ENSOLUM

September 18, 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: Remediation Report and Closure Request
Zachry Com 1A
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident No: nAPP2331717075

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), has prepared this *Remediation Report and Closure Request* associated with a condensate release at the production well Zachry Com 1A (Site). The Site is located on surface managed by the New Mexico State Land Office (NMSLO) in Unit C, Section 2, Township 30 North, Range 12 West, San Juan County, New Mexico (Figure 1).

SITE BACKGROUND

On October 30, 2023, Hilcorp discovered visibly impacted material near the manway of a 210-barrel (bbl) condensate aboveground storage tank (AST) located at the Site. After comparing the fluid level of the AST to the previous month's reported data, it was estimated 15.66 bbls of condensate was released from the AST and stayed within the bermed secondary containment. No released fluids were recovered at the time of discovery. The manway gasket was replaced, and the tank inspected before placing the AST back into service.

In accordance with Title 19, Chapter 15, Part 29 of the New Mexico Administrative Code (NMAC), Hilcorp reported the release to the NMSLO and the New Mexico Oil Conservation Division (NMOCD) on a *Release Notification Form C-141* on November 14, 2023. The NMOCD has assigned the Site Incident Number nAPP2331717075.

SITE CLOSURE CRITERIA

Based on the information presented in the *Remediation Work Plan,* dated January 26, 2024, and in accordance with the *Table I, Closure Criteria for Soils Impacted by a Release* (19.15.29.12 NMAC), the following Closure Criteria for constituents of concern (COCs) was applied to the Site:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and xylenes (BTEX): 50 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
- GRO+DRO: 1,000 mg/kg
- Chloride: 20,000 mg/kg

INITIAL DELINEATION AND SAMPLING ACTIVITIES

Ensolum conducted delineation activities to assess potential soil impacts at the Site on January 10 and January 11, 2024. Six borings (BH01 through BH06) were advanced using hollow stem auger drilling and sampling equipment at the locations shown on Figure 2. Because the drill rig could not access the west side of the AST, one near-surface soil sample (SS01) was also collected directly adjacent to the release source at the AST manway to assess soil directly impacted by the condensate. During drilling, an Ensolum geologist logged lithology, inspected the soil for petroleum hydrocarbon staining and odors, and field screened for volatile organic compounds (VOCs) using a calibrated photoionization detector (PID), with results noted on field logs. Groundwater and/or saturated soil was not observed in any of the borings during drilling. Soil sample SS01, located near the release source, contained GRO+DRO and BTEX concentrations exceeding the NMOCD Closure Criteria at a depth of approximately 4 inches below ground surface (bgs). Concentrations of Site COCs were either not detected above the laboratory reporting limits and/or were not detected above the applicable Closure Criteria in any of the remaining analyzed samples collected during the delineation activities. A summary of delineation results is presented in Table 1. Further details regarding the initial delineation activities are also presented in the *Remediation Work Plan*.

EXCAVATION AND CONFIRMATION SOIL SAMPLING ACTIVITIES

On June 18, 2024, Hilcorp retained Ensolum to conduct excavation oversight, field screening, and soil sampling activities. The NMOCD was given notification of sampling prior to excavation activities began (Appendix A). During excavation activities, an Ensolum field scientist field screened soil for VOCs using a PID and inspected the soil for petroleum hydrocarbon staining and odors to guide excavation and closure sampling. Approximately 155 cubic yards of soil were excavated and removed for off-Site disposal at the Envirotech Landfarm in San Juan County, New Mexico.

Following removal of the impacted soil on June 18, 2024, 5-point composite soil samples were collected at least every 200 square feet from the floor and sidewalls of the excavation. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. In total, four floor samples (FS01@6, FS02@3, FS03@3-6, and FS04@6) and four sidewall samples (SW01@0-6, SW02@0-6, SW03@3-6, and SW04@6) were collected from the excavation extent. Samples were submitted to Eurofins Environment Testing (Eurofins) in Albuquerque, New Mexico for analysis of TPH following United States Environmental Protection Agency (EPA) Method 8015M/D, BTEX following EPA Method 8021B, and chloride following EPA Method 300.0. Additionally, one discrete sample (SW03@6-D) was collected from stained soil present within the sidewall SW03 area. Based on the analytical results, all samples were below the Site Closure Criteria except for the SW03@6-D, which contained elevated concentrations of total BTEX and GRO+DRO.

On July 1, 2024, Ensolum returned to further remediate identified impacts at SW03@6-D and extended the excavation to the north. Approximately an additional 100 cubic yards of soil were excavated and removed for off-Site disposal at the Envirotech Landfarm in San Juan County, New Mexico. During excavation, an Ensolum field scientist field screened and sampled in the same manner described above. Based on the areal extent of additional soil removal, four additional 5-point composite samples were collected from the excavation floor (FS05a and FS06a) and sidewalls (SW05a and SW06a). One discrete sample (SW06-D2) was also collected from suspected stained soil from sidewall area SW06A.

These samples were inadvertently lost during shipment to the analytical laboratory and were not able to be analyzed. As a result, Ensolum returned to the Site on August 15, 2024, to resample the same locations. All samples were submitted to Eurofins for analysis of BTEX, TPH-GRO, TPH-DRO, and TPH-MRO, and chloride following the methods described above.

Based on the laboratory analytical results, all final soil samples collected from the excavation sidewalls and floor were compliant with NMOCD Closure Criteria and no further remediation is required. A summary of analytical results is summarized in Table 2 and presented on Figure 3. Complete laboratory analytical reports are attached in Appendix B. Photographs taken during excavation activities are presented in Appendix C.

CLOSURE REQUEST

Corrective actions and soil sampling activities were conducted at the Site to address the release of condensate discovered on October 30, 2023. Laboratory analytical results for the soil samples collected from the final excavation extents indicated all COC concentrations were compliant with the Site Closure Criteria and no further remediation is required. The corrective action initiated by Hilcorp has mitigated impacts at this Site and these remedial actions have been protective of human health, the environment, and groundwater. As such, Hilcorp respectfully request closure for Incident Number nAPP2331717075.

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

Sincerely,
Ensolum, LLC

Sidney Mahanay
Project Geologist
(979) 877-8887
smahanay@ensolum.com

Stuart Hyde
Senior Managing Geologist
(970) 903-1607
shyde@ensolum.com

Attachments:

Figure 1: Site Receptor Map
Figure 2: Delineation Analytical Results
Figure 3: Excavation Soil Sample Locations

Table 1: Delineation Soil Sample Analytical Results
Table 2: Excavation Soil Sample Analytical Results

Appendix A: Agency Notifications
Appendix B: Laboratory Analytical Reports
Appendix C: Photographic Log

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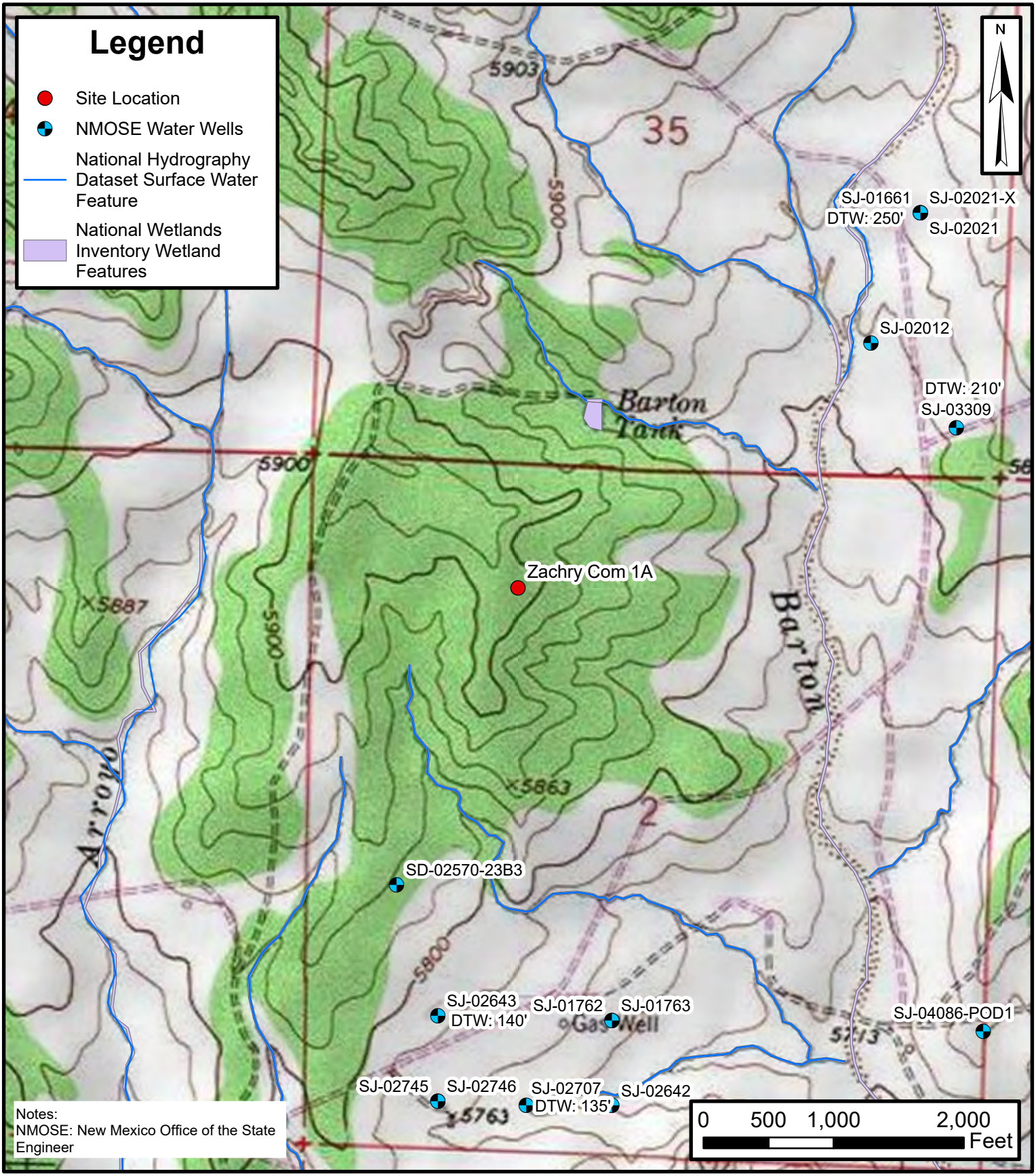
FIGURES



ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Site Receptor Map

Zachry Com 1A
Hilcorp Energy Company
36.845766, -108.071498
San Juan County, New Mexico

FIGURE
1

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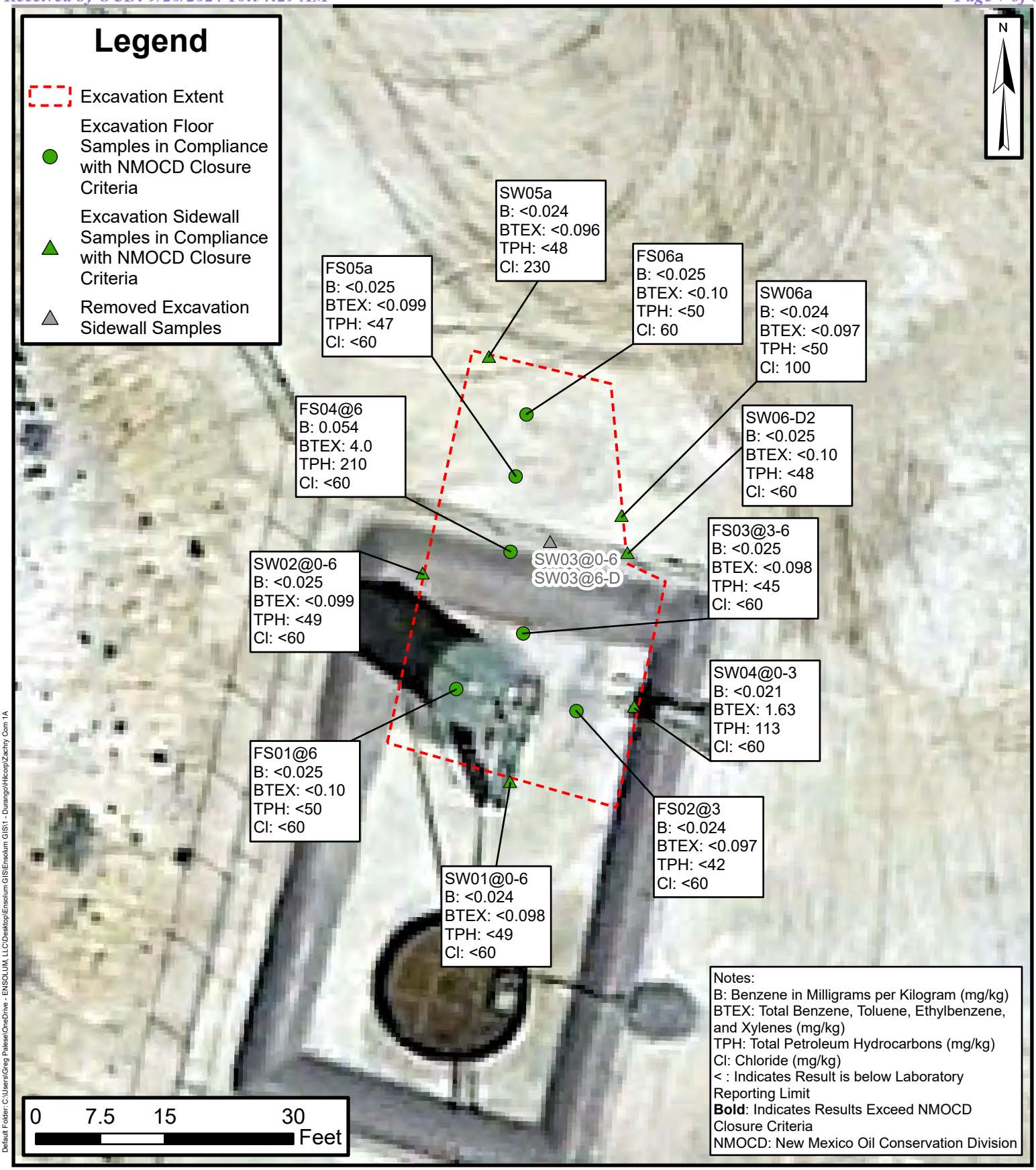
Environmental, Engineering and Hydrogeologic Consultants

Delineation Analytical Results

Zachry Com 1A
Hilcorp Energy Company
36.845766, -108.071498
San Juan County, New Mexico

FIGURE
2

Sources: Environmental Systems Research Institute (ESRI), Google Earth



Default Folder: C:\Users\Greg Pates\OneDrive - ENSOLUM, LLC\Desktop\Ensolum GIS\Ensolum GIS\1 - Durango\Hilcorp\Zachry Com 1A

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Environmental, Engineering and Hydrogeologic Consultants

Excavation Soil Sample Locations

Zachry Com 1A
Hilcorp Energy Company
36.845766, -108.071498
San Juan County, New Mexico

FIGURE
3

Sources: Google Earth

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TABLES

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TABLE 1
DELINEATION SOIL SAMPLE ANALYTICAL RESULTS
Zachary Com 1A
Hilcorp Energy Company
San Juan County, New Mexico

Sample ID	Date	Depth (feet bgs)	PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (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			NE	**10**	NE	NE	NE	**50**	NE	NE	NE	**1,000**	**2,500**	**20,000**
BH01 4-6	1/10/2024	4-6	33.5	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	<9.5	<47	<14.3	<47	<60
BH01 24-26	1/10/2024	24-26	3.4	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<9.8	<49	<14.7	<49	<60
BH02 9-11	1/10/2024	9-11	272	<0.024	<0.049	<0.049	0.099	0.099	<4.9	15	<50	15	15	<60
BH02 24-26	1/10/2024	24-26	6.9	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<9.3	<46	<14.2	<46	<60
BH03 14-16	1/10/2024	14-16	42.6	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	18	<47	18	18	<60
BH03 24-26	1/10/2024	24-26	8.5	<0.023	<0.046	<0.046	<0.092	<0.092	<4.6	12	<48	12	12	<60
BH04 4-6	1/10/2024	4-6	8.2	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.7	<49	<14.5	<49	82
BH04 24-26	1/10/2024	24-26	1.6	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	<9.7	<49	<14.5	<49	<60
BH05 4-6	1/10/2024	4-6	1.4	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<10	<50	<14.8	<50	<60
BH05 19-21	1/10/2024	19-21	0.7	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	<9.7	<49	<14.5	<49	<60
BH06 4-6	1/11/2024	4-6	10.4	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	220	120	220	340	1,200
BH06 24-26	1/11/2024	24-26	2.0	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.9	<50	<14.9	<50	<60
SS01	1/11/2024	0-0.5	1,947	<0.023	2.9	4.5	56	**63**	880	330	<49	**1,210**	1,210	<60

Notes:

bgs: Below ground surface
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
mg/kg: Milligrams per kilogram
NE: Not Established
NMOCD: New Mexico Oil Conservation Division
PID: Photoionization Detector
ppm: Parts per million
GRO: Gasoline Range Organics
DRO: Diesel Range Organics
MRO: Motor Oil/Lube Oil Range Organics
TPH: Total Petroleum Hydrocarbon
*Concentrations in **bold** exceed the New Mexico Oil Conservation Division Table I Closure Criteria for Soils Impacted by a Release*
<: indicates result less than the stated laboratory reporting limit (RL)

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TABLE 2
EXCAVATION SOIL SAMPLE ANALYTICAL RESULTS
Zachry Com 1A
Hilcorp Energy Company
San Juan County, New Mexico

Sample Identification	Date	Depth (feet bgs)	PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Closure Criteria for Soils Impacted by a Release			NE	**10**	NE	NE	NE	**50**	NE	NE	NE	**1,000**	**2,500**	**20,000**
Excavation Floor Confirmation Samples														
FS01@6	6/18/2024	6	12.5	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.9	<50	<9.9	<50	<60
FS02@3	6/18/2024	3	35	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<8.4	<42	<8.4	<42	<60
FS03@3-6	6/18/2024	3 - 6	64.3	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<9.0	<45	<9.0	<45	<60
FS04@6	6/18/2024	6	513.4	0.054	0.20	0.34	3.4	3.994	110	100	<46	210	210	<60
FS05a	8/15/2024	6	15.1	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	<9.3	<47	<9.3	<47	<60
FS06a	8/15/2024	6	13.5	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<10	<50	<10	<50	60
Excavation Sidewall Confirmation Samples														
SW01@0-6	6/18/2024	0 - 6	19.8	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	<9.7	<49	<9.7	<49	<60
SW02@0-6	6/18/2024	0 - 6	148.2	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.5	<47	<9.5	<47	<59
~~SW03@0-6~~	~~6/18/2024~~	~~0 - 6~~	~~488.3~~	~~<0.024~~	~~<0.049~~	~~<0.049~~	~~0.12~~	~~0.12~~	~~<4.9~~	~~38~~	~~<49~~	~~38~~	~~38~~	~~<60~~
~~SW03@6-D*~~	~~6/18/2024~~	~~6~~	~~4,035~~	~~1.2~~	~~26~~	~~6.8~~	~~79~~	~~**113**~~	~~1,200~~	~~410~~	~~55~~	~~**1,610**~~	~~1,665~~	~~<60~~
SW04@0-3	6/18/2024	0 - 3	989.3	<0.021	<0.043	0.13	1.5	1.63	53	60	<47	113	113	<60
SW05a	8/15/2024	0 - 6	15.4	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.6	<48	<9.6	<48	230
SW06a	8/15/2024	0 - 6	10.1	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.9	<50	<9.9	<50	100
SW06-D2*	8/15/2024	4	39.7	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.5	<48	<9.5	<48	<60

Notes:

**: Discrete sample collected from discolored sidewall area*
bgs: Below ground surface
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
mg/kg: Milligrams per kilogram
NE: Not Established
NMOCD: New Mexico Oil Conservation Division
PID: Photoionization detector
ppm: Parts per million
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** exceeded the New Mexico Oil Conservation Division Table I Closure Criteria for Soils Impacted by a Release*
Gray and strikethrough text Indicates composite sample area was excavated further and re-sampled

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APPENDIX A

Agency Notifications

From: OCDOnline@state.nm.us
To: Stuart Hyde
Subject: The Oil Conservation Division (OCD) has accepted the application, Application ID: 354028
Date: Thursday, June 13, 2024 3:37:59 PM

[**EXTERNAL EMAIL**]

To whom it may concern (c/o Stuart Hyde for HILCORP ENERGY COMPANY),

The OCD has received the submitted *Notification for (Final) Sampling of a Release* (C-141N), for incident ID (n#) nAPP2331717075.

The sampling event is expected to take place:

When: 06/18/2024 @ 09:30
Where: C-02-30N-12W 990 FNL 1630 FWL (36.845768,-108.0713806)

Additional Information: PM Contact - Wes Weichert (816-266-8732)
Alternate Contact - Stuart Hyde (970) 903-1607

Additional Instructions: Site Coordinates: 36.84569, -108.07085

An OCD representative may be available onsite at the date and time reported. In the absence or presence of an OCD representative, sampling pursuant to 19.15.29.12.D NMAC is required. Sampling must be performed following an approved sampling plan or pursuant to 19.15.29.12.D.(1).(c) NMAC. Should there be a change in the scheduled date and time of the sampling event, then another notification should be resubmitted through OCD permitting as soon as possible.

- **Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.**

If you have any questions regarding this application, or don't know why you have received this email, please contact us.

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

From: OCDOnline@state.nm.us
To: Stuart Hyde
Subject: The Oil Conservation Division (OCD) has accepted the application, Application ID: 373438
Date: Tuesday, August 13, 2024 12:51:19 PM

[**EXTERNAL EMAIL**]

To whom it may concern (c/o Stuart Hyde for HILCORP ENERGY COMPANY),

The OCD has received the submitted *Notification for (Final) Sampling of a Release* (C-141N), for incident ID (n#) nAPP2331717075.

The sampling event is expected to take place:

When: 08/15/2024 @ 09:00
Where: C-02-30N-12W 990 FNL 1630 FWL (36.845768,-108.0713806)

Additional Information: Stuart Hyde: 970-903-1607
Wes Weichert: 816-266-8732
Sidney Mahanay: 979-877-8887

Additional Instructions: Site Coordinates: 36.845768,-108.0713806

An OCD representative may be available onsite at the date and time reported. In the absence or presence of an OCD representative, sampling pursuant to 19.15.29.12.D NMAC is required. Sampling must be performed following an approved sampling plan or pursuant to 19.15.29.12.D.(1).(c) NMAC. Should there be a change in the scheduled date and time of the sampling event, then another notification should be resubmitted through OCD permitting as soon as possible.

- **Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.**

If you have any questions regarding this application, or don't know why you have received this email, please contact us.

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

From: Velez, Nelson, EMNRD
To: Stuart Hyde
Cc: Mitch Killough; Wes Weichert; Sidney Mahanay
Subject: Re: [EXTERNAL] nAPP2331717075 - Zachry Com 1A Sampling Notification Variance Request
Date: Tuesday, August 13, 2024 1:26:52 PM
Attachments: image001.png
image002.png
image003.png
Outlook-mvb5mkbx.png

[**EXTERNAL EMAIL**]
Good day Stuart,

Thank you for the notice. Your variance request specifically addressing 19.15.29.12D (1a) NMAC is approved.

If an OCD representative is not on-site on the date &/or time given, please sample per 19.15.29 NMAC or from an OCD pre-approved sampling plan. For whatever reason, if the sampling timeframe is altered, please notify the OCD as soon as possible so we may adjust our schedule(s). Failure to notify the OCD of this change may result in the closure sample(s) not being accepted.

Please keep a copy of this communication for inclusion within the appropriate report submittal.

Regards,

Nelson Velez ● Environmental Specialist - Adv
Environmental Bureau | EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87410
(505) 469-6146 | nelson.velez@emnrd.nm.gov
http://www.emnrd.nm.gov/ocd

From: Stuart Hyde <shyde@ensolum.com>
Sent: Tuesday, August 13, 2024 1:25 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Wes Weichert <wweichert@ensolum.com>; Sidney Mahanay <smahanay@ensolum.com>

Subject: [EXTERNAL] nAPP2331717075 - Zachry Com 1A Sampling Notification Variance Request

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Nelson,

Due to a mishap at the lab, we did not receive analytical results from the Zachry Com 1A 7/1/2024 sampling event until this morning. Due to the delays, the samples were analyzed out of hold time and we will need to resample the excavation. As such, we are requesting a variance of the 2-business day sampling notification requirement set forth in 9.15.29.12(D)(1)(a) in order to recollect confirmation soil samples at the Zachry Com 1A on Thursday August 15 at 9:00 AM. Please let me know if you have any questions. Thanks.

Stuart Hyde, PG
(Licensed in WA/TX)
Senior Managing Geologist
970-903-1607
Ensolum, LLC

"If you want to go fast, go alone. If you want to go far, go together." – African Proverb

---

From: OCDOnline@state.nm.us <OCDOnline@state.nm.us>
Sent: Tuesday, August 13, 2024 12:51 PM
To: Stuart Hyde <shyde@ensolum.com>
Subject: The Oil Conservation Division (OCD) has accepted the application, Application ID: 373438

[**EXTERNAL EMAIL**]
To whom it may concern (c/o Stuart Hyde for HILCORP ENERGY COMPANY),
The OCD has received the submitted *Notification for (Final) Sampling of a Release* (C-141N), for incident ID (n#) nAPP2331717075.

The sampling event is expected to take place:

When: 08/15/2024 @ 09:00
Where: C-02-30N-12W 990 FNL 1630 FWL (36.845768,-108.0713806)

Additional Information: Stuart Hyde: 970-903-1607
Wes Weichert: 816-266-8732
Sidney Mahanay: 979-877-8887

Additional Instructions: Site Coordinates: 36.845768,-108.0713806

An OCD representative may be available onsite at the date and time reported. In the absence or presence of an OCD representative, sampling pursuant to 19.15.29.12.D NMAC is required. Sampling must be performed following an approved sampling plan or pursuant to 19.15.29.12.D.(1).(c) NMAC. Should there be a change in the scheduled date and time of the

sampling event, then another notification should be resubmitted through OCD permitting as soon as possible.

- **Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.**

If you have any questions regarding this application, or don't know why you have received this email, please contact us.

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

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APPENDIX B

Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mitch Killough
Hilcorp Energy
PO BOX 4700
Farmington, New Mexico 87499

Generated 6/25/2024 1:39:25 PM

JOB DESCRIPTION

Zachry

JOB NUMBER

885-6487-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
6/25/2024 1:39:25 PM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: Zachry

Laboratory Job ID: 885-6487-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Hilcorp Energy
Project: Zachry

Job ID: 885-6487-1

Job ID: 885-6487-1 Eurofins Albuquerque

Job Narrative
885-6487-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 6/19/2024 7:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.3°C.

Gasoline Range Organics
Method 8015D_GRO: Surrogate recovery for the following samples were outside control limits: FS04@6 (885-6487-1), SW04@0-3 (885-6487-2) and SW03@6-D (885-6487-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015D_GRO: Surrogate recovery for the following samples were outside control limits: FS04@6 (885-6487-1) and SW03@6-D (885-6487-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
Method 8021B: Surrogate recovery for the following sample was outside control limits: SW03@6-D (885-6487-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 885-6946 and analytical batch 885-7016 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

Client Sample ID: FS04@6

Date Collected: 06/18/24 16:45
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6487-1

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	110		3.7		mg/Kg		06/19/24 08:48	06/19/24 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*322*	*S1+*	*35 - 166*	*06/19/24 08:48*	*06/19/24 13:28*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.054		0.018		mg/Kg		06/19/24 08:48	06/19/24 13:28	1
Ethylbenzene	0.34		0.037		mg/Kg		06/19/24 08:48	06/19/24 13:28	1
Toluene	0.20		0.037		mg/Kg		06/19/24 08:48	06/19/24 13:28	1
Xylenes, Total	3.4		0.074		mg/Kg		06/19/24 08:48	06/19/24 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*48 - 145*	*06/19/24 08:48*	*06/19/24 13:28*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	100	F1	9.2		mg/Kg		06/19/24 08:21	06/19/24 11:30	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		06/19/24 08:21	06/19/24 11:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*06/19/24 08:21*	*06/19/24 11:30*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/19/24 10:20	06/19/24 15:42	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

Client Sample ID: SW04@0-3

Date Collected: 06/18/24 16:55
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6487-2

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	**53**		4.3		mg/Kg		06/19/24 08:48	06/19/24 12:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*295*	*S1+*	*35 - 166*	*06/19/24 08:48*	*06/19/24 12:41*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.021		mg/Kg		06/19/24 08:48	06/19/24 12:41	1
Ethylbenzene	**0.13**		0.043		mg/Kg		06/19/24 08:48	06/19/24 12:41	1
Toluene	ND		0.043		mg/Kg		06/19/24 08:48	06/19/24 12:41	1
Xylenes, Total	**1.5**		0.086		mg/Kg		06/19/24 08:48	06/19/24 12:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*48 - 145*	*06/19/24 08:48*	*06/19/24 12:41*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**60**		9.5		mg/Kg		06/19/24 08:21	06/19/24 12:02	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		06/19/24 08:21	06/19/24 12:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*06/19/24 08:21*	*06/19/24 12:02*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/19/24 10:20	06/19/24 15:55	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

Client Sample ID: SW03@6-D

Date Collected: 06/18/24 17:00
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6487-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	1200		70		mg/Kg		06/19/24 08:48	06/19/24 13:05	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*401*	*S1+*	*35 - 166*	*06/19/24 08:48*	*06/19/24 13:05*	*20*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.2		0.035		mg/Kg		06/19/24 08:48	06/19/24 11:54	2
Ethylbenzene	6.8		0.070		mg/Kg		06/19/24 08:48	06/19/24 11:54	2
Toluene	26		0.70		mg/Kg		06/19/24 08:48	06/19/24 13:05	20
Xylenes, Total	79		1.4		mg/Kg		06/19/24 08:48	06/19/24 13:05	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*281*	*S1+*	*48 - 145*	*06/19/24 08:48*	*06/19/24 11:54*	*2*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	410		9.2		mg/Kg		06/19/24 08:21	06/19/24 12:13	1
Motor Oil Range Organics [C28-C40]	55		46		mg/Kg		06/19/24 08:21	06/19/24 12:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*06/19/24 08:21*	*06/19/24 12:13*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/19/24 10:20	06/19/24 16:32	20

QC Sample Results

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-6400/1-A
Matrix: Solid
Analysis Batch: 7072

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 6400

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		06/10/24 13:00	06/19/24 10:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*06/10/24 13:00*	*06/19/24 10:44*	*1*

Lab Sample ID: LCS 885-6400/2-A
Matrix: Solid
Analysis Batch: 7072

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 6400

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	24.8		mg/Kg		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*204*	*S1+*	*35 - 166*

Lab Sample ID: MB 885-6951/1-A
Matrix: Solid
Analysis Batch: 7006

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 6951

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		06/19/24 08:48	06/19/24 10:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*06/19/24 08:48*	*06/19/24 10:44*	*1*

Lab Sample ID: LCS 885-6951/2-A
Matrix: Solid
Analysis Batch: 7006

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 6951

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	24.8		mg/Kg		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*204*	*S1+*	*35 - 166*

Lab Sample ID: 885-6487-1 MS
Matrix: Solid
Analysis Batch: 7006

Client Sample ID: FS04@6
Prep Type: Total/NA
Prep Batch: 6951

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	110		18.5	135	4	mg/Kg		114	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*418*	*S1+*	*35 - 166*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: 885-6487-1 MSD — **Client Sample ID: FS04@6**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 7006 — **Prep Batch: 6951**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	110		18.5	132	4	mg/Kg		98	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*420*	*S1+*	*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-6951/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 7007 — **Prep Batch: 6951**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/19/24 08:48	06/19/24 10:44	1
Ethylbenzene	ND		0.050		mg/Kg		06/19/24 08:48	06/19/24 10:44	1
Toluene	ND		0.050		mg/Kg		06/19/24 08:48	06/19/24 10:44	1
Xylenes, Total	ND		0.10		mg/Kg		06/19/24 08:48	06/19/24 10:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*06/19/24 08:48*	*06/19/24 10:44*	*1*

Lab Sample ID: LCS 885-6951/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 7007 — **Prep Batch: 6951**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.923		mg/Kg		92	70 - 130		
Ethylbenzene			1.00	0.887		mg/Kg		89	70 - 130		
m&p-Xylene			2.00	1.79		mg/Kg		90	70 - 130		
o-Xylene			1.00	0.860		mg/Kg		86	70 - 130		
Toluene			1.00	0.875		mg/Kg		87	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*

Lab Sample ID: 885-6487-2 MS — **Client Sample ID: SW04@0-3**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 7007 — **Prep Batch: 6951**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.859	0.770		mg/Kg		90	70 - 130		
Ethylbenzene	0.13		0.859	0.859		mg/Kg		84	70 - 130		
m&p-Xylene	1.4		1.72	3.00		mg/Kg		92	70 - 130		
o-Xylene	0.049		0.859	0.790		mg/Kg		86	70 - 130		
Toluene	ND		0.859	0.760		mg/Kg		88	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*48 - 145*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: 885-6487-2 MSD
Matrix: Solid
Analysis Batch: 7007

Client Sample ID: SW04@0-3
Prep Type: Total/NA
Prep Batch: 6951

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.859	0.753		mg/Kg		88	70 - 130	2	20
Ethylbenzene	0.13		0.859	0.850		mg/Kg		83	70 - 130	1	20
m&p-Xylene	1.4		1.72	2.99		mg/Kg		91	70 - 130	1	20
o-Xylene	0.049		0.859	0.783		mg/Kg		85	70 - 130	1	20
Toluene	ND		0.859	0.745		mg/Kg		87	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*48 - 145*

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-6946/1-A
Matrix: Solid
Analysis Batch: 7016

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 6946

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		06/19/24 08:21	06/19/24 10:47	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		06/19/24 08:21	06/19/24 10:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*06/19/24 08:21*	*06/19/24 10:47*	*1*

Lab Sample ID: LCS 885-6946/2-A
Matrix: Solid
Analysis Batch: 7016

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 6946

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	49.7		mg/Kg		99	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*

Lab Sample ID: 885-6487-1 MS
Matrix: Solid
Analysis Batch: 7016

Client Sample ID: FS04@6
Prep Type: Total/NA
Prep Batch: 6946

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	100	F1	46.3	101	F1	mg/Kg		2	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*108*		*62 - 134*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 885-6487-1 MSD
Matrix: Solid
Analysis Batch: 7016

Client Sample ID: FS04@6
Prep Type: Total/NA
Prep Batch: 6946

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	100	F1	46.6	94.0	F1	mg/Kg		-13	44 - 136	7	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*111*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-6987/1-A
Matrix: Solid
Analysis Batch: 7029

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 6987

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.5		mg/Kg		06/19/24 10:20	06/19/24 11:35	1

Lab Sample ID: LCS 885-6987/2-A
Matrix: Solid
Analysis Batch: 7029

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 6987

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			15.0	14.0		mg/Kg		93	90 - 110		

QC Association Summary

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

GC VOA

Prep Batch: 6400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-6400/1-A	Method Blank	Total/NA	Solid	5035	
LCS 885-6400/2-A	Lab Control Sample	Total/NA	Solid	5035	

Prep Batch: 6951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6487-1	FS04@6	Total/NA	Solid	5035	
885-6487-2	SW04@0-3	Total/NA	Solid	5035	
885-6487-3	SW03@6-D	Total/NA	Solid	5035	
MB 885-6951/1-A	Method Blank	Total/NA	Solid	5035	
LCS 885-6951/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCS 885-6951/3-A	Lab Control Sample	Total/NA	Solid	5035	
885-6487-1 MS	FS04@6	Total/NA	Solid	5035	
885-6487-1 MSD	FS04@6	Total/NA	Solid	5035	
885-6487-2 MS	SW04@0-3	Total/NA	Solid	5035	
885-6487-2 MSD	SW04@0-3	Total/NA	Solid	5035	

Analysis Batch: 7006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6487-1	FS04@6	Total/NA	Solid	8015M/D	6951
885-6487-2	SW04@0-3	Total/NA	Solid	8015M/D	6951
885-6487-3	SW03@6-D	Total/NA	Solid	8015M/D	6951
MB 885-6951/1-A	Method Blank	Total/NA	Solid	8015M/D	6951
LCS 885-6951/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	6951
885-6487-1 MS	FS04@6	Total/NA	Solid	8015M/D	6951
885-6487-1 MSD	FS04@6	Total/NA	Solid	8015M/D	6951

Analysis Batch: 7007

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6487-1	FS04@6	Total/NA	Solid	8021B	6951
885-6487-2	SW04@0-3	Total/NA	Solid	8021B	6951
885-6487-3	SW03@6-D	Total/NA	Solid	8021B	6951
885-6487-3	SW03@6-D	Total/NA	Solid	8021B	6951
MB 885-6951/1-A	Method Blank	Total/NA	Solid	8021B	6951
LCS 885-6951/3-A	Lab Control Sample	Total/NA	Solid	8021B	6951
885-6487-2 MS	SW04@0-3	Total/NA	Solid	8021B	6951
885-6487-2 MSD	SW04@0-3	Total/NA	Solid	8021B	6951

Analysis Batch: 7072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-6400/1-A	Method Blank	Total/NA	Solid	8015M/D	6400
LCS 885-6400/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	6400

GC Semi VOA

Prep Batch: 6946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6487-1	FS04@6	Total/NA	Solid	SHAKE	
885-6487-2	SW04@0-3	Total/NA	Solid	SHAKE	
885-6487-3	SW03@6-D	Total/NA	Solid	SHAKE	
MB 885-6946/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-6946/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

GC Semi VOA (Continued)

Prep Batch: 6946 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6487-1 MS	FS04@6	Total/NA	Solid	SHAKE	
885-6487-1 MSD	FS04@6	Total/NA	Solid	SHAKE	

Analysis Batch: 7016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6487-1	FS04@6	Total/NA	Solid	8015M/D	6946
885-6487-2	SW04@0-3	Total/NA	Solid	8015M/D	6946
885-6487-3	SW03@6-D	Total/NA	Solid	8015M/D	6946
MB 885-6946/1-A	Method Blank	Total/NA	Solid	8015M/D	6946
LCS 885-6946/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	6946
885-6487-1 MS	FS04@6	Total/NA	Solid	8015M/D	6946
885-6487-1 MSD	FS04@6	Total/NA	Solid	8015M/D	6946

HPLC/IC

Prep Batch: 6987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6487-1	FS04@6	Total/NA	Solid	300_Prep	
885-6487-2	SW04@0-3	Total/NA	Solid	300_Prep	
885-6487-3	SW03@6-D	Total/NA	Solid	300_Prep	
MB 885-6987/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-6987/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 7029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6487-1	FS04@6	Total/NA	Solid	300.0	6987
885-6487-2	SW04@0-3	Total/NA	Solid	300.0	6987
885-6487-3	SW03@6-D	Total/NA	Solid	300.0	6987
MB 885-6987/1-A	Method Blank	Total/NA	Solid	300.0	6987
LCS 885-6987/2-A	Lab Control Sample	Total/NA	Solid	300.0	6987

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

Client Sample ID: FS04@6

Lab Sample ID: 885-6487-1

Date Collected: 06/18/24 16:45
Matrix: Solid
Date Received: 06/19/24 07:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			6951	AT	EET ALB	06/19/24 08:48
Total/NA	Analysis	8015M/D		1	7006	JP	EET ALB	06/19/24 13:28
Total/NA	Prep	5035			6951	AT	EET ALB	06/19/24 08:48
Total/NA	Analysis	8021B		1	7007	JP	EET ALB	06/19/24 13:28
Total/NA	Prep	SHAKE			6946	PD	EET ALB	06/19/24 08:21
Total/NA	Analysis	8015M/D		1	7016	PD	EET ALB	06/19/24 11:30
Total/NA	Prep	300_Prep			6987	SS	EET ALB	06/19/24 10:20
Total/NA	Analysis	300.0		20	7029	RC	EET ALB	06/19/24 15:42

Client Sample ID: SW04@0-3

Lab Sample ID: 885-6487-2

Date Collected: 06/18/24 16:55
Matrix: Solid
Date Received: 06/19/24 07:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			6951	AT	EET ALB	06/19/24 08:48
Total/NA	Analysis	8015M/D		1	7006	JP	EET ALB	06/19/24 12:41
Total/NA	Prep	5035			6951	AT	EET ALB	06/19/24 08:48
Total/NA	Analysis	8021B		1	7007	JP	EET ALB	06/19/24 12:41
Total/NA	Prep	SHAKE			6946	PD	EET ALB	06/19/24 08:21
Total/NA	Analysis	8015M/D		1	7016	PD	EET ALB	06/19/24 12:02
Total/NA	Prep	300_Prep			6987	SS	EET ALB	06/19/24 10:20
Total/NA	Analysis	300.0		20	7029	RC	EET ALB	06/19/24 15:55

Client Sample ID: SW03@6-D

Lab Sample ID: 885-6487-3

Date Collected: 06/18/24 17:00
Matrix: Solid
Date Received: 06/19/24 07:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			6951	AT	EET ALB	06/19/24 08:48
Total/NA	Analysis	8015M/D		20	7006	JP	EET ALB	06/19/24 13:05
Total/NA	Prep	5035			6951	AT	EET ALB	06/19/24 08:48
Total/NA	Analysis	8021B		2	7007	JP	EET ALB	06/19/24 11:54
Total/NA	Prep	5035			6951	AT	EET ALB	06/19/24 08:48
Total/NA	Analysis	8021B		20	7007	JP	EET ALB	06/19/24 13:05
Total/NA	Prep	SHAKE			6946	PD	EET ALB	06/19/24 08:21
Total/NA	Analysis	8015M/D		1	7016	PD	EET ALB	06/19/24 12:13
Total/NA	Prep	300_Prep			6987	SS	EET ALB	06/19/24 10:20
Total/NA	Analysis	300.0		20	7029	RC	EET ALB	06/19/24 16:32

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Zachry

Job ID: 885-6487-1

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5035	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5035	Solid	Benzene
8021B	5035	Solid	Ethylbenzene
8021B	5035	Solid	Toluene
8021B	5035	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Chain-of-Custody Record

Client: Hilcorp

Attn: Mitch K

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☒ EDD (Type) PDF, Excell

Turn-Around Time:
☐ Standard ☒ Rush Next Day

Project Name: Zachry

Project #:

Project Manager: Stuart H

Sampler: Greg P

On Ice: ☒ Yes ☐ No

# of Coolers: 1 40z

Cooler Temp (Including CF): 2.3-0.2=2.3 (°C)

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

885-6487 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
6/18	1645	Soil	FS04 @ 6	1, 4oz	Cool	1
↓	1655	↓	SW04 @ 0-3	↓	↓	2
↓	1700	↓	SW03 @ 6 -D	↓	↓	3

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH: 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)						
X	X					X									
X	X					X									
X	X					X									

Date	Time	Relinquished by	Received by	Via	Date	Time
6/18/24	1747				6/18/24	1747
6/18/24	1806			courier	6/19/24	7:00

Remarks:
cc: Shyde@ensolum.com
gpalese@ensolum
wweichert@ensolum

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

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-6487-1

Login Number: 6487 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mitch Killough
Hilcorp Energy
PO BOX 4700
Farmington, New Mexico 87499

Generated 7/9/2024 1:15:14 PM

JOB DESCRIPTION

Zachary

JOB NUMBER

885-6509-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

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Authorized for release by
Michelle Garcia, Project Manager
michelle.garcia@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: Zachary

Laboratory Job ID: 885-6509-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Hilcorp Energy
Project: Zachary

Job ID: 885-6509-1

Job ID: 885-6509-1 Eurofins Albuquerque

Job Narrative
885-6509-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 6/19/2024 7:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.7°C.

Receipt Exceptions
Client contacted lab to notify that the collection date for the samples is 6/18 not 6/16 as was written on COC. Date updated in the system.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Client Sample ID: SW01 @ 0-6

Date Collected: 06/18/24 15:30
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-1

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		06/20/24 10:21	06/25/24 03:24	1

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*06/20/24 10:21*	*06/25/24 03:24*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		06/20/24 10:21	06/25/24 03:24	1
Ethylbenzene	ND		0.049		mg/Kg		06/20/24 10:21	06/25/24 03:24	1
Toluene	ND		0.049		mg/Kg		06/20/24 10:21	06/25/24 03:24	1
Xylenes, Total	ND		0.098		mg/Kg		06/20/24 10:21	06/25/24 03:24	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*06/20/24 10:21*	*06/25/24 03:24*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		06/21/24 14:47	06/24/24 15:31	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		06/21/24 14:47	06/24/24 15:31	1

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*107*		*62 - 134*	*06/21/24 14:47*	*06/24/24 15:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/25/24 11:07	06/25/24 15:29	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Client Sample ID: SW02 @ 0-6

Date Collected: 06/18/24 15:35
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-2

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		06/20/24 10:21	06/25/24 03:47	1

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*06/20/24 10:21*	*06/25/24 03:47*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/20/24 10:21	06/25/24 03:47	1
Ethylbenzene	ND		0.049		mg/Kg		06/20/24 10:21	06/25/24 03:47	1
Toluene	ND		0.049		mg/Kg		06/20/24 10:21	06/25/24 03:47	1
Xylenes, Total	ND		0.099		mg/Kg		06/20/24 10:21	06/25/24 03:47	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*48 - 145*	*06/20/24 10:21*	*06/25/24 03:47*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		06/21/24 14:47	06/24/24 15:45	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		06/21/24 14:47	06/24/24 15:45	1

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*107*		*62 - 134*	*06/21/24 14:47*	*06/24/24 15:45*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		06/25/24 11:07	06/25/24 15:41	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Client Sample ID: FS01 @ 6
Date Collected: 06/18/24 15:40
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-3
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		06/20/24 10:21	06/25/24 04:11	1

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*06/20/24 10:21*	*06/25/24 04:11*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/20/24 10:21	06/25/24 04:11	1
Ethylbenzene	ND		0.050		mg/Kg		06/20/24 10:21	06/25/24 04:11	1
Toluene	ND		0.050		mg/Kg		06/20/24 10:21	06/25/24 04:11	1
Xylenes, Total	ND		0.10		mg/Kg		06/20/24 10:21	06/25/24 04:11	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*06/20/24 10:21*	*06/25/24 04:11*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		06/21/24 14:47	06/24/24 15:58	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		06/21/24 14:47	06/24/24 15:58	1

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*112*		*62 - 134*	*06/21/24 14:47*	*06/24/24 15:58*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/25/24 11:07	06/25/24 17:08	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Client Sample ID: FS02 @ 3
Date Collected: 06/18/24 16:30
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-4
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		06/20/24 10:21	06/25/24 04:34	1

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*35 - 166*	*06/20/24 10:21*	*06/25/24 04:34*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		06/20/24 10:21	06/25/24 04:34	1
Ethylbenzene	ND		0.048		mg/Kg		06/20/24 10:21	06/25/24 04:34	1
Toluene	ND		0.048		mg/Kg		06/20/24 10:21	06/25/24 04:34	1
Xylenes, Total	ND		0.097		mg/Kg		06/20/24 10:21	06/25/24 04:34	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*06/20/24 10:21*	*06/25/24 04:34*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.4		mg/Kg		06/21/24 14:47	06/24/24 16:11	1
Motor Oil Range Organics [C28-C40]	ND		42		mg/Kg		06/21/24 14:47	06/24/24 16:11	1

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*06/21/24 14:47*	*06/24/24 16:11*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/25/24 11:07	06/25/24 17:20	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Client Sample ID: FS03 @ 3-6
Date Collected: 06/18/24 16:40
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-5
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		06/20/24 10:21	06/25/24 04:58	1

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*06/20/24 10:21*	*06/25/24 04:58*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/20/24 10:21	06/25/24 04:58	1
Ethylbenzene	ND		0.049		mg/Kg		06/20/24 10:21	06/25/24 04:58	1
Toluene	ND		0.049		mg/Kg		06/20/24 10:21	06/25/24 04:58	1
Xylenes, Total	ND		0.098		mg/Kg		06/20/24 10:21	06/25/24 04:58	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*06/20/24 10:21*	*06/25/24 04:58*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.0		mg/Kg		06/21/24 14:47	06/24/24 16:24	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		06/21/24 14:47	06/24/24 16:24	1

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*105*		*62 - 134*	*06/21/24 14:47*	*06/24/24 16:24*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/25/24 11:07	06/25/24 17:33	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Client Sample ID: SW03 @ 0-6

Date Collected: 06/18/24 16:50
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-6

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		06/20/24 10:21	06/25/24 05:21	1

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*35 - 166*	*06/20/24 10:21*	*06/25/24 05:21*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		06/20/24 10:21	06/25/24 05:21	1
Ethylbenzene	ND		0.049		mg/Kg		06/20/24 10:21	06/25/24 05:21	1
Toluene	ND		0.049		mg/Kg		06/20/24 10:21	06/25/24 05:21	1
Xylenes, Total	**0.12**		0.098		mg/Kg		06/20/24 10:21	06/25/24 05:21	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*06/20/24 10:21*	*06/25/24 05:21*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**38**		9.7		mg/Kg		06/21/24 14:47	06/24/24 16:37	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		06/21/24 14:47	06/24/24 16:37	1

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*111*		*62 - 134*	*06/21/24 14:47*	*06/24/24 16:37*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/25/24 11:07	06/25/24 17:45	20

QC Sample Results

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-7074/1-A
Matrix: Solid
Analysis Batch: 7279

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7074

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		06/20/24 10:21	06/24/24 22:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*06/20/24 10:21*	*06/24/24 22:42*	*1*

Lab Sample ID: LCS 885-7074/2-A
Matrix: Solid
Analysis Batch: 7279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7074

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	26.3		mg/Kg		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*216*	*S1+*	*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-7074/1-A
Matrix: Solid
Analysis Batch: 7280

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7074

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/20/24 10:21	06/24/24 22:42	1
Ethylbenzene	ND		0.050		mg/Kg		06/20/24 10:21	06/24/24 22:42	1
Toluene	ND		0.050		mg/Kg		06/20/24 10:21	06/24/24 22:42	1
Xylenes, Total	ND		0.10		mg/Kg		06/20/24 10:21	06/24/24 22:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*06/20/24 10:21*	*06/24/24 22:42*	*1*

Lab Sample ID: LCS 885-7074/3-A
Matrix: Solid
Analysis Batch: 7280

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7074

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.883		mg/Kg		88	70 - 130		
Ethylbenzene			1.00	0.833		mg/Kg		83	70 - 130		
m&p-Xylene			2.00	1.72		mg/Kg		86	70 - 130		
o-Xylene			1.00	0.830		mg/Kg		83	70 - 130		
Toluene			1.00	0.829		mg/Kg		83	70 - 130		
Xylenes, Total			3.00	2.55		mg/Kg		85	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-7194/1-A
Matrix: Solid
Analysis Batch: 7288

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7194

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		06/21/24 14:45	06/24/24 14:52	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		06/21/24 14:45	06/24/24 14:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*06/21/24 14:45*	*06/24/24 14:52*	*1*

Lab Sample ID: LCS 885-7194/2-A
Matrix: Solid
Analysis Batch: 7288

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7194

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	45.8		mg/Kg		92	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*108*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-7324/1-A
Matrix: Solid
Analysis Batch: 7377

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7324

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.5		mg/Kg		06/25/24 11:07	06/25/24 15:04	1

Lab Sample ID: LCS 885-7324/2-A
Matrix: Solid
Analysis Batch: 7377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7324

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			15.0	14.1		mg/Kg		94	90 - 110		

Lab Sample ID: 885-6509-1 MS
Matrix: Solid
Analysis Batch: 7377

Client Sample ID: SW01 @ 0-6
Prep Type: Total/NA
Prep Batch: 7324

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	ND		30.0	ND		mg/Kg		NC	50 - 150		

Lab Sample ID: 885-6509-1 MSD
Matrix: Solid
Analysis Batch: 7377

Client Sample ID: SW01 @ 0-6
Prep Type: Total/NA
Prep Batch: 7324

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	ND		30.1	ND		mg/Kg		NC	50 - 150	NC	20

QC Sample Results

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 885-6509-2 MS
Matrix: Solid
Analysis Batch: 7377

Client Sample ID: SW02 @ 0-6
Prep Type: Total/NA
Prep Batch: 7324

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	ND		30.0	ND		mg/Kg		NC	50 - 150		

Lab Sample ID: 885-6509-2 MSD
Matrix: Solid
Analysis Batch: 7377

Client Sample ID: SW02 @ 0-6
Prep Type: Total/NA
Prep Batch: 7324

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	ND		30.1	ND		mg/Kg		NC	50 - 150	NC	20

Lab Sample ID: MB 885-7377/98
Matrix: Solid
Analysis Batch: 7377

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/Kg			06/26/24 00:45	1

Lab Sample ID: MRL 885-7377/97
Matrix: Solid
Analysis Batch: 7377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			0.500	0.523		mg/L		105	50 - 150		

QC Association Summary

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

GC VOA

Prep Batch: 7074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6509-1	SW01 @ 0-6	Total/NA	Solid	5030C	
885-6509-2	SW02 @ 0-6	Total/NA	Solid	5030C	
885-6509-3	FS01 @ 6	Total/NA	Solid	5030C	
885-6509-4	FS02 @ 3	Total/NA	Solid	5030C	
885-6509-5	FS03 @ 3-6	Total/NA	Solid	5030C	
885-6509-6	SW03 @ 0-6	Total/NA	Solid	5030C	
MB 885-7074/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-7074/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-7074/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Analysis Batch: 7279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6509-1	SW01 @ 0-6	Total/NA	Solid	8015M/D	7074
885-6509-2	SW02 @ 0-6	Total/NA	Solid	8015M/D	7074
885-6509-3	FS01 @ 6	Total/NA	Solid	8015M/D	7074
885-6509-4	FS02 @ 3	Total/NA	Solid	8015M/D	7074
885-6509-5	FS03 @ 3-6	Total/NA	Solid	8015M/D	7074
885-6509-6	SW03 @ 0-6	Total/NA	Solid	8015M/D	7074
MB 885-7074/1-A	Method Blank	Total/NA	Solid	8015M/D	7074
LCS 885-7074/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7074

Analysis Batch: 7280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6509-1	SW01 @ 0-6	Total/NA	Solid	8021B	7074
885-6509-2	SW02 @ 0-6	Total/NA	Solid	8021B	7074
885-6509-3	FS01 @ 6	Total/NA	Solid	8021B	7074
885-6509-4	FS02 @ 3	Total/NA	Solid	8021B	7074
885-6509-5	FS03 @ 3-6	Total/NA	Solid	8021B	7074
885-6509-6	SW03 @ 0-6	Total/NA	Solid	8021B	7074
MB 885-7074/1-A	Method Blank	Total/NA	Solid	8021B	7074
LCS 885-7074/3-A	Lab Control Sample	Total/NA	Solid	8021B	7074

GC Semi VOA

Prep Batch: 7194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6509-1	SW01 @ 0-6	Total/NA	Solid	SHAKE	
885-6509-2	SW02 @ 0-6	Total/NA	Solid	SHAKE	
885-6509-3	FS01 @ 6	Total/NA	Solid	SHAKE	
885-6509-4	FS02 @ 3	Total/NA	Solid	SHAKE	
885-6509-5	FS03 @ 3-6	Total/NA	Solid	SHAKE	
885-6509-6	SW03 @ 0-6	Total/NA	Solid	SHAKE	
MB 885-7194/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-7194/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 7288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6509-1	SW01 @ 0-6	Total/NA	Solid	8015M/D	7194
885-6509-2	SW02 @ 0-6	Total/NA	Solid	8015M/D	7194
885-6509-3	FS01 @ 6	Total/NA	Solid	8015M/D	7194
885-6509-4	FS02 @ 3	Total/NA	Solid	8015M/D	7194

QC Association Summary

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

GC Semi VOA (Continued)

Analysis Batch: 7288 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6509-5	FS03 @ 3-6	Total/NA	Solid	8015M/D	7194
885-6509-6	SW03 @ 0-6	Total/NA	Solid	8015M/D	7194
MB 885-7194/1-A	Method Blank	Total/NA	Solid	8015M/D	7194
LCS 885-7194/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7194

HPLC/IC

Prep Batch: 7324

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6509-1	SW01 @ 0-6	Total/NA	Solid	300_Prep	
885-6509-2	SW02 @ 0-6	Total/NA	Solid	300_Prep	
885-6509-3	FS01 @ 6	Total/NA	Solid	300_Prep	
885-6509-4	FS02 @ 3	Total/NA	Solid	300_Prep	
885-6509-5	FS03 @ 3-6	Total/NA	Solid	300_Prep	
885-6509-6	SW03 @ 0-6	Total/NA	Solid	300_Prep	
MB 885-7324/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-7324/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
885-6509-1 MS	SW01 @ 0-6	Total/NA	Solid	300_Prep	
885-6509-1 MSD	SW01 @ 0-6	Total/NA	Solid	300_Prep	
885-6509-2 MS	SW02 @ 0-6	Total/NA	Solid	300_Prep	
885-6509-2 MSD	SW02 @ 0-6	Total/NA	Solid	300_Prep	

Analysis Batch: 7377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6509-1	SW01 @ 0-6	Total/NA	Solid	300.0	7324
885-6509-2	SW02 @ 0-6	Total/NA	Solid	300.0	7324
885-6509-3	FS01 @ 6	Total/NA	Solid	300.0	7324
885-6509-4	FS02 @ 3	Total/NA	Solid	300.0	7324
885-6509-5	FS03 @ 3-6	Total/NA	Solid	300.0	7324
885-6509-6	SW03 @ 0-6	Total/NA	Solid	300.0	7324
MB 885-7324/1-A	Method Blank	Total/NA	Solid	300.0	7324
MB 885-7377/98	Method Blank	Total/NA	Solid	300.0	
LCS 885-7324/2-A	Lab Control Sample	Total/NA	Solid	300.0	7324
MRL 885-7377/97	Lab Control Sample	Total/NA	Solid	300.0	
885-6509-1 MS	SW01 @ 0-6	Total/NA	Solid	300.0	7324
885-6509-1 MSD	SW01 @ 0-6	Total/NA	Solid	300.0	7324
885-6509-2 MS	SW02 @ 0-6	Total/NA	Solid	300.0	7324
885-6509-2 MSD	SW02 @ 0-6	Total/NA	Solid	300.0	7324

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Client Sample ID: SW01 @ 0-6
Date Collected: 06/18/24 15:30
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8015M/D		1	7279	JP	EET ALB	06/25/24 03:24
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8021B		1	7280	JP	EET ALB	06/25/24 03:24
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7288	DH	EET ALB	06/24/24 15:31
Total/NA	Prep	300_Prep			7324	KB	EET ALB	06/25/24 11:07
Total/NA	Analysis	300.0		20	7377	JT	EET ALB	06/25/24 15:29

Client Sample ID: SW02 @ 0-6
Date Collected: 06/18/24 15:35
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8015M/D		1	7279	JP	EET ALB	06/25/24 03:47
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8021B		1	7280	JP	EET ALB	06/25/24 03:47
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7288	DH	EET ALB	06/24/24 15:45
Total/NA	Prep	300_Prep			7324	KB	EET ALB	06/25/24 11:07
Total/NA	Analysis	300.0		20	7377	JT	EET ALB	06/25/24 15:41

Client Sample ID: FS01 @ 6
Date Collected: 06/18/24 15:40
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8015M/D		1	7279	JP	EET ALB	06/25/24 04:11
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8021B		1	7280	JP	EET ALB	06/25/24 04:11
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7288	DH	EET ALB	06/24/24 15:58
Total/NA	Prep	300_Prep			7324	KB	EET ALB	06/25/24 11:07
Total/NA	Analysis	300.0		20	7377	JT	EET ALB	06/25/24 17:08

Client Sample ID: FS02 @ 3
Date Collected: 06/18/24 16:30
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8015M/D		1	7279	JP	EET ALB	06/25/24 04:34

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Client Sample ID: FS02 @ 3
Date Collected: 06/18/24 16:30
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8021B		1	7280	JP	EET ALB	06/25/24 04:34
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7288	DH	EET ALB	06/24/24 16:11
Total/NA	Prep	300_Prep			7324	KB	EET ALB	06/25/24 11:07
Total/NA	Analysis	300.0		20	7377	JT	EET ALB	06/25/24 17:20

Client Sample ID: FS03 @ 3-6
Date Collected: 06/18/24 16:40
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8015M/D		1	7279	JP	EET ALB	06/25/24 04:58
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8021B		1	7280	JP	EET ALB	06/25/24 04:58
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7288	DH	EET ALB	06/24/24 16:24
Total/NA	Prep	300_Prep			7324	KB	EET ALB	06/25/24 11:07
Total/NA	Analysis	300.0		20	7377	JT	EET ALB	06/25/24 17:33

Client Sample ID: SW03 @ 0-6
Date Collected: 06/18/24 16:50
Date Received: 06/19/24 07:00

Lab Sample ID: 885-6509-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8015M/D		1	7279	JP	EET ALB	06/25/24 05:21
Total/NA	Prep	5030C			7074	AT	EET ALB	06/20/24 10:21
Total/NA	Analysis	8021B		1	7280	JP	EET ALB	06/25/24 05:21
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7288	DH	EET ALB	06/24/24 16:37
Total/NA	Prep	300_Prep			7324	KB	EET ALB	06/25/24 11:07
Total/NA	Analysis	300.0		20	7377	JT	EET ALB	06/25/24 17:45

Laboratory References:
EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Zachary

Job ID: 885-6509-1

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Chain-of-Custody Record

Client: Hilcorp

Attn. Mitch K

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☒ EDD (Type) PDF, Excel

Turn-Around Time:
☒ Standard 5-day ☐ Rush

Project Name: Zachary

Project #:

Project Manager: Stuart H.

Sampler: Greg. P.

On Ice: ☒ Yes ☐ No

# of Coolers: 1 yoyo

Cooler Temp(Including CF): 0.7+0.7 (°C)

HALL ENVIRONMENTAL ANALYSIS LABOR
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 8710
Tel. 505-345-3975 Fax 505-345-4107

885-6509 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
6/16	1530	Soil	SW01@0-6	1,4oz	Cool	1
	1535		SW02@0-6			2
	1540		FS01@6			3
	1630		FS02@3			4
	1640		FS03@3-6			5
	1650		SW03@0-6			6

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
☒	☒					☒			

Date	Time	Relinquished by	Received by	Via	Date	Time
6/18/24	1752				6/18/24	1752
6/18/24	1806			courier	6/19/24	7:00

Remarks:

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

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-6509-1

Login Number: 6509 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: McQuiston, Steven

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mitch Killough
Hilcorp Energy
PO BOX 4700
Farmington, New Mexico 87499

Generated 8/28/2024 2:31:05 PM

JOB DESCRIPTION

Zachry Com 1A

JOB NUMBER

885-10042-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
8/28/2024 2:31:05 PM

Authorized for release by
Michelle Garcia, Project Manager
michelle.garcia@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Laboratory Job ID: 885-10042-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Hilcorp Energy
Project: Zachry Com 1A

Job ID: 885-10042-1

Job ID: 885-10042-1 Eurofins Albuquerque

Job Narrative
885-10042-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 8/16/2024 6:10 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.6°C.

Sample 10042-3 Sample ID SW03-D2 was corrected to SW06-D2.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Client Sample ID: FS05a

Date Collected: 08/15/24 12:22
Date Received: 08/16/24 06:10

Lab Sample ID: 885-10042-1

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		08/19/24 11:42	08/20/24 23:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*08/19/24 11:42*	*08/20/24 23:43*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		08/19/24 11:42	08/20/24 23:43	1
Ethylbenzene	ND		0.050		mg/Kg		08/19/24 11:42	08/20/24 23:43	1
Toluene	ND		0.050		mg/Kg		08/19/24 11:42	08/20/24 23:43	1
Xylenes, Total	ND		0.099		mg/Kg		08/19/24 11:42	08/20/24 23:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*48 - 145*	*08/19/24 11:42*	*08/20/24 23:43*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		08/20/24 11:05	08/21/24 04:23	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		08/20/24 11:05	08/21/24 04:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*85*		*62 - 134*	*08/20/24 11:05*	*08/21/24 04:23*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		08/21/24 16:07	08/22/24 09:21	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Client Sample ID: FS06a
Date Collected: 08/15/24 12:26
Date Received: 08/16/24 06:10

Lab Sample ID: 885-10042-2
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		08/19/24 11:42	08/21/24 00:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*08/19/24 11:42*	*08/21/24 00:53*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		08/19/24 11:42	08/21/24 00:53	1
Ethylbenzene	ND		0.050		mg/Kg		08/19/24 11:42	08/21/24 00:53	1
Toluene	ND		0.050		mg/Kg		08/19/24 11:42	08/21/24 00:53	1
Xylenes, Total	ND		0.10		mg/Kg		08/19/24 11:42	08/21/24 00:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*48 - 145*	*08/19/24 11:42*	*08/21/24 00:53*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		08/20/24 11:05	08/21/24 04:36	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		08/20/24 11:05	08/21/24 04:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*08/20/24 11:05*	*08/21/24 04:36*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**60**		60		mg/Kg		08/21/24 16:07	08/22/24 09:34	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Client Sample ID: SW06-D2

Date Collected: 08/15/24 12:30
Date Received: 08/16/24 06:10

Lab Sample ID: 885-10042-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		08/19/24 11:42	08/21/24 02:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*08/19/24 11:42*	*08/21/24 02:02*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		08/19/24 11:42	08/21/24 02:02	1
Ethylbenzene	ND		0.050		mg/Kg		08/19/24 11:42	08/21/24 02:02	1
Toluene	ND		0.050		mg/Kg		08/19/24 11:42	08/21/24 02:02	1
Xylenes, Total	ND		0.10		mg/Kg		08/19/24 11:42	08/21/24 02:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*48 - 145*	*08/19/24 11:42*	*08/21/24 02:02*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		08/20/24 11:05	08/21/24 04:49	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		08/20/24 11:05	08/21/24 04:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*08/20/24 11:05*	*08/21/24 04:49*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		08/21/24 16:07	08/22/24 10:12	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Client Sample ID: SW05a

Date Collected: 08/15/24 12:35
Date Received: 08/16/24 06:10

Lab Sample ID: 885-10042-4

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		08/19/24 11:42	08/21/24 02:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*08/19/24 11:42*	*08/21/24 02:26*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		08/19/24 11:42	08/21/24 02:26	1
Ethylbenzene	ND		0.048		mg/Kg		08/19/24 11:42	08/21/24 02:26	1
Toluene	ND		0.048		mg/Kg		08/19/24 11:42	08/21/24 02:26	1
Xylenes, Total	ND		0.096		mg/Kg		08/19/24 11:42	08/21/24 02:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*48 - 145*	*08/19/24 11:42*	*08/21/24 02:26*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		08/20/24 11:05	08/21/24 05:02	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		08/20/24 11:05	08/21/24 05:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*08/20/24 11:05*	*08/21/24 05:02*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**230**		60		mg/Kg		08/21/24 16:07	08/22/24 10:25	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Client Sample ID: SW06a

Date Collected: 08/15/24 12:40
Date Received: 08/16/24 06:10

Lab Sample ID: 885-10042-5

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		08/19/24 11:42	08/21/24 02:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*08/19/24 11:42*	*08/21/24 02:49*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		08/19/24 11:42	08/21/24 02:49	1
Ethylbenzene	ND		0.049		mg/Kg		08/19/24 11:42	08/21/24 02:49	1
Toluene	ND		0.049		mg/Kg		08/19/24 11:42	08/21/24 02:49	1
Xylenes, Total	ND		0.097		mg/Kg		08/19/24 11:42	08/21/24 02:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*48 - 145*	*08/19/24 11:42*	*08/21/24 02:49*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		08/20/24 11:05	08/21/24 05:28	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		08/20/24 11:05	08/21/24 05:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*08/20/24 11:05*	*08/21/24 05:28*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**100**		60		mg/Kg		08/21/24 16:07	08/22/24 10:38	20

QC Sample Results

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-10510/1-A
Matrix: Solid
Analysis Batch: 10663

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 10510

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		08/19/24 11:42	08/20/24 23:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*08/19/24 11:42*	*08/20/24 23:19*	*1*

Lab Sample ID: LCS 885-10510/2-A
Matrix: Solid
Analysis Batch: 10663

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 10510

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	30.2		mg/Kg		121	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*224*		*35 - 166*

Lab Sample ID: 885-10042-1 MS
Matrix: Solid
Analysis Batch: 10663

Client Sample ID: FS05a
Prep Type: Total/NA
Prep Batch: 10510

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		24.9	26.5		mg/Kg		107	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*211*		*35 - 166*

Lab Sample ID: 885-10042-1 MSD
Matrix: Solid
Analysis Batch: 10663

Client Sample ID: FS05a
Prep Type: Total/NA
Prep Batch: 10510

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.9	26.7		mg/Kg		107	70 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*210*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-10510/1-A
Matrix: Solid
Analysis Batch: 10664

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 10510

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		08/19/24 11:42	08/20/24 23:19	1
Ethylbenzene	ND		0.050		mg/Kg		08/19/24 11:42	08/20/24 23:19	1
Toluene	ND		0.050		mg/Kg		08/19/24 11:42	08/20/24 23:19	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-10510/1-A
Matrix: Solid
Analysis Batch: 10664

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 10510

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10		mg/Kg		08/19/24 11:42	08/20/24 23:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*48 - 145*	*08/19/24 11:42*	*08/20/24 23:19*	*1*

Lab Sample ID: LCS 885-10510/3-A
Matrix: Solid
Analysis Batch: 10664

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 10510

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.946		mg/Kg		95	70 - 130		
Ethylbenzene			1.00	0.863		mg/Kg		86	70 - 130		
m&p-Xylene			2.00	1.73		mg/Kg		87	70 - 130		
o-Xylene			1.00	0.836		mg/Kg		84	70 - 130		
Toluene			1.00	0.890		mg/Kg		89	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*

Lab Sample ID: 885-10042-2 MS
Matrix: Solid
Analysis Batch: 10664

Client Sample ID: FS06a
Prep Type: Total/NA
Prep Batch: 10510

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.994	0.979		mg/Kg		98	70 - 130		
Ethylbenzene	ND		0.994	0.914		mg/Kg		92	70 - 130		
m&p-Xylene	ND		1.99	1.82		mg/Kg		90	70 - 130		
o-Xylene	ND		0.994	0.881		mg/Kg		89	70 - 130		
Toluene	ND		0.994	0.917		mg/Kg		91	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*85*		*48 - 145*

Lab Sample ID: 885-10042-2 MSD
Matrix: Solid
Analysis Batch: 10664

Client Sample ID: FS06a
Prep Type: Total/NA
Prep Batch: 10510

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.997	0.995		mg/Kg		100	70 - 130	2	20
Ethylbenzene	ND		0.997	0.917		mg/Kg		92	70 - 130	0	20
m&p-Xylene	ND		1.99	1.82		mg/Kg		90	70 - 130	0	20
o-Xylene	ND		0.997	0.885		mg/Kg		89	70 - 130	0	20
Toluene	ND		0.997	0.933		mg/Kg		92	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*85*		*48 - 145*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-10601/1-A
Matrix: Solid
Analysis Batch: 10594

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 10601

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		08/20/24 11:05	08/21/24 01:26	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		08/20/24 11:05	08/21/24 01:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*80*		*62 - 134*	*08/20/24 11:05*	*08/21/24 01:26*	*1*

Lab Sample ID: LCS 885-10601/2-A
Matrix: Solid
Analysis Batch: 10594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 10601

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	43.5		mg/Kg		87	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*67*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-10642/1-A
Matrix: Solid
Analysis Batch: 10841

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 10642

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		08/21/24 16:07	08/22/24 07:38	1

Lab Sample ID: LCS 885-10642/2-A
Matrix: Solid
Analysis Batch: 10841

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 10642

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	28.4		mg/Kg		95	90 - 110		

QC Association Summary

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

GC VOA

Prep Batch: 10510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-10042-1	FS05a	Total/NA	Solid	5030C	
885-10042-2	FS06a	Total/NA	Solid	5030C	
885-10042-3	SW06-D2	Total/NA	Solid	5030C	
885-10042-4	SW05a	Total/NA	Solid	5030C	
885-10042-5	SW06a	Total/NA	Solid	5030C	
MB 885-10510/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-10510/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-10510/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-10042-1 MS	FS05a	Total/NA	Solid	5030C	
885-10042-1 MSD	FS05a	Total/NA	Solid	5030C	
885-10042-2 MS	FS06a	Total/NA	Solid	5030C	
885-10042-2 MSD	FS06a	Total/NA	Solid	5030C	

Analysis Batch: 10663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-10042-1	FS05a	Total/NA	Solid	8015M/D	10510
885-10042-2	FS06a	Total/NA	Solid	8015M/D	10510
885-10042-3	SW06-D2	Total/NA	Solid	8015M/D	10510
885-10042-4	SW05a	Total/NA	Solid	8015M/D	10510
885-10042-5	SW06a	Total/NA	Solid	8015M/D	10510
MB 885-10510/1-A	Method Blank	Total/NA	Solid	8015M/D	10510
LCS 885-10510/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	10510
885-10042-1 MS	FS05a	Total/NA	Solid	8015M/D	10510
885-10042-1 MSD	FS05a	Total/NA	Solid	8015M/D	10510

Analysis Batch: 10664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-10042-1	FS05a	Total/NA	Solid	8021B	10510
885-10042-2	FS06a	Total/NA	Solid	8021B	10510
885-10042-3	SW06-D2	Total/NA	Solid	8021B	10510
885-10042-4	SW05a	Total/NA	Solid	8021B	10510
885-10042-5	SW06a	Total/NA	Solid	8021B	10510
MB 885-10510/1-A	Method Blank	Total/NA	Solid	8021B	10510
LCS 885-10510/3-A	Lab Control Sample	Total/NA	Solid	8021B	10510
885-10042-2 MS	FS06a	Total/NA	Solid	8021B	10510
885-10042-2 MSD	FS06a	Total/NA	Solid	8021B	10510

GC Semi VOA

Analysis Batch: 10594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-10042-1	FS05a	Total/NA	Solid	8015M/D	10601
885-10042-2	FS06a	Total/NA	Solid	8015M/D	10601
885-10042-3	SW06-D2	Total/NA	Solid	8015M/D	10601
885-10042-4	SW05a	Total/NA	Solid	8015M/D	10601
885-10042-5	SW06a	Total/NA	Solid	8015M/D	10601
MB 885-10601/1-A	Method Blank	Total/NA	Solid	8015M/D	10601
LCS 885-10601/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	10601

QC Association Summary

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

GC Semi VOA

Prep Batch: 10601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-10042-1	FS05a	Total/NA	Solid	SHAKE	
885-10042-2	FS06a	Total/NA	Solid	SHAKE	
885-10042-3	SW06-D2	Total/NA	Solid	SHAKE	
885-10042-4	SW05a	Total/NA	Solid	SHAKE	
885-10042-5	SW06a	Total/NA	Solid	SHAKE	
MB 885-10601/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-10601/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

HPLC/IC

Prep Batch: 10642

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-10042-1	FS05a	Total/NA	Solid	300_Prep	
885-10042-2	FS06a	Total/NA	Solid	300_Prep	
885-10042-3	SW06-D2	Total/NA	Solid	300_Prep	
885-10042-4	SW05a	Total/NA	Solid	300_Prep	
885-10042-5	SW06a	Total/NA	Solid	300_Prep	
MB 885-10642/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-10642/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 10841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-10042-1	FS05a	Total/NA	Solid	300.0	10642
885-10042-2	FS06a	Total/NA	Solid	300.0	10642
885-10042-3	SW06-D2	Total/NA	Solid	300.0	10642
885-10042-4	SW05a	Total/NA	Solid	300.0	10642
885-10042-5	SW06a	Total/NA	Solid	300.0	10642
MB 885-10642/1-A	Method Blank	Total/NA	Solid	300.0	10642
LCS 885-10642/2-A	Lab Control Sample	Total/NA	Solid	300.0	10642

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Client Sample ID: FS05a — Lab Sample ID: 885-10042-1

Date Collected: 08/15/24 12:22 — **Matrix: Solid**
Date Received: 08/16/24 06:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10510	AT	EET ALB	08/19/24 11:42
Total/NA	Analysis	8015M/D		1	10663	JP	EET ALB	08/20/24 23:43
Total/NA	Prep	5030C			10510	AT	EET ALB	08/19/24 11:42
Total/NA	Analysis	8021B		1	10664	JP	EET ALB	08/20/24 23:43
Total/NA	Prep	SHAKE			10601	KR	EET ALB	08/20/24 11:05
Total/NA	Analysis	8015M/D		1	10594	KR	EET ALB	08/21/24 04:23
Total/NA	Prep	300_Prep			10642	KB	EET ALB	08/21/24 16:07
Total/NA	Analysis	300.0		20	10841	EH	EET ALB	08/22/24 09:21

Client Sample ID: FS06a — Lab Sample ID: 885-10042-2

Date Collected: 08/15/24 12:26 — **Matrix: Solid**
Date Received: 08/16/24 06:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10510	AT	EET ALB	08/19/24 11:42
Total/NA	Analysis	8015M/D		1	10663	JP	EET ALB	08/21/24 00:53
Total/NA	Prep	5030C			10510	AT	EET ALB	08/19/24 11:42
Total/NA	Analysis	8021B		1	10664	JP	EET ALB	08/21/24 00:53
Total/NA	Prep	SHAKE			10601	KR	EET ALB	08/20/24 11:05
Total/NA	Analysis	8015M/D		1	10594	KR	EET ALB	08/21/24 04:36
Total/NA	Prep	300_Prep			10642	KB	EET ALB	08/21/24 16:07
Total/NA	Analysis	300.0		20	10841	EH	EET ALB	08/22/24 09:34

Client Sample ID: SW06-D2 — Lab Sample ID: 885-10042-3

Date Collected: 08/15/24 12:30 — **Matrix: Solid**
Date Received: 08/16/24 06:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10510	AT	EET ALB	08/19/24 11:42
Total/NA	Analysis	8015M/D		1	10663	JP	EET ALB	08/21/24 02:02
Total/NA	Prep	5030C			10510	AT	EET ALB	08/19/24 11:42
Total/NA	Analysis	8021B		1	10664	JP	EET ALB	08/21/24 02:02
Total/NA	Prep	SHAKE			10601	KR	EET ALB	08/20/24 11:05
Total/NA	Analysis	8015M/D		1	10594	KR	EET ALB	08/21/24 04:49
Total/NA	Prep	300_Prep			10642	KB	EET ALB	08/21/24 16:07
Total/NA	Analysis	300.0		20	10841	EH	EET ALB	08/22/24 10:12

Client Sample ID: SW05a — Lab Sample ID: 885-10042-4

Date Collected: 08/15/24 12:35 — **Matrix: Solid**
Date Received: 08/16/24 06:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10510	AT	EET ALB	08/19/24 11:42
Total/NA	Analysis	8015M/D		1	10663	JP	EET ALB	08/21/24 02:26

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Client Sample ID: SW05a

Date Collected: 08/15/24 12:35
Date Received: 08/16/24 06:10

Lab Sample ID: 885-10042-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10510	AT	EET ALB	08/19/24 11:42
Total/NA	Analysis	8021B		1	10664	JP	EET ALB	08/21/24 02:26
Total/NA	Prep	SHAKE			10601	KR	EET ALB	08/20/24 11:05
Total/NA	Analysis	8015M/D		1	10594	KR	EET ALB	08/21/24 05:02
Total/NA	Prep	300_Prep			10642	KB	EET ALB	08/21/24 16:07
Total/NA	Analysis	300.0		20	10841	EH	EET ALB	08/22/24 10:25

Client Sample ID: SW06a

Date Collected: 08/15/24 12:40
Date Received: 08/16/24 06:10

Lab Sample ID: 885-10042-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10510	AT	EET ALB	08/19/24 11:42
Total/NA	Analysis	8015M/D		1	10663	JP	EET ALB	08/21/24 02:49
Total/NA	Prep	5030C			10510	AT	EET ALB	08/19/24 11:42
Total/NA	Analysis	8021B		1	10664	JP	EET ALB	08/21/24 02:49
Total/NA	Prep	SHAKE			10601	KR	EET ALB	08/20/24 11:05
Total/NA	Analysis	8015M/D		1	10594	KR	EET ALB	08/21/24 05:28
Total/NA	Prep	300_Prep			10642	KB	EET ALB	08/21/24 16:07
Total/NA	Analysis	300.0		20	10841	EH	EET ALB	08/22/24 10:38

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Zachry Com 1A

Job ID: 885-10042-1

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Chain-of-Custody Record

Client: Hilcorp

attn: Mitch Killough

Mailing Address:

Phone #:

email or Fax#: mkillough@hilcorp.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☑ Standard ☐ Rush

Project Name: Zachry Com 1A

Project #:

Project Manager:
Stuart Hyde shydee@ensolum.com
Sidney Mahanay smahanay@ensolum.com

Sampler: Zach Myers

On Ice: ☑ Yes ☐ No chucky

# of Coolers: 1

Cooler Temp(Including CF): 6.0 -0.4=5.6 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORA
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 8710
Tel. 505-345-3975 Fax 505-345-4107

885-10042 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
8/15	1222	Soil	FS05a	4oz jar	cool	1	X	X					X			
	1226		FS06a			2										
	1230		SW03-D2			3										
	1235		SW05a			4										
	1240		SW06a			5										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
8/15/24	1445				8/15/24	1445
8/16/24	1214			courier	8/16/24	6:10

Remarks: cc: zmyers@ensolum.com

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

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-10042-1

Login Number: 10042 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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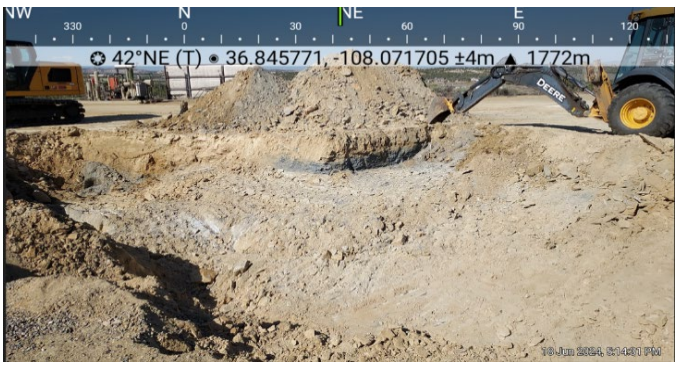
APPENDIX C

Photographic Log

ENSOLUM

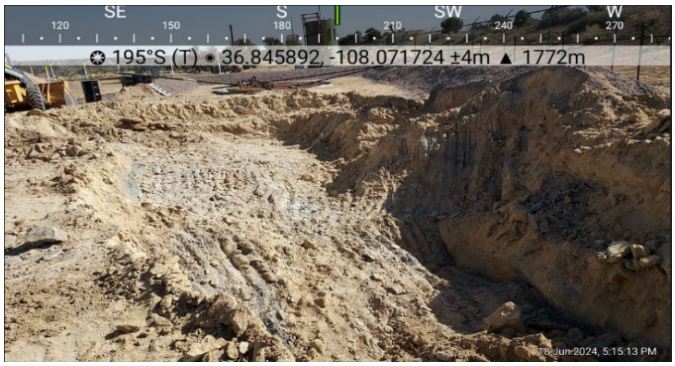
Photographic Log
Hilcorp Energy Company
Zachry Com 1A
San Juan County, New Mexico

Photograph: 1 Date: 6/18/2024
Description: Suspected staining on sidewall SW03
View: North



Photograph: 2 Date: 6/18/2024
Description: Suspected staining on sidewall SW03
View: Northeast

Photograph: 3 Date: 6/18/2024
Description: Excavation extent
View: Southwest

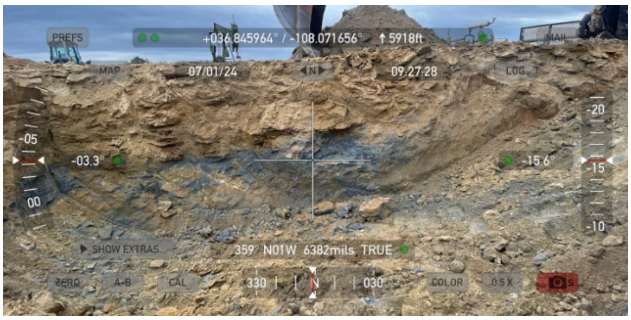


Photograph: 4 Date: 6/18/2024
Description: Excavation extent
View: South

ENSOLUM

Photographic Log
Hilcorp Energy Company
Zachry Com 1A
San Juan County, New Mexico

Photograph: 5 Date: 7/1/2024
Description: Additonal soil excavation to the north
View: Northeast



Photograph: 6 Date: 7/1/2024
Description: Additional soil excavation to the north
View: North

Photograph: 7 Date: 7/1/2024
Description: View of final excavation extent
View: North-Northwest

Photograph: 8 Date: 7/1/2024
Description: View of final excavation extent
View: North

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

QUESTIONS

Action 385326

QUESTIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 385326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAPP2331717075**
Incident Name	**NAPP2331717075 ZACHRY COM 1A @ 30-045-23311**
Incident Type	**Oil Release**
Incident Status	**Remediation Closure Report Received**
Incident Well	**[30-045-23311] ZACHRY COM #001A**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	ZACHRY COM 1A
Date Release Discovered	10/30/2023
Surface Owner	State

Incident Details	
Please answer all the questions in this group.	
Incident Type	Oil Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	*Not answered.*
Produced Water Released (bbls) Details	*Not answered.*
Is the concentration of chloride in the produced water >10,000 mg/l	No
Condensate Released (bbls) Details	Cause: Equipment Failure | Tank (Any) | Condensate | Released: 16 BBL | Recovered: 0 BBL | Lost: 16 BBL.
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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QUESTIONS (continued)

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 385326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**No**
Reasons why this would be considered a submission for a notification of a major release	*Unavailable.*
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*
Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.	

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

I hereby agree and sign off to the above statement	Name: Stuart Hyde Title: Senior Geologist Email: shyde@ensolum.com Date: 09/20/2024

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QUESTIONS (continued)

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 385326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 300 and 500 (ft.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1000 (ft.) and ½ (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between ½ and 1 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between ½ and 1 (mi.)
Any other fresh water well or spring	Between ½ and 1 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Between 1 and 5 (mi.)
A wetland	Between 500 and 1000 (ft.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	None
A 100-year floodplain	Between 1000 (ft.) and ½ (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan		
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.		
Requesting a remediation plan approval with this submission		Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.		
Have the lateral and vertical extents of contamination been fully delineated		Yes
Was this release entirely contained within a lined containment area		No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)		
Chloride	(EPA 300.0 or SM4500 Cl B)	1200
TPH (GRO+DRO+MRO)	(EPA SW-846 Method 8015M)	1210
GRO+DRO	(EPA SW-846 Method 8015M)	1210
BTEX	(EPA SW-846 Method 8021B or 8260B)	63
Benzene	(EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.		
On what estimated date will the remediation commence		04/01/2024
On what date will (or did) the final sampling or liner inspection occur		01/10/2024
On what date will (or was) the remediation complete(d)		05/01/2024
What is the estimated surface area (in square feet) that will be reclaimed		750
What is the estimated volume (in cubic yards) that will be reclaimed		111
What is the estimated surface area (in square feet) that will be remediated		750
What is the estimated volume (in cubic yards) that will be remediated		111
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.		
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.		

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QUESTIONS (continued)

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 385326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	ENVIROTECH LANDFARM #2 [fEEM0112336756]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	No
OR is the **off-site** disposal site, to be used, an NMED facility	No
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	No
(In Situ) Soil Vapor Extraction	No
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	No
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	No
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	No
Ground Water Abatement pursuant to 19.15.30 NMAC	No
OTHER (Non-listed remedial process)	No
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Stuart Hyde Title: Senior Geologist Email: shyde@ensolum.com Date: 09/20/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 385326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS (continued)

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 385326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**373438**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**08/15/2024**
What was the (estimated) number of samples that were to be gathered	**5**
What was the sampling surface area in square feet	**1700**

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Was this release entirely contained within a lined containment area	**No**
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	900
What was the total volume (cubic yards) remediated	270
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	0
What was the total volume (in cubic yards) reclaimed	0
Summarize any additional remediation activities not included by answers (above)	NA

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

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

I hereby agree and sign off to the above statement	Name: Stuart Hyde Title: Senior Geologist Email: shyde@ensolum.com Date: 09/20/2024

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QUESTIONS (continued)

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 385326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 385326
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	12/6/2024