, BH36, and BH37 were completed as permanent groundwater monitoring wells. Additional details regarding previous Site investigations were presented in the *2022 Delineation and Updated Remediation Work Plan* (dated December 12, 2022) prepared by Ensolum. The work plan, approved by the NMOCD on January 11, 2023, presents further information regarding the release background, site characterization based on potential sensitive receptors and depth to groundwater, site-specific closure criteria, delineation data, and a proposed remediation plan for the Site.

As presented in the December 12, 2022 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):

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH)-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-motor oil range organics (MRO): 100 mg/kg
- Chloride: 600 mg/kg

Additionally, the NMOCD requires groundwater-quality standards be met as presented by the New Mexico Water Quality Control Commission (NMWQCC) and listed in Title 20, Chapter 6, Part 2, Section 3103 (20.6.2.3103) NMAC. The following standards are presented for the chemicals of concern (COCs) at the Site in micrograms per liter (μ g/L).

- Benzene: 5.0 µg/L
- Toluene: 1,000 μg/L
- Ethylbenzene: 700 µg/L
- Total Xylenes: 620 µg/L

DPE SYSTEM PILOT TESTING

To determine if DPE is a feasible remedy at the Site and aid in future system design, Ensolum conducted a pilot test to determine the flow rate and applied vacuum required to volatilize and remove petroleum hydrocarbons from the impacted subsurface soils via soil vapor extraction (SVE). The pilot test also assessed whether the total amount of recovered liquids were within a manageable quantity for off-Site disposal, as groundwater treatment and discharge is not a viable option at the Site. Pilot test data was used to estimate the SVE portion of the system's radius-of-influence (ROI) and radius-of-effect (ROE) to determine well spacing and the need for additional DPE wells at the Site.

DPE Pilot Test Procedures

During DPE pilot testing activities, monitoring well MW13, screened from 20 feet to 30 feet bgs in the well-graded medium- to coarse-grained sand encountered onsite, was used as the vacuum extraction pilot test well. MW13 was chosen as the test well due to its location within the phaseseparated hydrocarbon (PSH) plume and the varying distances from other nearby monitoring wells that could be used as observation wells for ROI/ROE calculations. An adjustable 1-inch polyvinyl chloride (PVC) stinger was installed in the pilot test well allowing the inlet to be adjusted if the water level in the well changed during the dewatering process, as necessary. The PVC stinger was connected to a vacuum truck. The well was sealed off to the atmosphere and vacuum was applied for the duration of the test. An adjustable manifold was used to incrementally increase the vacuum being applied to the extraction pilot test well in order to determine the minimum vacuum required to air lift the groundwater and PSH from within the well casing. Additionally, a clear site glass was located along the extraction piping in order to verify whether groundwater and PSH were actively being recovered at each vacuum interval. Flow, vacuum, and field headspace readings at the extraction pilot test well were recorded at 10- to 30-minute intervals throughout the test. Visual observations from within the sight glass and total fluid recovery volumes were also recorded at the same intervals.

Existing monitoring wells MW03, MW04A, MW04B, MW06, MW07, and MW11 were used as observation wells. These observation wells were chosen to provide varying distances from the

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Hare 15

point of extraction as well as varying well construction and screen intervals. A summary of which wells were used for observation during the DPE test, along with construction details and distances from the test wells, is provided below.

Well ID	Distance to MW13 (feet)	Screen Interval (feet bgs)
MW13		20 to 30
MW03	30	20 to 35
MW04A	22	25 to 35
MW04B	22	5 to 15
MW06	33	20 to 30
MW07	38	15 to 30
MW11	50	20 to 30

Vacuum influence and field headspace results were recorded at the observation wells at the same 10- to 20-minute intervals. The DPE pilot test well locations are shown on Figure 2. The following list summarizes the procedure of the DPE pilot test:

- Measured the distances from the extraction well to each observation well.
- Collected background measurements for volatile organic compounds (VOCs) using a photoionization detector (PID) at the DPE extraction and observation wells.
- Connected a flexible hose from the vacuum truck to a liquid knockout tank and from the knockout tank to the pilot test manifold, which was attached to the extraction well. Slowly opened the valve to increase flow and vacuum.
- Applied a low vacuum at approximately 10 inches of water column (IWC), then increased the vacuum/flow rate until a steady flow of liquid was observed within the sight glass, verifying successful air lift of PSH and groundwater from within the well casing.
- Increased the vacuum/flow incrementally based on response observed. Vacuum readings were collected between 10 inches of water column (IWC) and 135 IWC (approximately 10 inches of mercury [inHg]).
- Measured and recorded the vacuum and the field headspace at the observation wells in 10- to 30- minute intervals.
- Collected two air samples from MW13. One sample was collected from a lower vacuum representative of SVE-only and one sample was collected from a higher vacuum when the highest PID reading was observed during active DPE pilot testing. Samples were collected in 1-Liter Tedlar[®] bags using a high-vacuum air sampler and submitted the sample for laboratory analysis of the following analytes:
 - TPH-GRO via United States Environmental Protection Agency (EPA) Method 8015D;
 - Full list VOCs via EPA Method 8260B;
 - Fixed gas analysis of carbon dioxide and oxygen via Gas Processors Association (GPA) Method 2261-95.

The results of the DPE pilot test are summarized below.

DPE Pilot Test Results and Conclusions

Based on the pilot test data, DPE is a viable technology to remediate subsurface impacts at the Site. The vacuum responses observed during the pilot test are shown below for extraction well MW13 and observation wells MW03, MW04A, MW04B, MW06, MW07, and MW11. Observation



Hare 15



wells were spaced at varying distances between 22 feet and 50 feet from the DPE pilot test well (MW13). Vacuum influence was observed at all observation wells as shown on the graph below.

As shown in the graph above, higher vacuum readings were observed at a distance of 50 feet (MW11) throughout the test as compared to the closer observation wells. Similarly, the second highest vacuum readings were observed 38 feet away (MW07), the second farthest distance used for observation. In order to determine a conservative ROI for the Site, these two data points (MW07 and MW11) were removed from the ROI calculations. The graph below shows the observed vacuum response at 22 feet, 30 feet, and 33 feet from the extraction well. A vacuum response of 1% of the applied vacuum was observed at approximately 32 feet from the extraction well. When using 0.1% of the applied vacuum as a basis for ROI and applying a trendline to the pilot test data in order to extrapolate, an ROI value of approximately 45 feet is obtained (Buscheck and Peargin, 1991).



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The ROE was also calculated using the pilot test data, and calculations are included in Appendix A. The ROE was determined by calculating the annual pore volume exchange assuming an ROI of 45 feet, a flow rate of approximately 30 standard cubic feet per minute (scfm), and a vacuum of 105 IWC as observed at the extraction well during the pilot test. The calculated annual pore volume exchange is 620, exceeding the minimum literature values of at least 500 pore volume exchanges annually. Additionally, the pore velocity was calculated at the ROI of 45 feet for a flow rate of approximately 30 scfm to verify that the ROE corresponds with the observed ROI. The pore velocity was calculated to be 38 feet per day (ft/day), which exceeds the recommended velocity of 3 ft/day (DiGiulo and Ravi 1999).

Liquid recovery was first observed in the sight glass when 75 IWC vacuum was applied to the extraction well. Vacuum was increased to a maximum of 135 IWC and a steady flow of liquid continued to be observed throughout the test. A total of 16 gallons of liquid was recovered during an approximately 90-minute test period, which calculates to an average flow rate of 0.18 gallons per minute (gpm). Total liquid recovery from a single recovery well would equate to 260 gallons per day or approximately 94,600 gallons per year. Since recovered groundwater and PSH will need to be removed from an on-Site storage tank and transported off-Site for disposal, liquid recovery at this sustained rate would not be a viable option; however, it is anticipated based on previous experience with both DPE technology and Site conditions that the liquid recovery rate will decrease over time as fulltime operation dewaters the subsurface. Additionally, recovered volumes will be recorded and the average flow rate will be recalculated once the system is operational.

Based on the data collected during pilot testing, Ensolum recommends performing DPE at the Site in two phases. Phase One will involve converting ten existing monitoring wells (MW01, MW06, MW08, MW09, MW10, MW11, MW13, MW14, MW15 and MW16) into remediation extraction wells in order to focus on the removal of PSH and treatment of impacted groundwater within the footprint of the PSH plume. Phase One will be accomplished by installing an 18 horsepower Roots 47 URAI rotary lobe positive displacement blower or similar blower capable of producing approximately 500 inlet cubic feet per minute (icfm), or approximately 300 scfm at Site elevation and approximately 110 IWC. At the elevation corrected flow rate and ten wells each operating at 30 scfm (for a combined system flow rate of approximately 300 scfm), the system can achieve an ROE of 45 feet, 620 annual pore volume exchanges, and a velocity of 38 ft/day during Phase One.

Phase Two, if necessary, will consist of ceasing operation on the ten Phase One wells and converting eight additional monitoring wells (MW19, MW20, MW21, MW22, MW23, MW26, MW29, and MW30) into remediation extraction wells, as necessary, in order to remediate the impacted groundwater located to the north of the current PSH plume. The DPE system constructed for Phase One will also be used to execute Phase Two. Since Phase Two consists of two fewer extraction wells than Phase One, the DPE system will be more than sufficient to execute the second phase of remediation. Phase Two will not commence until PSH has been removed to the maximum extent practicable and the mass removal rates calculated during Phase One of system operation have reached asymptotic levels or exhibit diminishing returns. After Phase One has been confirmed to be complete, the data will be re-evaluated to determine whether Phase Two is warranted and whether changes to the Phase Two scope of work are required at that time. Pilot test calculations and additional information are presented in Appendix A. The proposed DPE extraction well locations for both Phase One and Phase Two, along with the calculated ROI at each location, are shown on Figure 2.

In order to adequately manage the amount of liquid recovery at the Site, Ensolum recommends operating the blower using a variable frequency drive (VFD) so that the applied vacuum can be adjusted as needed to control liquid recovery. If it is determined that prolonged DPE system

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Hare 15

operation is generating excessive liquid waste during high-vacuum operation, the stingers will be removed from the extraction wells and the system will be operated as SVE-only.

During the pilot test, Ensolum collected two air samples from the pilot test manifold, via highvacuum air sampler. The air samples were collected in 1-Liter Tedlar[®] bags and submitted to Hall Environmental Analysis Laboratory (Hall) for analysis of full list VOCs by EPA Method 8260, TPH-GRO by EPA Method 8015, and fixed gas carbon dioxide and oxygen via GPA Method 2261-95. TPH-GRO was detected at a concentration of 42,000 micrograms per liter (µg/L) when a vacuum of 105 IWC was applied to the extraction well and 52,000 µg/L when a vacuum of 35 IWC was applied to the extraction well. Mass removal rates calculated using the laboratory analytical results and the flow rate in scfm, resulted in approximately 113 and 97 pounds/day of TPH-GRO removal, respectively. Results from both air samples indicate that DPE can remove petroleum hydrocarbons from the subsurface and confirm that SVE is also a viable technology if excessive liquid is recovered during initial DPE system operation and DPE is no longer deemed to be a feasible remedy. A summary of analytical data collected during the pilot test and a summary of calculated mass removal rates are presented in Tables 1 and 2, respectively, with the full analytical laboratory report included as Appendix B.

DPE SYSTEM INSTALLATION, STARTUP, AND OPERATIONS WORK PLAN

As stated above, DPE is a viable technology to remediate subsurface impacts to soil and groundwater at the Site. Based on the calculations presented above, the DPE system should be sized to apply a minimum of approximately 110 IWC vacuum and a flow rate of 500 icfm and 300 scfm. The system will be initially constructed to induce flow and vacuum on the ten Phase One wells concurrently. However, an adjustable manifold will be constructed for the system allowing the wells to be cycled, if necessary.

Operations and Maintenance Plan

Regular O&M visits will be conducted at the Site to ensure that the system is operating properly and repair and maintain equipment as needed. Specifically, personnel will check that the DPE 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 influent side of the vacuum blower and prior to the dilution valve. Vacuum, temperature, flow, and total liquid recovery measurements will also be recorded. Any deviations from normal operating parameters will be recorded and corrected by onsite personnel, if possible. The DPE 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 DPE system will be tied into electrical grid power to allow for 24 hours per day operation. Based on 24 hours of available runtime, the system will have to operate a minimum of 7,884 hours per year to maintain a runtime of at least 90 percent (%). A runtime meter will be installed on the DPE 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 DPE O&M 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." Assuming the permanent DPE system is able to achieve the anticipated flow and

vacuum presented above, the system should be able to achieve 1,500 pore volume exchanges for Phase One in approximately 30 months if 100% operational runtime is achieved. An additional 30 months of operation is anticipated for Phase Two, based on current groundwater monitoring data. This estimate may be extended if it is determined that wells need to be cycled in order to achieve the required flow and vacuum. Additionally, 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. Furthermore, if individual remediation wells in Phase One indicate PID concentrations and/or impacted liquid recovery volumes are asymptotic or exhibit diminishing returns, remediation wells from Phase Two may be incorporated as necessary.

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 which NMOCD approvals this report and work plan.

- Months 0 to 6 Acquire/construct and install the DPE system for Phase One operation
 per the specifications outlined in this report. Additionally, a permanent power drop is
 not located at the Site and will need to be installed prior to system hookup. Hilcorp will
 work with the local electrical utility in order to install the appropriate power drop;
- 6 Months to 3 Years Collect regular air samples from the DPE system at an influent sampling port located upgradient of the blower and any dilution valves. Assess system efficacy and update the remediation timeline based on sampling analytical results after one year of operation. Perform system maintenance and optimize system operation, as necessary. Continue O&M visits to monitor system performance and prepare quarterly reports;
- 3 Years to 3.5 Years Reconfigure DPE system to operate Phase Two, as defined above;
- 3.5 Years to 6 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. 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 6 Collect soil confirmation samples and analyze for TPH and BTEX constituents. 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.

GROUNDWATER MONITORING AND COMPLIANCE

For the remainder of 2023, groundwater samples will continue to be collected on a quarterly basis. Beginning in 2024, groundwater sampling frequency will decrease to semi-annual (twice per year) until groundwater sampling results indicate that BTEX concentrations are in compliance with NMWQCC standards. During sampling events, fluid-level measurements will be collected in all wells using an oil/water interface probe. Based on fluid-level measurements, selected wells containing sufficient groundwater will be purged and sampled. Each well will be purged of three As remediation progresses and groundwater monitoring results for wells indicate compliance with NMWQCC standards, monitoring will cease at these wells. Following completion of active remediation, groundwater sampling frequency will increase to quarterly and will continue until analytical results are compliant with NMWQCC standards for eight consecutive quarters. Groundwater monitoring results will be included in the quarterly DPE reports and submitted to the NMOCD for review.

REFERENCES

Buscheck, T.E. and Peargin T.R., 1991. Summary of a Nation-Wide Vapor Extraction System Performance Study. *Proceedings of Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention, Detection, and Restoration.* November, 1991. NWWA.

DiGiulio, D., Ravi, V., & Brusseau, M., 1999. Evaluation of mass flux to and from ground water using a vertical flux model (VFLUX): application to the soil vacuum extraction closure problem. Ground water monitoring & remediation, 19, 96-104. doi: 10.1111/j.1745-6592.1999.tb00210.x

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

Hannah Midvite

Hannah Mishriki, PE Senior Engineer (610) 390-7059 hmishriki@ensolum.com

Bien Sulphyer

Brian Sulzberger, PG, PE Senior Managing Engineer (720) 376-8066 bsulzberger@ensolum.com

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Attachments:

Figure 1:	Site Receptor Map
Figure 2:	DPE System Vacuum Radius of Influence and Radius of Effect
Table 1:	Dual-Phase Extraction Pilot Test Emissions Air Analytical Results
Table 2:	Dual-Phase Extraction Pilot Test Mass Removal
Appendix A:	Pilot Test Data and Calculations
Appendix B:	Laboratory Analytical Report

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FIGURES

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DPE System Vacuum Radius of Influence and Radius of Effect

Hare 15 Hilcorp Energy Company

> SW/SW, Sec 3, T29N, R10W 36.749188, -107.877461 San Juan County, New Mexico

FIGURE

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Sources: Environmental Systems Research Institute (ESRI), Maxar, Microsoft



TABLES

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	TABLE 1									
	DUAL-PHASE EXTRACTION PILOT TEST EMISSIONS AIR ANALYTICAL RESULTS									
					Hare 15					
				Hilco	rp Energy Con	npany				
				San Jua	n County, New	v Mexico				
Date	Extraction Well	Applied Vacuum (IWC)	Benzene (µg/L)	Toluene (μg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TVPH/GRO (µg/L)	Oxygen (%)	Carbon Dioxide (%)	Inlet PID (ppm)
2/28/2023	MW13	105	350	300	13	160	42,000	4.15	14.21	2,079
2/28/2023	MW13	35	460	420	20	250	52,000	5.53	13.42	2,304

Notes:

GRO: gasoline range hydrocarbons

IWC: inches of water column

µg/L: microgram per liter

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons

%: percent

.

E N S O L U M

TABLE 2DUAL-PHASE EXTRACTION PILOT TEST MASS REMOVALHare 15Hilcorp Energy CompanySan Juan County, New Mexico

Date	PID (ppm)	Benzene (µg/L)	Toluene (μg/L)	Ethylbenzene (µg/L)	Total Xylenes (μg/L)	TVPH/GRO (µg/L)
2/28/2023	2,079	350	300	13	160	42,000
2/28/2023	2,304	460	420	20	250	52,000

Vapor Extraction Summary

Date	Applied Vacuum (IWC)	Flow Rate (scfm)	Benzene (Ib/hr)	Toluene (lb/hr)	Ethylbenzene (lb/hr)	Total Xylenes (lb/hr)	TVPH/GRO (lb/hr)	TVPH/GRO (Ib/day)
2/28/2023	105	30	0.039	0.03	0.001	0.02	4.71	113
2/28/2023	35	23	0.035	0.03	0.001	0.02	4.04	97

Notes:

GRO: gasoline range organics scfm: standard cubic feet per minute µg/L: micrograms per liter lb/hr: pounds per hour PID: photoionization detector ppm: parts per million scfm: standard cubic feet per minute TVPH: total volatile petroleum hydrocarbons --: not sampled



APPENDIX A

Pilot Test Data and Calculations

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DUAL-PHASE EXTRACTION SYSTEM PILOT TEST DATA

HARE 15 SAN JUAN COUNTY, NEW MEXICO HILCORP ENERGY COMPANY

Date	: 2/28/2023	-			Test Well Diam	neter: <u>2"</u>	
Extraction Te	st Well						
MW13	3						
		Pilot	Test Extraction	Well			
Time	Wellhead	Well	Vapor	Well	Well	PID at	Liguid
	Vacuum	Velocity	Temp*	Flow	Flow	Stack	Recovery
	(in. wc)	(fpm)	(F)	(acfm)	(scfm)	(ppm)	(gallons)
12:20			51.1			50	0
13:00	10	1,246	52.3	15.3	13	1084	0
13:30	25	1,852	54.1	22.7	18	1560	0
13:55	50	2,636	49.8	32.3	24	719	Trickling
14:20	75	3,140	40.1	38.5	26	1586	Steady
14:35	110	4,300	48.3	52.8	31	1693	Steady
14:55	135	5,193	48.3	63.7	33	1620	Steady
15:10	105	4,117	48.3	50.5	30	2079	Steady
15:20	35	2,483	48.3	30.5	23	2304	16

Notes:

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ND - not detected fpm - feet per minute

in. wc - inches of water column acfm - actual cubic feet per minute

ppm - parts per million PID - photoionization detector NM - not measured

*When temperature not recorded, 48.3 F used for calculations



DUAL-PHASE EXTRACTION SYSTEM PILOT TEST DATA

HARE 15 SAN JUAN COUNTY, NEW MEXICO HILCORP ENERGY COMPANY

Date :	2/28/2023	Test Well Diam	eter: <u>2"</u>		Test Well Diam	eter: <u>2"</u>							
Extraction Tes	t Well												
MW13													
Pilot Test Ex	traction Well			Observat	ion Wells					Observat	tion Wells		
Time	Wellhead	MW03	MW04A	MW04B	MW06	MW07	MW11	MW03	MW04A	MW04B	MW06	MW07	MW11
	Vacuum			Distance From	Test Well (feet)					Distance From	Test Well (feet)		
	(in. wc)	30	22	22	33	38	50	30	22	22	33	38	50
				Vacuum	n (in. wc)					PID Measur	ement (ppm)		
12:20		0.0	0.0	0.0	0.0	0.0	0.0	NM	NM	NM	NM	NM	NM
13:00	10	0.4	0.4	0.0	0.3	0.5	0.5	29.0	28.0	3.0	1.7	2.3	2.3
13:30	25	0.6	0.7	0.3	0.5	0.9	1.0	2.0	2.2	2.1	2.1	17.5	1.8
13:55	50	0.9	1.0	0.3	0.7	1.2	1.3	2.0	2.4	1.8	0.8	20.2	0.8
14:20	75	1.2	1.4	0.4	1.2	1.7	1.8	5.1	1.4	3.7	1.5	28.0	1.7
14:35	110	1.2	1.5	0.6	1.2	1.8	2.1	4.6	1.6	1.5	1.4	58.0	1.3
14:55	135	1.4	1.4	0.7	1.3	2.0	2.3	6.2	0.1	0.3	0.3	24.0	1.5
15:10	105	1.4	1.6	0.6	1.4	2.1	2.2	NM	NM	NM	NM	NM	NM
15:20	35	1.2	1.4	0.6	1.1	1.7	2.0	NM	NM	NM	NM	NM	NM

Notes:

Released to Imaging: 5/19/2023 10:31:06 AM

•

ND - not detected in. wc - inches of water column ppm - parts per million PID - photoionization detector NM - not measured



RADIUS OF EFFECT CALCULATIONS

HARE 15 SAN JUAN COUNTY, NEW MEXICO HILCORP ENERGY COMPANY

Site Specific Information		
Test Well	MW13	
SVE Screen Length (H)	10	ft
Soil Type	sand	
Porosity (n)	40%	percent
Test Specific Information		
Radius of Influence (ROI)	45	feet - 0.1% applied vacuum
Flow Rate (1)	30	SCFM
Wellhead Vacuum (1)	135	IWC
Calculations (Flowrate - 45 SCFM)		
Total Volume (ft^3)	63,617	= PI * ROI * ROI * H
Volume Pore Space (ft^3)	25,447	= Total Volume * n
Pore Volume Exchange Rate	0.59	days
Annual Pore Volume Exchanges	620	>500 Required
Velocity at ROI (ft/min)	0.027	= Flowrate/(2*Pl * ROI * H * n)
Velocity at ROI (ft/day)	38	> 3 ft/day recommended
<u>Conclusions</u>		
A conservative ROI and ROE can be	at least 45 te	et for a flowrate of 30 sctm. The radius of effect

(ROE) was evaluated using annual pore volume exchange rate and subsurface air velocity. Acceptable annual pore volume exchanges >500 and acceptable pore space velocity.

Notes:

ft - feet ROI - radius of influence IWC - inches water column min - minute s - second SCFM - standard cubic feet per minute



.



APPENDIX B

Laboratory Analytical Report



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

March 14, 2023

Stuart Hyde Hilcorp Energy PO Box 61529 Houston, TX 77208-1529 TEL: (337) 276-7676 FAX:

OrderNo.: 2303004

RE: Hare 15

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/1/2023 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Analytical Report Lab Order 2303004

Hall Environme	ntal Analysis L	Date Reported: 3/14/2023						
CLIENT: Hilcorp Ene	orgy		Cli	ient Sample I	D: DP	E Pilot Test 01		
Project: Hare 15		Collection Date: 2/28/2023 3:10:00 PM						
Lab ID: 2303004-00	01	Matrix: AIR		Received Dat	:e: 3/1/	/2023 7:45:00 AM		
Analyses		Result	RL	Qual Units	DF	Date Analyzed	Batch	
EPA METHOD 8015D	: GASOLINE RANGE					Analyst	: CCM	
Gasoline Range Organic	s (GRO)	42000	500	µg/L	100	3/8/2023 2:59:00 PM	G95109	
Surr: BFB		98.6	70-130	%Rec	100	3/8/2023 2:59:00 PM	G95109	
EPA METHOD 8260B	: VOLATILES					Analyst	: CCM	
Benzene		350	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Toluene		300	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Ethylbenzene		13	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Methyl tert-butyl ether (M	ITBE)	ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
1,2,4-Trimethylbenzene		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
1,3,5-Trimethylbenzene		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
1,2-Dichloroethane (EDC	C)	ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
1,2-Dibromoethane (EDI	3)	ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Naphthalene		ND	20	µg/L	100	3/8/2023 2:59:00 PM	R95109	
1-Methylnaphthalene		ND	40	µg/L	100	3/8/2023 2:59:00 PM	R95109	
2-Methylnaphthalene		ND	40	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Acetone		ND	100	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Bromobenzene		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Bromodichloromethane		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Bromoform		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Bromomethane		ND	20	µg/L	100	3/8/2023 2:59:00 PM	R95109	
2-Butanone		ND	100	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Carbon disulfide		ND	100	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Carbon tetrachloride		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Chlorobenzene		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Chloroethane		ND	20	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Chloroform		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Chloromethane		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
2-Chlorotoluene		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
4-Chlorotoluene		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
cis-1,2-DCE		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
cis-1,3-Dichloropropene		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
1,2-Dibromo-3-chloropro	ppane	ND	20	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Dibromochloromethane		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
Dibromomethane		ND	20	µg/L	100	3/8/2023 2:59:00 PM	R95109	
1,2-Dichlorobenzene		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
1,3-Dichlorobenzene		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
1,4-Dichlorobenzene		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
	•	ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
1,1-Dichloroethane		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	
1,1-Dichloroethene		ND	10	µg/L	100	3/8/2023 2:59:00 PM	R95109	

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

Qualifiers:

* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

J

Not Detected at the Reporting Limit

ND PQL Practical Quanitative Limit

% Recovery outside of standard limits. If undiluted results may be estimated. S

В Analyte detected in the associated Method Blank

Е Above Quantitation Range/Estimated Value

Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

Page 1 of 4

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CLIENT: Hilcorp Energy

Project: Hare 15

Analytical Report Lab Order 2303004

Hall Environmental Analysis Laboratory, Inc.	
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Date Reported: 3/14/2023 Client Sample ID: DPE Pilot Test 01 Collection Date: 2/28/2023 3:10:00 PM

Lab ID: 2303004-001	Matrix: AIR	Received Date: 3/1/2023 7:45:00 AM						
Analyses	Result	RL	Qual Units	DF Date Analyzed	Batch			
EPA METHOD 8260B: VOLATILES				Analys	t: CCM			
1,2-Dichloropropane	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
1,3-Dichloropropane	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
2,2-Dichloropropane	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
1,1-Dichloropropene	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
Hexachlorobutadiene	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
2-Hexanone	ND	100	µg/L	100 3/8/2023 2:59:00 PM	R95109			
Isopropylbenzene	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
4-Isopropyltoluene	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
4-Methyl-2-pentanone	ND	100	µg/L	100 3/8/2023 2:59:00 PM	R95109			
Methylene chloride	ND	30	µg/L	100 3/8/2023 2:59:00 PM	R95109			
n-Butylbenzene	ND	30	µg/L	100 3/8/2023 2:59:00 PM	R95109			
n-Propylbenzene	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
sec-Butylbenzene	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
Styrene	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
tert-Butylbenzene	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
1,1,1,2-Tetrachloroethane	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
1,1,2,2-Tetrachloroethane	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
Tetrachloroethene (PCE)	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
trans-1,2-DCE	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
trans-1,3-Dichloropropene	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
1,2,3-Trichlorobenzene	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
1,2,4-Trichlorobenzene	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
1,1,1-Trichloroethane	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
1,1,2-Trichloroethane	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
Trichloroethene (TCE)	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
Trichlorofluoromethane	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
1,2,3-Trichloropropane	ND	20	µg/L	100 3/8/2023 2:59:00 PM	R95109			
Vinyl chloride	ND	10	µg/L	100 3/8/2023 2:59:00 PM	R95109			
Xylenes, Total	160	15	µg/L	100 3/8/2023 2:59:00 PM	R95109			
Surr: Dibromofluoromethane	90.3	70-130	%Rec	100 3/8/2023 2:59:00 PM	R95109			
Surr: 1,2-Dichloroethane-d4	81.9	70-130	%Rec	100 3/8/2023 2:59:00 PM	R95109			
Surr: Toluene-d8	109	70-130	%Rec	100 3/8/2023 2:59:00 PM	R95109			
Surr: 4-Bromofluorobenzene	95.2	70-130	%Rec	100 3/8/2023 2:59:00 PM	R95109			

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

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit % Recovery outside of standard limits. If undiluted results may be estimated. S

- в Analyte detected in the associated Method Blank
- Е Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits Sample pH Not In Range
- Р RL Reporting Limit

Page 2 of 4

Qualifiers:

Analytical Report Lab Order 2303004

Hall E	nvironmental Analysi	[nc.	Date Reported: 3/14/2023							
CLIENT	: Hilcorp Energy		Cli	ent Sample I	D: DP	E Pilot Test 02				
Project:	Hare 15		Collection Date: 2/28/2023 3:20:00 PM							
Lab ID:	2303004-002	Matrix: AIR		Received Dat	e: 3/1/	/2023 7:45:00 AM				
Analyses	8	Result	RL	Qual Units	DF	Date Analyzed	Batch			
EPA ME	THOD 8015D: GASOLINE RAM	NGE				Analyst	t: CCM			
Gasoline	e Range Organics (GRO)	52000	500	µg/L	100	3/8/2023 3:22:00 PM	G95109			
Surr:	BFB	97.1	70-130	%Rec	100	3/8/2023 3:22:00 PM	G95109			
EPA ME	THOD 8260B: VOLATILES					Analyst	t: CCM			
Benzene	9	460	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Toluene		420	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Ethylber	izene	20	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Methyl te	ert-butyl ether (MTBE)	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
1,2,4-Tr	imethylbenzene	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
1,3,5-Tr	imethylbenzene	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
1,2-Dich	loroethane (EDC)	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
1,2-Dibr	omoethane (EDB)	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Naphtha	lene	ND	20	µg/L	100	3/8/2023 3:22:00 PM	R95109			
1-Methy	Inaphthalene	ND	40	µg/L	100	3/8/2023 3:22:00 PM	R95109			
2-Methy	Inaphthalene	ND	40	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Acetone		ND	100	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Bromob	enzene	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Bromodi	chloromethane	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Bromofo	orm	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Bromom	ethane	ND	20	µg/L	100	3/8/2023 3:22:00 PM	R95109			
2-Butan	one	ND	100	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Carbon	disulfide	ND	100	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Carbon	tetrachloride	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Chlorob	enzene	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Chloroet	hane	ND	20	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Chlorofo	orm	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Chlorom	ethane	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
2-Chloro	otoluene	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
4-Chloro	otoluene	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
cis-1,2-[DCE	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
cis-1,3-[Dichloropropene	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
1,2-Dibr	omo-3-chloropropane	ND	20	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Dibromo	ochloromethane	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Dibromo	omethane	ND	20	µg/L	100	3/8/2023 3:22:00 PM	R95109			
1,2-Dich	lorobenzene	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
1,3-Dich	lorobenzene	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
1,4-Dich	lorobenzene	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
Dichloro	difluoromethane	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
1,1-Dich	loroethane	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			
1,1-Dich	loroethene	ND	10	µg/L	100	3/8/2023 3:22:00 PM	R95109			

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

Qualifiers:

* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

Е Above Quantitation Range/Estimated Value

В

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit PQL Practical Quanitative Limit

% Recovery outside of standard limits. If undiluted results may be estimated. S

Page 3 of 4

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ND

CLIENT: Hilcorp Energy

Hare 15

2303004-002

Project:

Lab ID:

Analytical Report Lab Order 2303004

Date Reported: 3/14/2023

Hall Environmental Analysis Laboratory, Inc.	

Matrix: AIR

Client Sample ID: DPE Pilot Test 02 Collection Date: 2/28/2023 3:20:00 PM Received Date: 3/1/2023 7:45:00 AM

Analyses	Result	RL	Qual Units	DF Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst	: CCM
1,2-Dichloropropane	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
1,3-Dichloropropane	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
2,2-Dichloropropane	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
1,1-Dichloropropene	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
Hexachlorobutadiene	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
2-Hexanone	ND	100	µg/L	100 3/8/2023 3:22:00 PM	R95109
Isopropylbenzene	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
4-Isopropyltoluene	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
4-Methyl-2-pentanone	ND	100	µg/L	100 3/8/2023 3:22:00 PM	R95109
Methylene chloride	ND	30	µg/L	100 3/8/2023 3:22:00 PM	R95109
n-Butylbenzene	ND	30	µg/L	100 3/8/2023 3:22:00 PM	R95109
n-Propylbenzene	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
sec-Butylbenzene	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
Styrene	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
tert-Butylbenzene	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
1,1,1,2-Tetrachloroethane	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
1,1,2,2-Tetrachloroethane	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
Tetrachloroethene (PCE)	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
trans-1,2-DCE	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
trans-1,3-Dichloropropene	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
1,2,3-Trichlorobenzene	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
1,2,4-Trichlorobenzene	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
1,1,1-Trichloroethane	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
1,1,2-Trichloroethane	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
Trichloroethene (TCE)	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
Trichlorofluoromethane	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
1,2,3-Trichloropropane	ND	20	µg/L	100 3/8/2023 3:22:00 PM	R95109
Vinyl chloride	ND	10	µg/L	100 3/8/2023 3:22:00 PM	R95109
Xylenes, Total	250	15	µg/L	100 3/8/2023 3:22:00 PM	R95109
Surr: Dibromofluoromethane	89.7	70-130	%Rec	100 3/8/2023 3:22:00 PM	R95109
Surr: 1,2-Dichloroethane-d4	77.5	70-130	%Rec	100 3/8/2023 3:22:00 PM	R95109
Surr: Toluene-d8	112	70-130	%Rec	100 3/8/2023 3:22:00 PM	R95109
Surr: 4-Bromofluorobenzene	95.1	70-130	%Rec	100 3/8/2023 3:22:00 PM	R95109

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

* Value exceeds Maximum Contaminant Level.

- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

% Recovery outside of standard limits. If undiluted results may be estimated. S

- Analyte detected in the associated Method Blank в
- Е Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range RL Reporting Limit

Page 4 of 4

Qualifiers:



ANALYTICAL SUMMARY REPORT

March 06, 2023

Hall Environmental 4901 Hawkins St NE Ste D Albuquerque, NM 87109-4372

Work Order: B23030186 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 2 samples for Hall Environmental on 3/2/2023 for analysis.

Lab ID	Client Sample ID	Collect Date R	eceive Date	Matrix	Test
B23030186-001	2303004-001B, DPE Pilot Test 01	02/28/23 15:10	03/02/23	Air	Air Correction Calculations Appearance and Comments Calculated Properties GPM @ std cond,/1000 cu. ft., moist. Free Natural Gas Analysis Specific Gravity @ 60/60
B23030186-002	2303004-002B, DPE Pilot Test 02	02/28/23 15:20	03/02/23	Air	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental **Project:** Not Indicated Lab ID: B23030186-001 Client Sample ID: 2303004-001B, DPE Pilot Test 01

Report Date: 03/06/23 Collection Date: 02/28/23 15:10 DateReceived: 03/02/23 Matrix: Air

					MCL/		
Analyses	Result	Units	Qualifiers	RL	QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS	REPORT						
Oxygen	4.15	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
Nitrogen	79.70	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
Carbon Dioxide	14.21	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
Hydrogen Sulfide	<0.01	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
Methane	<0.01	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
Ethane	<0.01	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
Propane	<0.01	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
Isobutane	<0.01	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
n-Butane	<0.01	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
Isopentane	0.10	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
n-Pentane	0.10	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
Hexanes plus	1.74	Mol %	(0.01		GPA 2261-95	03/03/23 09:22 / ikc
Propane	< 0.001	gpm	0	.001		GPA 2261-95	03/03/23 09:22 / ikc
Isobutane	< 0.001	gpm	0	.001		GPA 2261-95	03/03/23 09:22 / ikc
n-Butane	< 0.001	gpm	0	.001		GPA 2261-95	03/03/23 09:22 / ikc
Isopentane	0.037	gpm	0	.001		GPA 2261-95	03/03/23 09:22 / ikc
n-Pentane	0.036	gpm	0	.001		GPA 2261-95	03/03/23 09:22 / ikc
Hexanes plus	0.733	gpm	0	.001		GPA 2261-95	03/03/23 09:22 / ikc
GPM Total	0.806	gpm	0	.001		GPA 2261-95	03/03/23 09:22 / ikc
GPM Pentanes plus	0.806	gpm	0	.001		GPA 2261-95	03/03/23 09:22 / ikc
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	91			1		GPA 2261-95	03/03/23 09:22 / ikc
Net BTU per cu ft @ std cond. (LHV)	84			1		GPA 2261-95	03/03/23 09:22 / ikc
Pseudo-critical Pressure, psia	584			1		GPA 2261-95	03/03/23 09:22 / ikc
Pseudo-critical Temperature, deg R	288			1		GPA 2261-95	03/03/23 09:22 / ikc
Specific Gravity @ 60/60F	1.09		0	0.001		D3588-81	03/03/23 09:22 / ikc
Air, % - The analysis was not corrected for air.	18.97		(0.01		GPA 2261-95	03/03/23 09:22 / ikc

COMMENTS

- BTU, GPM, and specific gravity are corrected for deviation from ideal gas behavior.

GPM = gallons of liquid at standard conditions per 1000 cu. ft. of moisture free gas @ standard conditions.
 To convert BTU to a water-saturated basis @ standard conditions, multiply by 0.9825.

- Standard conditions: 60 F & 14.73 psi on a dry basis.

Report Definitions: RL - Analyte Reporting Limit QCL - Quality Control Limit

03/03/23 09:22 / ikc



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:	Hall Environmental
Project:	Not Indicated
Lab ID:	B23030186-002
Client Sample ID:	2303004-002B, DPE Pilot Test 02

Report Date: 03/06/23 Collection Date: 02/28/23 15:20 DateReceived: 03/02/23 Matrix: Air

					MCL/		
Analyses	Result	Units	Qualifiers	RL	QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS	REPORT						
Oxygen	5.53	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
Nitrogen	78.92	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
Carbon Dioxide	13.42	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
Methane	<0.01	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
Ethane	<0.01	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
Propane	<0.01	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
Isopentane	0.10	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
n-Pentane	0.10	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
Hexanes plus	1.94	Mol %		0.01		GPA 2261-95	03/03/23 10:13 / ikc
Propane	< 0.001	gpm		0.001		GPA 2261-95	03/03/23 10:13 / ikc
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	03/03/23 10:13 / ikc
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	03/03/23 10:13 / ikc
Isopentane	0.037	gpm		0.001		GPA 2261-95	03/03/23 10:13 / ikc
n-Pentane	0.036	gpm		0.001		GPA 2261-95	03/03/23 10:13 / ikc
Hexanes plus	0.818	gpm		0.001		GPA 2261-95	03/03/23 10:13 / ikc
GPM Total	0.891	gpm		0.001		GPA 2261-95	03/03/23 10:13 / ikc
GPM Pentanes plus	0.891	gpm		0.001		GPA 2261-95	03/03/23 10:13 / ikc
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	101			1		GPA 2261-95	03/03/23 10:13 / ikc
Net BTU per cu ft @ std cond. (LHV)	93			1		GPA 2261-95	03/03/23 10:13 / ikc
Pseudo-critical Pressure, psia	582			1		GPA 2261-95	03/03/23 10:13 / ikc
Pseudo-critical Temperature, deg R	288			1		GPA 2261-95	03/03/23 10:13 / ikc
Specific Gravity @ 60/60F	1.09			0.001		D3588-81	03/03/23 10:13 / ikc
Air, % - The analysis was not corrected for air.	25.27			0.01		GPA 2261-95	03/03/23 10:13 / ikc

COMMENTS

- BTU, GPM, and specific gravity are corrected for deviation from ideal gas behavior.

GPM = gallons of liquid at standard conditions per 1000 cu. ft. of moisture free gas @ standard conditions.
 To convert BTU to a water-saturated basis @ standard conditions, multiply by 0.9825.

- Standard conditions: 60 F & 14.73 psi on a dry basis.

Report Definitions: RL - Analyte Reporting Limit QCL - Quality Control Limit

03/03/23 10:13 / ikc



QA/QC Summary Report

Prepared by Billings, MT Branch

Work Order: B23030186

|--|

Report Date: 03/06/23

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	GPA 2261-95									Batch	R398454
Lab ID:	B23030186-001ADU	• 12 Sar	mple Duplic	ate			Run: GCNG	A-B_230303A		03/03	/23 09:47
Oxygen			3.98	Mol %	0.01			_	4.2	20	
Nitrogen			79.7	Mol %	0.01				0	20	
Carbon Di	ioxide		14.3	Mol %	0.01				0.8	20	
Hydrogen	Sulfide		<0.01	Mol %	0.01					20	
Methane			<0.01	Mol %	0.01					20	
Ethane			<0.01	Mol %	0.01					20	
Propane			<0.01	Mol %	0.01					20	
Isobutane			<0.01	Mol %	0.01					20	
n-Butane			<0.01	Mol %	0.01					20	
Isopentan	e		0.10	Mol %	0.01				0.0	20	
n-Pentane	9		0.10	Mol %	0.01				0.0	20	
Hexanes p	olus		1.80	Mol %	0.01				3.4	20	
Lab ID:	LCS030323	11 Lat	oratory Co	ntrol Sample			Run: GCNG	A-B_230303A		03/03	/23 11:37
Oxygen			0.64	Mol %	0.01	128	70	130			
Nitrogen			6.08	Mol %	0.01	101	70	130			
Carbon Di	ioxide		1.00	Mol %	0.01	101	70	130			
Methane			74.8	Mol %	0.01	100	70	130			
Ethane			5.98	Mol %	0.01	100	70	130			
Propane			4.92	Mol %	0.01	100	70	130			
Isobutane			1.96	Mol %	0.01	98	70	130			
n-Butane			1.95	Mol %	0.01	97	70	130			
Isopentan	e		0.98	Mol %	0.01	98	70	130			
n-Pentane	9		0.98	Mol %	0.01	98	70	130			
Hexanes p	olus		0.74	Mol %	0.01	93	70	130			

ENERGY LABORATORIES

Trust our People. Trust our Data. www.energylab.com

Billings, MT 800.735.4489 • Casper, WY 888.235.0515 Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

Work Order Receipt Checklist

Hall Environmental

Login completed by:	Leslie S. Cadreau		Date I	Received: 3/2/2023
Reviewed by:	tedwards		Red	ceived by: htm
Reviewed Date:		Carı	rier name: FedEx	
Shipping container/cooler in	Yes 🗹	No 🗌	Not Present	
Custody seals intact on all sh	Yes 🗹	No 🗌	Not Present	
Custody seals intact on all sa	Yes	No 🗌	Not Present 🗹	
Chain of custody present?	Yes 🖌	No 🗌		

B23030186

Custody seals intact on all shipping container(s)/cooler(s)?	Yes 🗸	No 🗌	Not Present
Custody seals intact on all sample bottles?	Yes	No 🗌	Not Present 🗹
Chain of custody present?	Yes 🗹	No 🗌	
Chain of custody signed when relinquished and received?	Yes 🖌	No 🗌	
Chain of custody agrees with sample labels?	Yes 🗹	No 🗌	
Samples in proper container/bottle?	Yes 🗹	No 🗌	
Sample containers intact?	Yes 🖌	No 🗌	
Sufficient sample volume for indicated test?	Yes 🖌	No 🗌	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res CI, Sulfite, Ferrous Iron, etc.)	Yes 🗹	No 🗌	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes	No 🗹	Not Applicable
Container/Temp Blank temperature:	7.4°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes	No 🗌	No VOA vials submitted
Water - pH acceptable upon receipt?	Yes	No 🗌	Not Applicable

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as -dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

None

ENVIRONMENTAL ANALYSIS LABORATORY						4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Vebsite: www.hallenvironmental.com
NTRATOR: Energy Labs -Billings	COMPANY:	Energy Laborator	ies	PHONE	(406) 869-6253 FAX	(406) 252-6069
ss. 1120 South 27th Stree				ACCOUNT #:	EMAIL	
TATE, ZIP: Billings, MT 59107						
SAMPLE CLIENT SAME	LE ID	BOTTLE	MATRIX	COLLECTION	#CONTAINER:	L COMMENTS
2303004-001B DPE Pilot Test 01		TEDLAR	Air	2/28/2023 3:10:00 PM	1 **5 DAY TAT** FIXED GASES	R720201810
2303004-002B DPE Pilot Test 02		TEDLAR	Air	2/28/2023 3:20:00 PM	1 **5 DAY TAT** FIXED GASES	
LINSTRUCTIONS/ COMMENTS: c include the LAB ID and the CLIENT	SAMPLE ID on all	l final reports. Please e-	mail results	to lab@hallenvironm	ental.com. Please return all coolers and blue icc.	Thank you.
ed By. Date: 31/2033	Time: 9-07 AM	zeived By: Man L. Lan Mu	20	2002	REPORT TRANS	MITTAL DESIRED:
ed By: Date:	Time: Rec	eived By:	2	ate: Time:	HARDCOPY (extra cost)	X EMAIL ONLINE
ed By: Date:	Time. Rec	teived By:		ate	FOR LAB	JSE ONLY
TAT: Standard	< HSUN	Next BD	nd BD	3rd BD	Temp of samples Comments	Attempt to Cool ?

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HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environmental Alb TEL: 505-345-3975 Website: www.ha	Analysis Laborato 4901 Hawkins N uquerque, NM 8710 FAX: 505-345-410 Illenvironmental.co	ry VE 09 San 07 m	nple Log-In Che	ck List
Client Name: Hilcorp Energy	Work Order Number	: 2303004		RcptNo: 1	
Received By: Tracy Casarrubias	3/1/2023 7:45:00 AM 3/1/2023 8:48:31 AM				
Reviewed By: A 3-1-23					
Chain of Custody					
1. Is Chain of Custody complete?		Yes 🗌	No 🗹	Not Present	
2. How was the sample delivered?		Courier			
Log In 3. Was an attempt made to cool the samples?		Yes 🗹	No 🗌	na 🗌	
4. Were all samples received at a temperature of	>0° C to 6.0°C	Yes	No 🗌	NA 🗹	
5. Sample(s) in proper container(s)?		Yes 🗹	No 🗌		
6. Sufficient sample volume for indicated test(s)?		Yes 🗹	No 🗌		
7. Are samples (except VOA and ONG) properly	preserved?	Yes 🗹	No 🗌		
8. Was preservative added to bottles?		Yes 🗌	No 🗹	NA 🗌	
9. Received at least 1 vial with headspace <1/4" t	or AQ VOA?	Yes 🗌	No 🗌	NA 🗹	
10. Were any sample containers received broken?	•	Yes	No 🗹	# of preserved	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes 🗹	No 🗌	bottles checked for pH: (<2 or ≽#2	unless noted)
12. Are matrices correctly identified on Chain of Co	ustody?	Yes 🗹	No 🗌	Adjusted?	
13. Is it clear what analyses were requested?		Yes 🗹	No 🗌		~ -liba
14. Were all holding times able to be met? (If no, notify customer for authorization.)		Yes 🗹	No 🗌	Checked by: Sra	Q23/1/1)
Special Handling (if applicable)				, ,	
15. Was client notified of all discrepancies with thi	s order?	Yes 🗌	No 🗌		
Person Notified: By Whom: Regarding: Client Instructions:	Date: Date: Via:] eMail 📋 Pho	one 📋 Fax	🗍 In Person	
16. Additional remarks:					
17. <u>Cooler Information</u> Cooler No Temp °C Condition Sea	l Intact Seal No S	Seal Date S	igned By		
1 N/A Good Yes				A A A A A A A A A A A A A A A A A A A	

Page 33 of 35

Received by OCD: 4/25/2023 7:56:27 AM

Chain-of-Custody Record				Turn-Around Time:						1			E	<u>v</u>	ТС	2		ЛF	NT		
Client:				Standard D Rush				ANALYSIS LABORATORY													
All : Mile Viller				Project Name:																	
Mailing Address:				Hare 15			4901 Howkins NE - Albuquerque, NM 87109														
				Project #:			Tel 505-345-3975 Fax 505-345-4107														
Phone #:								1.0				A	naly	sis	Req	uest	t				
email or Fax#:				Project Manager: < + + + +++			Ê	Ô			1	5	0 ⁴		-	int)		~			
QA/QC Package:								MR	B'S		WS		04, S		100	Abse	0	3			
Standard Level 4 (Full Validation)				shyde e ason m. com				RO/	2 PC		70SI		Ĕ,			ent//	2	-			
Accreditation: Az Compliance				Sampler: Danny Burns				[] [] []	/808;	04.1)	or 82	 مانترو	ÔN		A)	Prese	5	0,			
				# of Coolers:			BE	GR.	ides	2 D	10 0	tals	103,		07-	т ш	5	54			
	(,) = 0 .	1		Cooler Temp(including CF): N/A (°C)				15D(stic	etho	y 83	Me	۲. ۲.	(VO)	emi	olifo	3	6			
Date	Time	Matrix	Sample Name	Container	Preservative Type	HEAL No.	BTEX /	TPH:80	8081 P€	EDB (M	PAHs b	RCRA 8	CI, F, B	8260 (V	8270 (S	Total Co	Full	Fixed			
2/28/23	1510	Arc	DPE Pilot Test 01	2, Tedlar		001		X									Х	X			
7	1520	V	DPE Pilot Test 02	1 V		007		X		1.00	1.1					1.1.1	χ	X			
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Date:	11me:	Relinquis	Water Warlows	received by:	Vila. Cum	3/1/23						n I		2 I.							

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

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 210365

CONDITIONS Operator: OGRID: HILCORP ENERGY COMPANY 372171 1111 Travis Street Action Number: Houston, TX 77002 210365 Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created	Condition	Condition
By		Date
nvelez	See Conditional Approval of Dual Phase Extraction/Soil Vapor Extraction (SVE) Remediation Method Letter within report.	5/19/2023