



July 26, 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: Delineation Report and Closure Request**

San Juan 31-6 Unit 230  
Rio Arriba County, New Mexico  
Hilcorp Energy Company  
NMOCD Incident No: nAPP2412835625

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), has prepared this *Delineation Report and Closure Request* associated with a produced water release at the San Juan 31-6 Unit 230 natural gas production well (Site). The Site is located on surface managed by the State of New Mexico Department of Game and Fish (NMDGF) in Unit A of Section 27, Township 31 North, Range 6 West, in Rio Arriba County, New Mexico (Figure 1).

## SITE BACKGROUND

On May 6, 2024, during a routine well-site inspection of the production well (API #: 30-039-24556), located at latitude 36.874384° North and longitude 107.444216° West, a 35-barrel (bbl) produced water release occurred. The release filled the below grade tank (BGT) cribbing and spilled over on to the well pad. Upon discovery, the flow to the tank was shut off and corrective action was taken to remove the remaining fluids and the tank. A liner was present within the cribbing but was found to have lost integrity.

In accordance with Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC) Hilcorp notified the New Mexico Oil Conservation Division (NMOCD) and the NMDGF within 24 hours of discovery and submitted a *Form C-141* to the NMOCD on May 7, 2024 (Appendix A). The Site has been assigned NMOCD Incident Number nAPP2412835625.

## SITE CHARACTERIZATION AND CLOSURE CRITERIA

An assessment of potential nearby receptors was conducted through desktop reviews of topographic maps, Federal Emergency Management Administration (FEMA) Geographic Information System (GIS) maps, United States Geological Survey (USGS) GIS maps, New Mexico Office of the State Engineer (NMOSE) database, and aerial photographs, as well as Site-specific observations.

## GEOLOGY AND HYDROGEOLOGY

The Site is located in Tertiary (Eocene) age San Jose Formation and is underlain by the Nacimiento Geologic Formation. In the report titled "*Hydrogeology and Water Resources of San Juan Basin, New Mexico*" (Stone, et. al., 1983), the San Jose Formation is composed of interbedded sandstones and mudstones and varies in thickness from less than 200 feet to about 2,700 feet. The hydrogeologic

Ensolum, LLC | Environmental, Engineering & Hydrogeologic Consultants

776 E 2<sup>nd</sup> Avenue | Durango, CO 81301 | ensolum.com

properties of the San Jose Formation are largely untested. Where sufficient yield is present, the primary use of water from this Formation is for domestic and/or livestock supply.

The Site is at an elevation of approximately 6,346 feet above mean sea level (amsl). Depth to groundwater at the site is estimated to be greater than 100 feet below ground surface (bgs). This estimation is based on the data published on the NMOSE's iWaters Database website. The nearest groundwater well to the Site, SJ-04225, is located approximately 0.59 miles northeast of, and 99 feet lower than, the Site (Appendix B). Information presented on the NMOSE database indicates depth to groundwater in this well is approximately 60 feet bgs. The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet from any significant watercourse and/or wetland. The nearest significant watercourse and wetland which is defined by a bed and bank and is identified by a dashed blue line on a USGS 7.5-minute quadrangle map is located approximately 1,387 feet west of the Site. Surface land use surrounding the Site consists primarily of oil and gas development and livestock grazing. No occupied permanent residence or structures, including schools, hospitals, institutions, and/or churches, are located within 300 feet of the Site. The Site is not within the area of a subsurface mine or unstable area and is not within the 100-year floodplain.

## SITE CLOSURE CRITERIA

Based on the information presented above 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) should be applied to the Site:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, Toluene, Ethylbenzene, 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

## SOIL SAMPLING ACTIVITIES

On May 16, 2024, Hilcorp retained Ensolum to screen and collect delineation soil samples from a total of five locations at the Site. Sample location HA01 was advanced at the base of the BGT cellar located approximately 4.8 feet below the well pad ground surface. Soil samples were subsequently collected via hand auger at 0.3 feet and 2.5 feet below the cellar surface. Sample locations HA02, HA03, HA04, and HA05 were advanced approximately 1-foot outside of the BGT cellar from the well pad ground surface and soil samples were collected via hand auger at 0.5 feet and 2 feet bgs. Sample locations are shown in Figure 2. Photographs taken during field activities are attached as Appendix C.

An Ensolum geologist field screened soil samples for total volatile organic compounds (VOCs) using a calibrated photoionization detector (PID) and inspected the soil for petroleum hydrocarbon staining and odors. In addition, soil samples were field screened for chloride using Hach® QuanTab® test strips. Screening results are summarized in the attached Table 1.

A total of 10 soil samples were submitted to Eurofins Environment Testing (Eurofins) in Albuquerque, New Mexico for analysis of TPH following United States Environmental Protection Agency (EPA) Method 8015D, BTEX following EPA Method 8021B, and chloride following EPA Method 300.0.

Hilcorp Energy Company  
Delineation Report and Closure Request  
San Juan 31-6 Unit 230

Page 3

Laboratory results detected chloride at four sample locations HA01, HA02, HA03, and HA05 and ranged from below the laboratory detection limit of less than 60 mg/kg (HA03 @0.5, HA03 @2, and HA04 @2) and 270 mg/kg (HA02 @2). Concentrations for COCs were compliant with NMOCD Table I Closure Criteria, as well as the reclamation requirement in all delineation samples. A summary of laboratory analytical results is presented in Table 1, and complete laboratory analytical reports are attached as Appendix D.

## CLOSURE REQUEST

Delineation sampling activities were conducted at the Site to address the release of produced water discovered on May 6, 2024. Laboratory analytical results for the delineation soil samples collected from release extent indicated all COC concentrations were compliant with the Site Closure Criteria and the reclamation requirement. As such, no further remediation is required. These remedial actions have been protective of human health, the environment, and groundwater. Hilcorp respectfully requests closure for Incident Number nAPP2412835625.

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

Sincerely,  
**Ensolum, LLC**



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



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

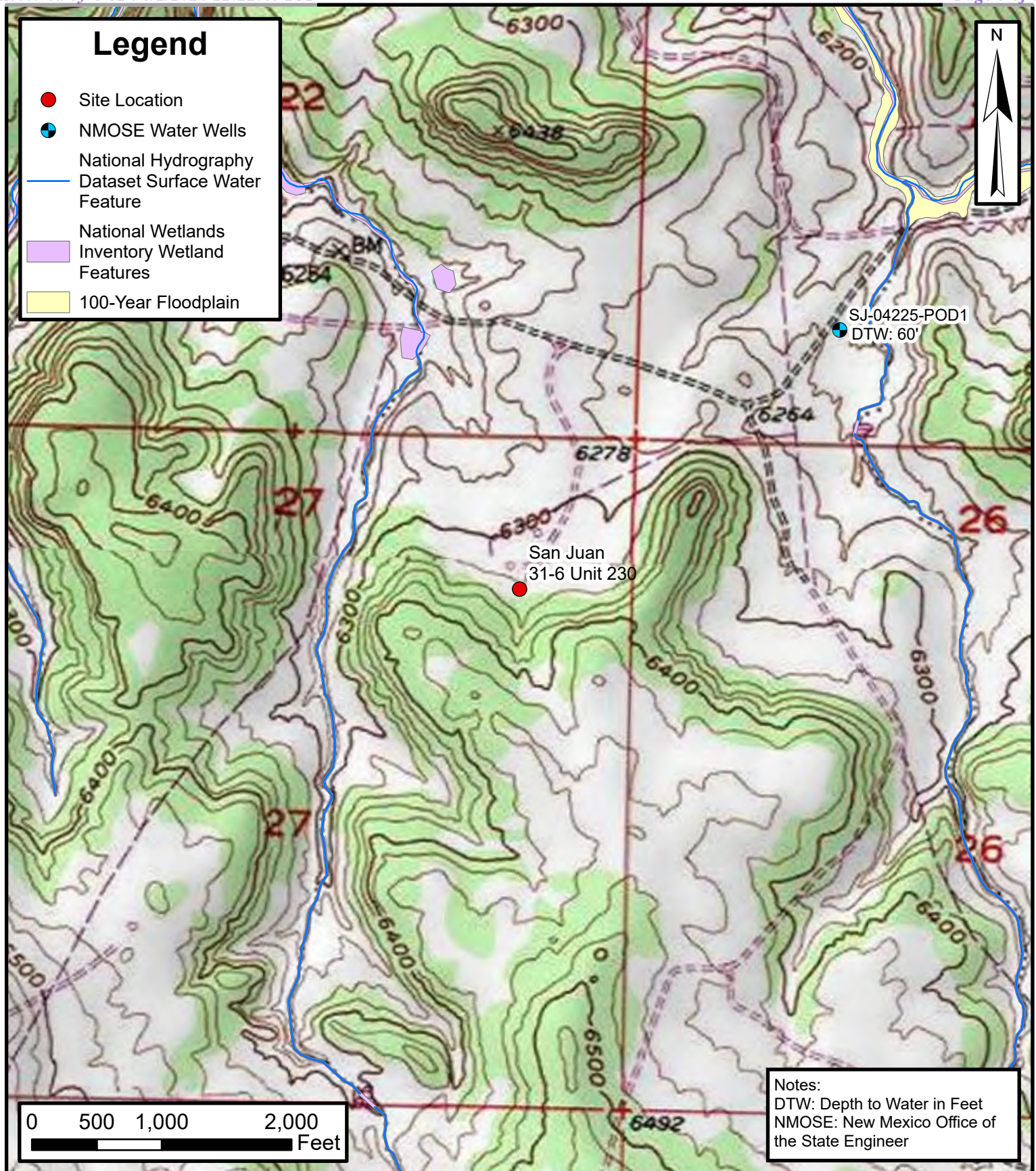
### Attachments:

Figure 1	Site Receptor Map
Figure 2	Soil Sample Locations Map
Table 1	Soil Sample Analytical Results
Appendix A:	NMDGF Correspondence
Appendix B:	NMOSE Point of Diversion Summary
Appendix C:	Photographic Log
Appendix D:	Laboratory Analytical Reports



FIGURES





## Site Location Map

San Juan 31-6 Unit 230  
Hilcorp Energy Company

36.874441, -107.444303  
Rio Arriba County, New Mexico

FIGURE

1

**ENSOLUM**  
Environmental, Engineering and  
Hydrogeologic Consultants



## Legend

- Delineation Soil Sample  
in Compliance with  
NMOCD Closure  
Criteria



HA02@0.5  
HA02@2  
HA01@5.1  
HA01@6.6  
HA03@0.5  
HA03@2  
HA04@0.5  
HA04@2  
HA05@0.5  
HA05@2

0 10 20 40  
Feet

Notes:  
Sample ID @ Depth Below Ground Surface in  
Feet  
NMOCD: New Mexico Oil Conservation Division

## Soil Sample Locations Map

San Juan 31-6 Unit 230  
Hilcorp Energy Company  
36.874441, -107.444303  
Rio Arriba County, New Mexico

FIGURE  
2





TABLES



**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS**  
 San Juan 31-6 Unit 230  
 Hilcorp Energy Company  
 Rio Arriba County, New Mexico

Sample Identification	Date	Depth (feet bgs)	PID (ppm)	Chloride Field Test (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)
<b>NMOCD Closure Criteria for Soils Impacted by a Release</b>			NE	NE	10	NE	NE	NE	50	NE	NE	NE	1,000	2,500	20,000
HA01@5.1	5/16/2024	5.1	3	244	<0.019	<0.037	<0.037	<0.074	<0.074	<3.7	<9.8	<49	<9.8	<49	240
HA01@6.6	5/16/2024	6.6	4	124	<0.022	<0.044	<0.044	<0.088	<0.088	<4.4	<9.6	<48	<9.6	<48	160
HA02@0.5	5/16/2024	0.5	3	124	<0.017	<0.033	<0.033	<0.066	<0.066	<3.3	<8.4	<42	<8.4	<42	210
HA02@2	5/16/2024	2.0	2	228	<0.018	<0.036	<0.036	<0.072	<0.072	<3.6	<9.7	<48	<9.7	<48	270
HA03@0.5	5/16/2024	0.5	1	<124	<0.022	<0.044	<0.044	<0.089	<0.089	<4.4	<9.3	<46	<9.3	<46	<60
HA03@2	5/16/2024	2.0	2	<124	<0.017	<0.034	<0.034	<0.067	<0.067	<3.4	<9.4	<47	<9.4	<47	<60
HA04@0.5	5/16/2024	0.5	1	<124	<0.018	<0.035	<0.035	<0.071	<0.071	<3.5	<9.8	<49	<9.8	<49	150
HA04@2	5/16/2024	2.0	2	<124	<0.017	<0.034	<0.034	<0.068	<0.068	<3.4	<8.6	<43	<8.6	<43	<60
HA05@0.5	5/16/2024	0.5	2	<124	<0.018	<0.036	<0.036	<0.073	<0.073	<3.6	<9.3	<47	<9.3	<47	240
HA05@2	5/16/2024	2.0	2	172	<0.019	<0.037	<0.037	<0.074	<0.074	<3.7	<8.3	<42	<8.3	<42	290

**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

&lt;: Indicates result less than the stated laboratory reporting limit (RL)





## APPENDIX A

### NMDGF Correspondence

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**From:** Kellermueller, Ronald, DGF <Ronald.Kellermueller@dgf.nm.gov>  
**Sent:** Tuesday, May 7, 2024 3:38 PM  
**To:** Kate Kaufman; Adeloye, Abiodun A; Velez, Nelson, EMNRD; Enviro, OCD, EMNRD; spills@slo.state.nm.us  
**Cc:** Seamster, Virginia, DGF; Auer, Donald, DGF  
**Subject:** RE: [EXTERNAL] Hilcorp San Juan 31-6 #230 Immediate Release Notification

**CAUTION:** External sender. DO NOT open links or attachments from UNKNOWN senders.

Hi Kate,

Yes, I will be available for a call on the morning of 5/8 at 505-270-6612, to discuss the details of the spill incident and if any significant soil contamination occurred.

Thanks, Ron

**RON KELLERMUELLER**

MINING AND ENERGY HABITAT SPECIALIST  
ECOLOGICAL AND ENVIRONMENTAL PLANNING DIVISION  
NEW MEXICO DEPARTMENT OF GAME AND FISH  
1 WILDLIFE WAY  
SANTA FE, NM 87507  
(505) 270-6612  
[Ronald.Kellermueller@dgf.nm.gov](mailto:Ronald.Kellermueller@dgf.nm.gov)

**Conserving New Mexico's Wildlife for Future Generations**

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**From:** Kate Kaufman <kkaufman@hilcorp.com>  
**Sent:** Tuesday, May 7, 2024 3:24 PM  
**To:** Adeloye, Abiodun A <aadeloye@blm.gov>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>; spills@slo.state.nm.us; Kellermueller, Ronald, DGF <Ronald.Kellermueller@dgf.nm.gov>  
**Subject:** RE: [EXTERNAL] Hilcorp San Juan 31-6 #230 Immediate Release Notification

Thank you Emmanuel.

Ronald – can I plan to give you a call in the morning to discuss spill reporting and remediation on State Game and Fish surface? Please let me know what would be a good number to reach you.

Thank you!  
Kate Kaufman

---

**From:** Adeloye, Abiodun A <[aadeloye@blm.gov](mailto:aadeloye@blm.gov)>

**Sent:** Tuesday, May 7, 2024 4:13 PM

**To:** Kate Kaufman <[kkaufman@hilcorp.com](mailto:kkaufman@hilcorp.com)>; Velez, Nelson, EMNRD <[Nelson.Velez@emnrd.nm.gov](mailto:Nelson.Velez@emnrd.nm.gov)>; Enviro, OCD, EMNRD <[OCD.Enviro@emnrd.nm.gov](mailto:OCD.Enviro@emnrd.nm.gov)>; [spills@slo.state.nm.us](mailto:spills@slo.state.nm.us); Kellermueller, Ronald, DGF <[Ronald.Kellermueller@dgf.nm.gov](mailto:Ronald.Kellermueller@dgf.nm.gov)>

**Subject:** RE: [EXTERNAL] Hilcorp San Juan 31-6 #230 Immediate Release Notification

**CAUTION:** External sender. DO NOT open links or attachments from UNKNOWN senders.

Thanks Kate, for the notification. The spill occurred on New Mexico State Game and Fish land. I think they need to be contacted as well. I have included Ronald Kellermueller with this reply, he is the Game and Fish representative for the NM State.

Thank you.

Abiodun Adeloye (Emmanuel)  
Natural Resources Specialist (NRS)  
6251 College Blvd., Suite A  
Farmington, NM 87402  
Office: 505-564-7665  
Mobile: 505-635-0984

---

**From:** Kate Kaufman <[kkaufman@hilcorp.com](mailto:kkaufman@hilcorp.com)>

**Sent:** Tuesday, May 7, 2024 9:06 AM

**To:** Velez, Nelson, EMNRD <[Nelson.Velez@emnrd.nm.gov](mailto:Nelson.Velez@emnrd.nm.gov)>; Enviro, OCD, EMNRD <[OCD.Enviro@emnrd.nm.gov](mailto:OCD.Enviro@emnrd.nm.gov)>; Adeloye, Abiodun A <[aadeloye@blm.gov](mailto:aadeloye@blm.gov)>; [spills@slo.state.nm.us](mailto:spills@slo.state.nm.us)

**Cc:** Kate Kaufman <[kkaufman@hilcorp.com](mailto:kkaufman@hilcorp.com)>

**Subject:** [EXTERNAL] Hilcorp San Juan 31-6 #230 Immediate Release Notification

**This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.**

Good morning,

Per NMAC 19.15.29.10.A, please let this serve as an immediate notification for a Hilcorp Energy release at the San Juan 31-6 #230 wellsite (API 30-039-24556) S27, T031N R006W Unit letter A. The release was a result of operator error when a BGT overflowed, releasing approximately 35 bbls of produced water to the lined cribbing area and a small volume outside the cribbing. The release remained on pad and fluids were recovered. There was no immediate danger to the public and no fire occurred as a result of this release. A C-141 and BLM UE form will follow this notification in accordance with NMAC 19.15.29.10.B and federal regulations.

Please let me know if you have any questions or require additional information.

Thank you,

**Kate Kaufman** | Senior Environmental Specialist | Hilcorp Energy Company

O: 346-237-2275 | C: 907-244-8292 | [kkaufman@hilcorp.com](mailto:kkaufman@hilcorp.com)

1111 Travis St. | Houston | TX | 77002

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## APPENDIX B

### NMOSE Point of Diversion Summary

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# WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

[www.ose.state.nm.us](http://www.ose.state.nm.us)

STATE ENGINEER OFFICE  
AZTEC, NEW MEXICO

2017 JUN 23 PM 1:26

1. GENERAL AND WELL LOCATION	OSE POD NUMBER (WELL NUMBER)				OSE FILE NUMBER(S)			
	WELL OWNER NAME(S)				PHONE (OPTIONAL)			
	Richard Hodgson				505-330-4621			
	WELL OWNER MAILING ADDRESS				CITY STATE ZIP			
	9355 Highway 64				Blanco NM 87412			
2. DRILLING & CASING INFORMATION	WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS				
	LATITUDE	36	52	48.13	N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND		
	LONGITUDE	107	26	9.452	W	* DATUM REQUIRED: WGS 84		
	DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE							
	SE/4 SW/4 S: 23 T: 31N R: 06W Gobernador Canyon Ranch							
3. ANNULAR MATERIAL	LICENSE NUMBER		NAME OF LICENSED DRILLER			NAME OF WELL DRILLING COMPANY		
	WD 1357		Mark Bailey			Bailey Drilling Company		
	DRILLING STARTED		DRILLING ENDED		DEPTH OF COMPLETED WELL (FT)		BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
	4-27-17		6-7-17		320		320	60
	COMPLETED WELL IS: <input type="radio"/> ARTESIAN <input type="radio"/> DRY HOLE <input checked="" type="radio"/> SHALLOW (UNCONFINED)							STATIC WATER LEVEL IN COMPLETED WELL (FT)
								60
	DRILLING FLUID: <input checked="" type="radio"/> AIR <input type="radio"/> MUD ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input checked="" type="radio"/> ROTARY <input type="radio"/> HAMMER <input type="radio"/> CABLE TOOL <input type="radio"/> OTHER - SPECIFY:							
	DEPTH (feet bgl)		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
	FROM	TO						
	0	100	7 7/8	PVC	glue	5	sch. 40	
	100	320	7 7/8	PVC	glue	5	sch. 40	2x1/32
DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT			
FROM	TO							
5	25	7 7/8	cement	3	manually			
25	320	7 7/8	38" gravel	30	manually			

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	SJ-4225	POD NUMBER	1	TRN NUMBER	600689
LOCATION	31N. 6W. 06.34				

PAGE 1 OF 2

STATE OF NEW YORK  
ATTORNEY GENERAL

WR-20 WELL RECORD &amp; LOG (Version 06/08/2012)

PAGE 2 OF 2



## APPENDIX C

### Photographic Log

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**Photographic Log**

Hilcorp Energy Company

San Juan 31-6 Unit 230

36.874384, -107.444216

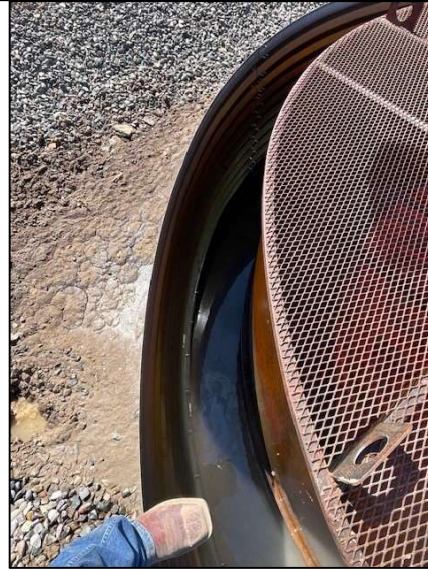


Photograph: 1

Date: 5/10/2024

Description: South view of BGT

View: South



Photograph: 2

Date: 5/10/2024

Description: Excess water surrounding BGT

View: South



Photograph: 3

Date: 5/16/2024

Description: BGT footprint and hand auger sampling

View: North



Photograph: 4

Date: 5/16/2024

Description: Northeast of BGT. ~15 feet from center

View: Northeast



Photograph: 5 Date: 5/16/2024  
Description: Northwest view of BGT tank  
View: Northwest



## APPENDIX D

### Laboratory Analytical Reports

---



Environment Testing

1
2
3
4
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11

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Kate Kaufman  
Hilcorp Energy  
PO BOX 4700  
Farmington, New Mexico 87499

Generated 5/28/2024 3:39:35 PM

## JOB DESCRIPTION

San Juan 31-6 #230

## JOB NUMBER

885-4696-1

Eurofins Albuquerque  
4901 Hawkins NE  
Albuquerque NM 87109





# 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



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

Generated  
5/28/2024 3:39:35 PM

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Laboratory Job ID: 885-4696-1

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Definitions/Glossary

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Qualifiers

GC VOA

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

HPLC/IC

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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: San Juan 31-6 #230

Job ID: 885-4696-1

**Job ID: 885-4696-1**

**Eurofins Albuquerque**

### Job Narrative 885-4696-1

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 5/17/2024 7:04 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 1.6°C.

#### 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.

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Client Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA01@5.1  
Date Collected: 05/16/24 11:00  
Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-1  
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics [C6 - C10]	ND		3.7	mg/Kg		05/17/24 09:52	05/17/24 17:41		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	89		35 - 166			05/17/24 09:52	05/17/24 17:41		1
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.019	mg/Kg		05/17/24 09:52	05/17/24 17:41		1
Ethylbenzene	ND		0.037	mg/Kg		05/17/24 09:52	05/17/24 17:41		1
Toluene	ND		0.037	mg/Kg		05/17/24 09:52	05/17/24 17:41		1
Xylenes, Total	ND		0.074	mg/Kg		05/17/24 09:52	05/17/24 17:41		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	89		48 - 145			05/17/24 09:52	05/17/24 17:41		1
Method: SW846 8015D - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Diesel Range Organics [C10-C28]	ND		9.8	mg/Kg		05/17/24 11:40	05/17/24 16:30		1
Motor Oil Range Organics [C28-C40]	ND		49	mg/Kg		05/17/24 11:40	05/17/24 16:30		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	96		62 - 134			05/17/24 11:40	05/17/24 16:30		1
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	240		60	mg/Kg		05/17/24 15:02	05/19/24 16:40		20

Client Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA01@6.6  
Date Collected: 05/16/24 11:10  
Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-2  
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics [C6 - C10]	ND		4.4	mg/Kg		05/17/24 09:52	05/17/24 18:04		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	90		35 - 166			05/17/24 09:52	05/17/24 18:04		1
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.022	mg/Kg		05/17/24 09:52	05/17/24 18:04		1
Ethylbenzene	ND		0.044	mg/Kg		05/17/24 09:52	05/17/24 18:04		1
Toluene	ND		0.044	mg/Kg		05/17/24 09:52	05/17/24 18:04		1
Xylenes, Total	ND		0.088	mg/Kg		05/17/24 09:52	05/17/24 18:04		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	91		48 - 145			05/17/24 09:52	05/17/24 18:04		1
Method: SW846 8015D - 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		05/17/24 11:40	05/17/24 16:41		1
Motor Oil Range Organics [C28-C40]	ND		48	mg/Kg		05/17/24 11:40	05/17/24 16:41		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	99		62 - 134			05/17/24 11:40	05/17/24 16:41		1
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	160		60	mg/Kg		05/17/24 15:02	05/19/24 16:52		20

## Client Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA02@0.5

Lab Sample ID: 885-4696-3

Date Collected: 05/16/24 11:20

Matrix: Solid

Date Received: 05/17/24 07:04

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		3.3	mg/Kg		05/17/24 09:52	05/17/24 18:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		35 - 166			05/17/24 09:52	05/17/24 18:51	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.017	mg/Kg		05/17/24 09:52	05/17/24 18:51	1
Ethylbenzene	ND		0.033	mg/Kg		05/17/24 09:52	05/17/24 18:51	1
Toluene	ND		0.033	mg/Kg		05/17/24 09:52	05/17/24 18:51	1
Xylenes, Total	ND		0.066	mg/Kg		05/17/24 09:52	05/17/24 18:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		48 - 145			05/17/24 09:52	05/17/24 18:51	1

## Method: SW846 8015D - 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		05/17/24 11:40	05/17/24 16:52	1
Motor Oil Range Organics [C28-C40]	ND		42	mg/Kg		05/17/24 11:40	05/17/24 16:52	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	100		62 - 134			05/17/24 11:40	05/17/24 16:52	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	210		60	mg/Kg		05/17/24 15:02	05/19/24 17:29	20

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Client Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA02@2

Lab Sample ID: 885-4696-4

Date Collected: 05/16/24 11:30

Matrix: Solid

Date Received: 05/17/24 07:04

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics [C6 - C10]	ND		3.6	mg/Kg		05/17/24 09:52	05/17/24 19:14	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	93		35 - 166			05/17/24 09:52	05/17/24 19:14	1	
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.018	mg/Kg		05/17/24 09:52	05/17/24 19:14	1	
Ethylbenzene	ND		0.036	mg/Kg		05/17/24 09:52	05/17/24 19:14	1	
Toluene	ND		0.036	mg/Kg		05/17/24 09:52	05/17/24 19:14	1	
Xylenes, Total	ND		0.072	mg/Kg		05/17/24 09:52	05/17/24 19:14	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	94		48 - 145			05/17/24 09:52	05/17/24 19:14	1	
Method: SW846 8015D - 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		05/17/24 11:40	05/17/24 17:03	1	
Motor Oil Range Organics [C28-C40]	ND		48	mg/Kg		05/17/24 11:40	05/17/24 17:03	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	95		62 - 134			05/17/24 11:40	05/17/24 17:03	1	
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	270		60	mg/Kg		05/17/24 15:02	05/19/24 18:06	20	

Client Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA03@0.5  
Date Collected: 05/16/24 11:40  
Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-5  
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics [C6 - C10]	ND		4.4	mg/Kg		05/17/24 09:52	05/17/24 19:38		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	91		35 - 166			05/17/24 09:52	05/17/24 19:38		1
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.022	mg/Kg		05/17/24 09:52	05/17/24 19:38		1
Ethylbenzene	ND		0.044	mg/Kg		05/17/24 09:52	05/17/24 19:38		1
Toluene	ND		0.044	mg/Kg		05/17/24 09:52	05/17/24 19:38		1
Xylenes, Total	ND		0.089	mg/Kg		05/17/24 09:52	05/17/24 19:38		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	91		48 - 145			05/17/24 09:52	05/17/24 19:38		1
Method: SW846 8015D - 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		05/17/24 11:40	05/17/24 17:14		1
Motor Oil Range Organics [C28-C40]	ND		46	mg/Kg		05/17/24 11:40	05/17/24 17:14		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	92		62 - 134			05/17/24 11:40	05/17/24 17:14		1
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	ND		60	mg/Kg		05/17/24 15:02	05/19/24 18:19		20

Client Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA03@2

Lab Sample ID: 885-4696-6

Date Collected: 05/16/24 11:50

Matrix: Solid

Date Received: 05/17/24 07:04

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics [C6 - C10]	ND		3.4	mg/Kg		05/17/24 09:52	05/17/24 20:01	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	90		35 - 166			05/17/24 09:52	05/17/24 20:01	1	
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.017	mg/Kg		05/17/24 09:52	05/17/24 20:01	1	
Ethylbenzene	ND		0.034	mg/Kg		05/17/24 09:52	05/17/24 20:01	1	
Toluene	ND		0.034	mg/Kg		05/17/24 09:52	05/17/24 20:01	1	
Xylenes, Total	ND		0.067	mg/Kg		05/17/24 09:52	05/17/24 20:01	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	91		48 - 145			05/17/24 09:52	05/17/24 20:01	1	
Method: SW846 8015D - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Diesel Range Organics [C10-C28]	ND		9.4	mg/Kg		05/17/24 11:40	05/17/24 17:25	1	
Motor Oil Range Organics [C28-C40]	ND		47	mg/Kg		05/17/24 11:40	05/17/24 17:25	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	94		62 - 134			05/17/24 11:40	05/17/24 17:25	1	
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	ND		60	mg/Kg		05/17/24 15:02	05/19/24 18:31	20	



Client Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA04@0.5  
Date Collected: 05/16/24 12:00  
Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-7  
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics [C6 - C10]	ND		3.5	mg/Kg		05/17/24 09:52	05/17/24 20:24		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	92		35 - 166			05/17/24 09:52	05/17/24 20:24		1
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.018	mg/Kg		05/17/24 09:52	05/17/24 20:24		1
Ethylbenzene	ND		0.035	mg/Kg		05/17/24 09:52	05/17/24 20:24		1
Toluene	ND		0.035	mg/Kg		05/17/24 09:52	05/17/24 20:24		1
Xylenes, Total	ND		0.071	mg/Kg		05/17/24 09:52	05/17/24 20:24		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	93		48 - 145			05/17/24 09:52	05/17/24 20:24		1
Method: SW846 8015D - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Diesel Range Organics [C10-C28]	ND		9.8	mg/Kg		05/17/24 11:40	05/17/24 17:36		1
Motor Oil Range Organics [C28-C40]	ND		49	mg/Kg		05/17/24 11:40	05/17/24 17:36		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	94		62 - 134			05/17/24 11:40	05/17/24 17:36		1
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	150		60	mg/Kg		05/17/24 15:02	05/19/24 18:43		20

Client Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA04@2  
Date Collected: 05/16/24 12:10  
Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-8  
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics [C6 - C10]	ND		3.4	mg/Kg		05/17/24 09:52	05/17/24 20:48		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	92		35 - 166			05/17/24 09:52	05/17/24 20:48		1
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.017	mg/Kg		05/17/24 09:52	05/17/24 20:48		1
Ethylbenzene	ND		0.034	mg/Kg		05/17/24 09:52	05/17/24 20:48		1
Toluene	ND		0.034	mg/Kg		05/17/24 09:52	05/17/24 20:48		1
Xylenes, Total	ND		0.068	mg/Kg		05/17/24 09:52	05/17/24 20:48		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	93		48 - 145			05/17/24 09:52	05/17/24 20:48		1
Method: SW846 8015D - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Diesel Range Organics [C10-C28]	ND		8.6	mg/Kg		05/17/24 11:40	05/17/24 17:47		1
Motor Oil Range Organics [C28-C40]	ND		43	mg/Kg		05/17/24 11:40	05/17/24 17:47		1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	93		62 - 134			05/17/24 11:40	05/17/24 17:47		1
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	ND		60	mg/Kg		05/17/24 15:02	05/19/24 18:56		20

Client Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA05@0.5  
Date Collected: 05/16/24 12:20  
Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-9  
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics [C6 - C10]	ND		3.6	mg/Kg		05/17/24 09:52	05/17/24 21:11	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	91		35 - 166			05/17/24 09:52	05/17/24 21:11	1	
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.018	mg/Kg		05/17/24 09:52	05/17/24 21:11	1	
Ethylbenzene	ND		0.036	mg/Kg		05/17/24 09:52	05/17/24 21:11	1	
Toluene	ND		0.036	mg/Kg		05/17/24 09:52	05/17/24 21:11	1	
Xylenes, Total	ND		0.073	mg/Kg		05/17/24 09:52	05/17/24 21:11	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	92		48 - 145			05/17/24 09:52	05/17/24 21:11	1	
Method: SW846 8015D - 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		05/17/24 11:40	05/17/24 17:58	1	
Motor Oil Range Organics [C28-C40]	ND		47	mg/Kg		05/17/24 11:40	05/17/24 17:58	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	94		62 - 134			05/17/24 11:40	05/17/24 17:58	1	
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	240		60	mg/Kg		05/17/24 15:02	05/19/24 19:08	20	

Client Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA05@2      Lab Sample ID: 885-4696-10  
Date Collected: 05/16/24 12:30      Matrix: Solid  
Date Received: 05/17/24 07:04

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics [C6 - C10]	ND		3.7	mg/Kg		05/17/24 09:52	05/17/24 21:58	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	93		35 - 166			05/17/24 09:52	05/17/24 21:58	1	
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.019	mg/Kg		05/17/24 09:52	05/17/24 21:58	1	
Ethylbenzene	ND		0.037	mg/Kg		05/17/24 09:52	05/17/24 21:58	1	
Toluene	ND		0.037	mg/Kg		05/17/24 09:52	05/17/24 21:58	1	
Xylenes, Total	ND		0.074	mg/Kg		05/17/24 09:52	05/17/24 21:58	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	95		48 - 145			05/17/24 09:52	05/17/24 21:58	1	
Method: SW846 8015D - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Diesel Range Organics [C10-C28]	ND		8.3	mg/Kg		05/17/24 11:40	05/17/24 18:09	1	
Motor Oil Range Organics [C28-C40]	ND		42	mg/Kg		05/17/24 11:40	05/17/24 18:09	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	96		62 - 134			05/17/24 11:40	05/17/24 18:09	1	
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	290		60	mg/Kg		05/17/24 15:02	05/19/24 19:20	20	

## QC Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

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

Lab Sample ID: MB 885-5175/1-A

Matrix: Solid

Analysis Batch: 5337

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 5175

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0	mg/Kg		05/17/24 09:52	05/17/24 11:25	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		35 - 166			05/17/24 09:52	05/17/24 11:25	1

Lab Sample ID: LCS 885-5175/2-A

Matrix: Solid

Analysis Batch: 5337

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 5175

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics [C6 - C10]	25.0	23.5		mg/Kg		94	70 - 130	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
4-Bromofluorobenzene (Surr)	192	S1+	35 - 166					

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

Lab Sample ID: MB 885-5175/1-A

Matrix: Solid

Analysis Batch: 5338

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 5175

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		05/17/24 09:52	05/17/24 11:25	1
Ethylbenzene	ND		0.050	mg/Kg		05/17/24 09:52	05/17/24 11:25	1
Toluene	ND		0.050	mg/Kg		05/17/24 09:52	05/17/24 11:25	1
Xylenes, Total	ND		0.10	mg/Kg		05/17/24 09:52	05/17/24 11:25	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		48 - 145			05/17/24 09:52	05/17/24 11:25	1

Lab Sample ID: LCS 885-5175/3-A

Matrix: Solid

Analysis Batch: 5338

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 5175

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	1.00	0.840		mg/Kg		84	70 - 130	
Ethylbenzene	1.00	0.840		mg/Kg		84	70 - 130	
m,p-Xylene	2.00	1.71		mg/Kg		85	70 - 130	
o-Xylene	1.00	0.838		mg/Kg		84	70 - 130	
Toluene	1.00	0.815		mg/Kg		82	70 - 130	
Xylenes, Total	3.00	2.54		mg/Kg		85	70 - 130	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
4-Bromofluorobenzene (Surr)	91		48 - 145					

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## QC Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

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

Lab Sample ID: MB 885-5184/1-A

Matrix: Solid

Analysis Batch: 5200

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 5184

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10	mg/Kg		05/17/24 11:40	05/17/24 14:10	1
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		05/17/24 11:40	05/17/24 14:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	87		62 - 134			05/17/24 11:40	05/17/24 14:10	1

Lab Sample ID: LCS 885-5184/2-A

Matrix: Solid

Analysis Batch: 5200

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 5184

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	50.0	48.9		mg/Kg		98	60 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Di-n-octyl phthalate (Surr)	103		62 - 134				

Lab Sample ID: 885-4696-10 MS

Matrix: Solid

Analysis Batch: 5252

Client Sample ID: HA05@2

Prep Type: Total/NA

Prep Batch: 5184

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	ND		47.1	45.4		mg/Kg		96	44 - 136
Surrogate	MS %Recovery	MS Qualifier	Limits						
Di-n-octyl phthalate (Surr)	111		62 - 134						

Lab Sample ID: 885-4696-10 MSD

Matrix: Solid

Analysis Batch: 5252

Client Sample ID: HA05@2

Prep Type: Total/NA

Prep Batch: 5184

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		45.9	43.8		mg/Kg		95	44 - 136	4	32
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
Di-n-octyl phthalate (Surr)	115		62 - 134								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 885-4696-3 MS

Matrix: Solid

Analysis Batch: 5233

Client Sample ID: HA02@0.5

Prep Type: Total/NA

Prep Batch: 5203

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	210		30.0	246	4	mg/Kg		112	50 - 150

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QC Sample Results

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 885-4696-3 MSD										Client Sample ID: HA02@0.5			
Matrix: Solid										Prep Type: Total/NA			
Analysis Batch: 5233										Prep Batch: 5203			
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit		
Chloride	210		30.3	258	4	mg/Kg		149	50 - 150	5	20		

Lab Sample ID: MB 885-5233/4										Client Sample ID: Method Blank			
Matrix: Solid										Prep Type: Total/NA			
Analysis Batch: 5233													
Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac				
Chloride	ND		0.50		mg/Kg			05/19/24 07:49	1				

Lab Sample ID: MRL 885-5233/3										Client Sample ID: Lab Control Sample			
Matrix: Solid										Prep Type: Total/NA			
Analysis Batch: 5233													
Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits				
Chloride			0.500	0.540		mg/L		108	50 - 150				

## QC Association Summary

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

## GC VOA

## Prep Batch: 5175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4696-1	HA01@5.1	Total/NA	Solid	5035	
885-4696-2	HA01@6.6	Total/NA	Solid	5035	
885-4696-3	HA02@0.5	Total/NA	Solid	5035	
885-4696-4	HA02@2	Total/NA	Solid	5035	
885-4696-5	HA03@0.5	Total/NA	Solid	5035	
885-4696-6	HA03@2	Total/NA	Solid	5035	
885-4696-7	HA04@0.5	Total/NA	Solid	5035	
885-4696-8	HA04@2	Total/NA	Solid	5035	
885-4696-9	HA05@0.5	Total/NA	Solid	5035	
885-4696-10	HA05@2	Total/NA	Solid	5035	
MB 885-5175/1-A	Method Blank	Total/NA	Solid	5035	
LCS 885-5175/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCS 885-5175/3-A	Lab Control Sample	Total/NA	Solid	5035	

## Analysis Batch: 5337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4696-1	HA01@5.1	Total/NA	Solid	8015D	5175
885-4696-2	HA01@6.6	Total/NA	Solid	8015D	5175
885-4696-3	HA02@0.5	Total/NA	Solid	8015D	5175
885-4696-4	HA02@2	Total/NA	Solid	8015D	5175
885-4696-5	HA03@0.5	Total/NA	Solid	8015D	5175
885-4696-6	HA03@2	Total/NA	Solid	8015D	5175
885-4696-7	HA04@0.5	Total/NA	Solid	8015D	5175
885-4696-8	HA04@2	Total/NA	Solid	8015D	5175
885-4696-9	HA05@0.5	Total/NA	Solid	8015D	5175
885-4696-10	HA05@2	Total/NA	Solid	8015D	5175
MB 885-5175/1-A	Method Blank	Total/NA	Solid	8015D	5175
LCS 885-5175/2-A	Lab Control Sample	Total/NA	Solid	8015D	5175

## Analysis Batch: 5338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4696-1	HA01@5.1	Total/NA	Solid	8021B	5175
885-4696-2	HA01@6.6	Total/NA	Solid	8021B	5175
885-4696-3	HA02@0.5	Total/NA	Solid	8021B	5175
885-4696-4	HA02@2	Total/NA	Solid	8021B	5175
885-4696-5	HA03@0.5	Total/NA	Solid	8021B	5175
885-4696-6	HA03@2	Total/NA	Solid	8021B	5175
885-4696-7	HA04@0.5	Total/NA	Solid	8021B	5175
885-4696-8	HA04@2	Total/NA	Solid	8021B	5175
885-4696-9	HA05@0.5	Total/NA	Solid	8021B	5175
885-4696-10	HA05@2	Total/NA	Solid	8021B	5175
MB 885-5175/1-A	Method Blank	Total/NA	Solid	8021B	5175
LCS 885-5175/3-A	Lab Control Sample	Total/NA	Solid	8021B	5175

## GC Semi VOA

## Prep Batch: 5184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4696-1	HA01@5.1	Total/NA	Solid	SHAKE	
885-4696-2	HA01@6.6	Total/NA	Solid	SHAKE	
885-4696-3	HA02@0.5	Total/NA	Solid	SHAKE	

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## QC Association Summary

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

## GC Semi VOA (Continued)

## Prep Batch: 5184 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4696-4	HA02@2	Total/NA	Solid	SHAKE	
885-4696-5	HA03@0.5	Total/NA	Solid	SHAKE	
885-4696-6	HA03@2	Total/NA	Solid	SHAKE	
885-4696-7	HA04@0.5	Total/NA	Solid	SHAKE	
885-4696-8	HA04@2	Total/NA	Solid	SHAKE	
885-4696-9	HA05@0.5	Total/NA	Solid	SHAKE	
885-4696-10	HA05@2	Total/NA	Solid	SHAKE	
MB 885-5184/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-5184/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-4696-10 MS	HA05@2	Total/NA	Solid	SHAKE	
885-4696-10 MSD	HA05@2	Total/NA	Solid	SHAKE	

## Analysis Batch: 5200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-5184/1-A	Method Blank	Total/NA	Solid	8015D	5184
LCS 885-5184/2-A	Lab Control Sample	Total/NA	Solid	8015D	5184

## Analysis Batch: 5252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4696-1	HA01@5.1	Total/NA	Solid	8015D	5184
885-4696-2	HA01@6.6	Total/NA	Solid	8015D	5184
885-4696-3	HA02@0.5	Total/NA	Solid	8015D	5184
885-4696-4	HA02@2	Total/NA	Solid	8015D	5184
885-4696-5	HA03@0.5	Total/NA	Solid	8015D	5184
885-4696-6	HA03@2	Total/NA	Solid	8015D	5184
885-4696-7	HA04@0.5	Total/NA	Solid	8015D	5184
885-4696-8	HA04@2	Total/NA	Solid	8015D	5184
885-4696-9	HA05@0.5	Total/NA	Solid	8015D	5184
885-4696-10	HA05@2	Total/NA	Solid	8015D	5184
885-4696-10 MS	HA05@2	Total/NA	Solid	8015D	5184
885-4696-10 MSD	HA05@2	Total/NA	Solid	8015D	5184

## HPLC/IC

## Prep Batch: 5203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4696-1	HA01@5.1	Total/NA	Solid	300_Prep	
885-4696-2	HA01@6.6	Total/NA	Solid	300_Prep	
885-4696-3	HA02@0.5	Total/NA	Solid	300_Prep	
885-4696-4	HA02@2	Total/NA	Solid	300_Prep	
885-4696-5	HA03@0.5	Total/NA	Solid	300_Prep	
885-4696-6	HA03@2	Total/NA	Solid	300_Prep	
885-4696-7	HA04@0.5	Total/NA	Solid	300_Prep	
885-4696-8	HA04@2	Total/NA	Solid	300_Prep	
885-4696-9	HA05@0.5	Total/NA	Solid	300_Prep	
885-4696-10	HA05@2	Total/NA	Solid	300_Prep	
885-4696-3 MS	HA02@0.5	Total/NA	Solid	300_Prep	
885-4696-3 MSD	HA02@0.5	Total/NA	Solid	300_Prep	

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QC Association Summary

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

HPLC/IC

Analysis Batch: 5233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4696-1	HA01@5.1	Total/NA	Solid	300.0	5203
885-4696-2	HA01@6.6	Total/NA	Solid	300.0	5203
885-4696-3	HA02@0.5	Total/NA	Solid	300.0	5203
885-4696-4	HA02@2	Total/NA	Solid	300.0	5203
885-4696-5	HA03@0.5	Total/NA	Solid	300.0	5203
885-4696-6	HA03@2	Total/NA	Solid	300.0	5203
885-4696-7	HA04@0.5	Total/NA	Solid	300.0	5203
885-4696-8	HA04@2	Total/NA	Solid	300.0	5203
885-4696-9	HA05@0.5	Total/NA	Solid	300.0	5203
885-4696-10	HA05@2	Total/NA	Solid	300.0	5203
MB 885-5233/4	Method Blank	Total/NA	Solid	300.0	
MRL 885-5233/3	Lab Control Sample	Total/NA	Solid	300.0	
885-4696-3 MS	HA02@0.5	Total/NA	Solid	300.0	5203
885-4696-3 MSD	HA02@0.5	Total/NA	Solid	300.0	5203

Lab Chronicle

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

**Client Sample ID: HA01@5.1**  
**Date Collected: 05/16/24 11:00**  
**Date Received: 05/17/24 07:04**

**Lab Sample ID: 885-4696-1**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8015D		1	5337	JP	EET ALB	05/17/24 17:41
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8021B		1	5338	JP	EET ALB	05/17/24 17:41
Total/NA	Prep	SHAKE			5184	DH	EET ALB	05/17/24 11:40
Total/NA	Analysis	8015D		1	5252	JU	EET ALB	05/17/24 16:30
Total/NA	Prep	300_Prep			5203	RC	EET ALB	05/17/24 15:02
Total/NA	Analysis	300.0		20	5233	JT	EET ALB	05/19/24 16:40

**Client Sample ID: HA01@6.6**  
**Date Collected: 05/16/24 11:10**  
**Date Received: 05/17/24 07:04**

**Lab Sample ID: 885-4696-2**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8015D		1	5337	JP	EET ALB	05/17/24 18:04
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8021B		1	5338	JP	EET ALB	05/17/24 18:04
Total/NA	Prep	SHAKE			5184	DH	EET ALB	05/17/24 11:40
Total/NA	Analysis	8015D		1	5252	JU	EET ALB	05/17/24 16:41
Total/NA	Prep	300_Prep			5203	RC	EET ALB	05/17/24 15:02
Total/NA	Analysis	300.0		20	5233	JT	EET ALB	05/19/24 16:52

**Client Sample ID: HA02@0.5**  
**Date Collected: 05/16/24 11:20**  
**Date Received: 05/17/24 07:04**

**Lab Sample ID: 885-4696-3**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8015D		1	5337	JP	EET ALB	05/17/24 18:51
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8021B		1	5338	JP	EET ALB	05/17/24 18:51
Total/NA	Prep	SHAKE			5184	DH	EET ALB	05/17/24 11:40
Total/NA	Analysis	8015D		1	5252	JU	EET ALB	05/17/24 16:52
Total/NA	Prep	300_Prep			5203	RC	EET ALB	05/17/24 15:02
Total/NA	Analysis	300.0		20	5233	JT	EET ALB	05/19/24 17:29

**Client Sample ID: HA02@2**  
**Date Collected: 05/16/24 11:30**  
**Date Received: 05/17/24 07:04**

**Lab Sample ID: 885-4696-4**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8015D		1	5337	JP	EET ALB	05/17/24 19:14

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Lab Chronicle

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA02@2

Date Collected: 05/16/24 11:30

Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8021B		1	5338	JP	EET ALB	05/17/24 19:14
Total/NA	Prep	SHAKE			5184	DH	EET ALB	05/17/24 11:40
Total/NA	Analysis	8015D		1	5252	JU	EET ALB	05/17/24 17:03
Total/NA	Prep	300_Prep			5203	RC	EET ALB	05/17/24 15:02
Total/NA	Analysis	300.0		20	5233	JT	EET ALB	05/19/24 18:06

Client Sample ID: HA03@0.5

Date Collected: 05/16/24 11:40

Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8015D		1	5337	JP	EET ALB	05/17/24 19:38
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8021B		1	5338	JP	EET ALB	05/17/24 19:38
Total/NA	Prep	SHAKE			5184	DH	EET ALB	05/17/24 11:40
Total/NA	Analysis	8015D		1	5252	JU	EET ALB	05/17/24 17:14
Total/NA	Prep	300_Prep			5203	RC	EET ALB	05/17/24 15:02
Total/NA	Analysis	300.0		20	5233	JT	EET ALB	05/19/24 18:19

Client Sample ID: HA03@2

Date Collected: 05/16/24 11:50

Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8015D		1	5337	JP	EET ALB	05/17/24 20:01
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8021B		1	5338	JP	EET ALB	05/17/24 20:01
Total/NA	Prep	SHAKE			5184	DH	EET ALB	05/17/24 11:40
Total/NA	Analysis	8015D		1	5252	JU	EET ALB	05/17/24 17:25
Total/NA	Prep	300_Prep			5203	RC	EET ALB	05/17/24 15:02
Total/NA	Analysis	300.0		20	5233	JT	EET ALB	05/19/24 18:31

Client Sample ID: HA04@0.5

Date Collected: 05/16/24 12:00

Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8015D		1	5337	JP	EET ALB	05/17/24 20:24
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8021B		1	5338	JP	EET ALB	05/17/24 20:24

Eurofins Albuquerque



Lab Chronicle

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA04@0.5  
Date Collected: 05/16/24 12:00  
Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-7  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			5184	DH	EET ALB	05/17/24 11:40
Total/NA	Analysis	8015D		1	5252	JU	EET ALB	05/17/24 17:36
Total/NA	Prep	300_Prep			5203	RC	EET ALB	05/17/24 15:02
Total/NA	Analysis	300.0		20	5233	JT	EET ALB	05/19/24 18:43

Client Sample ID: HA04@2  
Date Collected: 05/16/24 12:10  
Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-8  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8015D		1	5337	JP	EET ALB	05/17/24 20:48
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8021B		1	5338	JP	EET ALB	05/17/24 20:48
Total/NA	Prep	SHAKE			5184	DH	EET ALB	05/17/24 11:40
Total/NA	Analysis	8015D		1	5252	JU	EET ALB	05/17/24 17:47
Total/NA	Prep	300_Prep			5203	RC	EET ALB	05/17/24 15:02
Total/NA	Analysis	300.0		20	5233	JT	EET ALB	05/19/24 18:56

Client Sample ID: HA05@0.5  
Date Collected: 05/16/24 12:20  
Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-9  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8015D		1	5337	JP	EET ALB	05/17/24 21:11
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8021B		1	5338	JP	EET ALB	05/17/24 21:11
Total/NA	Prep	SHAKE			5184	DH	EET ALB	05/17/24 11:40
Total/NA	Analysis	8015D		1	5252	JU	EET ALB	05/17/24 17:58
Total/NA	Prep	300_Prep			5203	RC	EET ALB	05/17/24 15:02
Total/NA	Analysis	300.0		20	5233	JT	EET ALB	05/19/24 19:08

Client Sample ID: HA05@2  
Date Collected: 05/16/24 12:30  
Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-10  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8015D		1	5337	JP	EET ALB	05/17/24 21:58
Total/NA	Prep	5035			5175	JP	EET ALB	05/17/24 09:52
Total/NA	Analysis	8021B		1	5338	JP	EET ALB	05/17/24 21:58
Total/NA	Prep	SHAKE			5184	DH	EET ALB	05/17/24 11:40
Total/NA	Analysis	8015D		1	5252	JU	EET ALB	05/17/24 18:09

Lab Chronicle

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

Client Sample ID: HA05@2

Date Collected: 05/16/24 12:30

Date Received: 05/17/24 07:04

Lab Sample ID: 885-4696-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			5203	RC	EET ALB	05/17/24 15:02
Total/NA	Analysis	300.0		20	5233	JT	EET ALB	05/19/24 19:20

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

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Accreditation/Certification Summary

Client: Hilcorp Energy  
Project/Site: San Juan 31-6 #230

Job ID: 885-4696-1

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
8015D	5035	Solid	Gasoline Range Organics [C6 - C10]
8015D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015D	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



## Login Sample Receipt Checklist

Client: Hilcorp Energy

Job Number: 885-4696-1

Login Number: 4696

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	

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**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

QUESTIONS

Action 369707

QUESTIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 369707
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2412835625
Incident Name	NAPP2412835625 SAN JUAN 31-6 #230 @ 30-039-24556
Incident Type	Produced Water Release
Incident Status	Remediation Closure Report Received
Incident Well	[30-039-24556] SAN JUAN 31 6 UNIT #230

Location of Release Source	
Please answer all the questions in this group.	
Site Name	San Juan 31-6 #230
Date Release Discovered	04/06/2024
Surface Owner	State

Incident Details	
Please answer all the questions in this group.	
Incident Type	Produced Water 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	Cause: Human Error   Pit (Specify)   Produced Water   Released: 35 BBL   Recovered: 35 BBL   Lost: 0 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	No
Condensate Released (bbls) Details	Not answered.
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, Page 2

Action 369707

**QUESTIONS (continued)**

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID:	372171
	Action Number:	369707
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

**QUESTIONS**

<b>Nature and Volume of Release (continued)</b>	
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	Yes
Reasons why this would be considered a submission for a notification of a major release	From paragraph A. "Major release" determine using: (1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.
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: 08/02/2024
--	--

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QUESTIONS, Page 3

Action 369707

**QUESTIONS (continued)**

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID:
	372171
	Action Number:
	369707
	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
<b>What is the minimum distance, between the closest lateral extents of the release and the following surface areas:</b>	
A continuously flowing watercourse or any other significant watercourse	Between 1000 (ft.) and ½ (mi.)
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	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between ½ and 1 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
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 ½ and 1 (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)	290
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	0
GRO+DRO (EPA SW-846 Method 8015M)	0
BTEX (EPA SW-846 Method 8021B or 8260B)	0
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	05/07/2024
On what date will (or did) the final sampling or liner inspection occur	05/16/2024
On what date will (or was) the remediation complete(d)	05/16/2024
What is the estimated surface area (in square feet) that will be reclaimed	0
What is the estimated volume (in cubic yards) that will be reclaimed	0
What is the estimated surface area (in square feet) that will be remediated	0
What is the estimated volume (in cubic yards) that will be remediated	0

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, Page 4

Action 369707

**QUESTIONS (continued)**

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 369707
	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 <b>off-site</b> disposal (i.e. dig and haul, hydrovac, etc.)	Not answered.
(Ex Situ) Excavation and <b>on-site</b> remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Yes
Other Non-listed Remedial Process. Please specify	No remediation required

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: 08/02/2024
--	--

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, Page 5  
  
Action 369707

**QUESTIONS (continued)**

Operator:  HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID:
	372171
	Action Number:
	369707
Action Type:	
[C-141] Remediation Closure Request C-141 (C-141-v-Closure)	

**QUESTIONS**

<b>Deferral Requests Only</b>	
<i>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.</i>	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS, Page 6

Action 369707

**QUESTIONS (continued)**

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID:
	372171
	Action Number:
	369707
Action Type:	
[C-141] Remediation Closure Request C-141 (C-141-v-Closure)	

**QUESTIONS**

<b>Sampling Event Information</b>	
Last sampling notification (C-141N) recorded	343638
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	05/16/2024
What was the (estimated) number of samples that were to be gathered	10
What was the sampling surface area in square feet	1000

**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	0
What was the total volume (cubic yards) remediated	0
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: 08/02/2024
--	--

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**Santa Fe, NM 87505**

QUESTIONS, Page 7  
  
Action 369707

QUESTIONS (continued)

Operator:  HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID:  372171
	Action Number:  369707
	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

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

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

CONDITIONS  
  
Action 369707

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 369707
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your Remediation Closure Report for Incident #NAPP2412835625 SAN JUAN 31-6 #230, thank you. This Remediation Closure Report is approved.	8/27/2024