



January 25, 2022

New Mexico Energy, Minerals and Natural Resources Department
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, NM 87410

**Subject: Fourth Quarter 2021 - Remediation System Update
Hilcorp Energy Company
Federal 18 #1T
San Juan County, New Mexico
Incident # NCS2103335776**

To Whom it May Concern:

WSP USA Inc. (WSP), on behalf of Hilcorp Energy Company (Hilcorp), presents the following fourth quarter 2021 summary report discussing the current activities being conducted at the former Federal 18 #1T coalbed methane gas well (Site). The casing of this well has been modified to vent gas and purge water from the Ojo Alamo Formation. The setup and initial installation of this system is detailed in a report submitted to the New Mexico Oil Conservation Division (NMOCD) in November 2010. Since 2010, quarterly reports have been submitted to the NMOCD to record activities performed at the Site, as well as document well-casing pressures, the volume of gas vented from well Federal 18 #1T, and water-quality analytical results collected from the well.

BACKGROUND

A vacuum system installed at the Site is being operated as part of an ongoing effort between the NMOCD and Hilcorp (project formerly under XTO Energy, Inc.) to vent gas from the Nacimiento formation just above the Ojo Alamo Formation. Gas was found in the Nacimiento formation, which could have come from several contributing sources in the area including existing and abandoned gas wells in close proximity. In agreement with the NMOCD, XTO Energy, Inc. (XTO) modified a nearby gas well that was scheduled to be plugged, Federal 18 #1T, to act as a venting well by setting a plug at a depth of approximately 513 feet. Perforations were made in the casing at 437 feet and 457 feet below ground surface (bgs) in order to assess the groundwater and vent gas from the Nacimiento.

On September 24, 2010, a swab rig was used to determine if the well would produce water using the perforations. The swab rig recovered approximately 2 barrels of water, indicating that the perforations would produce water. A sample collected during the swab returned results above New Mexico Water Quality Control Commission (NMWQCC) standards for benzene, total xylenes, and total chloride (see attached Table 1). Due to the low pH and high chloride, it was inferred that the acid used to dissolve cement during perforation activities may have infiltrated the aquifer, causing the increased concentrations shown in the sampling results. XTO recommended pumping the aquifer until sampling results were below the NMWQCC standards for BTEX and chloride.

A pump was installed in the Federal 18 #1T on November 9, 2010 at a depth of approximately 485 feet bgs. During the pump installation, the water level was measured using a Keck ET Long water level indicator. The static water level was measured as 402.20 feet. The pump was initially set to operate four times a day for 15 minutes, purging approximately 260 gallons per day. During swab and pump installation activities, no gas was observed flowing from the well. On November 11, 2010, a small vacuum pump was installed at the Federal 18 #1T to determine if gas could be vented. The discharge from the vacuum was monitored using a MSA 4-Gas Monitor, which confirmed that methane was being vented from the vacuum pump discharge. The vacuum pump operated at a discharge rate of 3 standard cubic feet per minute (scfm), which is equivalent to approximately 6 actual cubic feet per minute (acfm). The vacuum pump initially held a vacuum of approximately negative (-) 12 inches of mercury on the casing of the Federal 18 #1T during operation. A portable generator placed on-site powered both the vacuum pump and the water pump. The water pump was plumbed into the existing water lines at the Site, so that all water would pump into the

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Review of 4Q 2021 Remediation System Update
Report: **Content satisfactory**
1. Continue sampling to monitor the benzene concentrations in the groundwater
2. Continued operation of the vacuum and water pumps.
3. Incrementally increase the amount of time per day that the vacuum pump is in operation to assess the performance. If the pump is able to sustain increased runtime, continue to increase cycles until the pump is capable of running 24 hours per day.
4. Continue quarterly reporting to OCD. 2022 first quarter reporting expected to be submitted no later than 05/31/2022.



210-barrel water tank left on-Site from production activities. Water piping above ground was wrapped with heat trace and insulation to prevent freezing.

The system was electrified on February 3, 2011 to prevent down time due to generator maintenance issues. Current operation and maintenance inspections include visual checks of the system, generally on a weekly to biweekly basis depending on weather-related delays. The inspections also include verifying pump operation, vacuum operation, recording volume changes based on the prior visit, and verifying that no other site conditions dictated system adjustment. The nearby SJ 1737 production well is used to monitor potential pressure variations in the subsurface resulting from the vacuum pump. The SJ 1737 is generally evaluated on a weekly basis to open the valve for a week and then close the valve the following week. Before the valve is opened the subsequent week, pressure is measured at the wellhead. Casing pressure readings for the SJ 1737 are summarized on Table 2.

As discussed in the *2021 1st Quarter Report* (Hilcorp report dated May 2021), Hilcorp replaced a malfunctioned vacuum pump and restarted the vacuum system on March 23, 2021. The replacement pump is a Becker VT 4.8 rotary vane vacuum pump capable of a discharge rate of 7 acfm. In order to maintain operations and sustain the life of the pump, the pump is set on a timer and runs for 5 minutes every two hours (12 cycles per day). Additionally, Hilcorp replaced a malfunctioned water pump on September 30, 2021. The new water pump is set at approximately 485 feet bgs and removes approximately 135 gallons (3.2 barrels) per day in order to draw down groundwater levels to below the casing perforations.

FOURTH QUARTER 2021 ACTIVITIES

During the fourth quarter of 2021, approximately 9,072 gallons (216 barrels) of water was removed from the Federal 18 #1T well. A water sample was collected on December 6, 2021 and submitted to Hall Environmental Analysis Laboratory (Hall) for the following constituents: volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260, chloride by EPA Method 300.0, conductivity by Method SM2510B, pH by Method SM4500-H+B, and total dissolved solids (TDS) by Method SM2540C. Analytical results are summarized in Table 1, with complete laboratory reports attached as Enclosure A.

To date, a total of 1,143,239 gallons (27,220 barrels) of water have been removed from the Federal 18 #1T well (Table 1). Additionally, 29,320 thousand cubic feet (MCF) of gas and air has been vented from the well as of this date (Table 3). (**Note:** total gas vented was miscalculated in the previous quarterly report dated October 25, 2021). Groundwater sampling will continue in the first quarter of 2022 to monitor the benzene concentrations in the groundwater. The vacuum pump and water pump will also continue to be operated at the Federal 18 #1T well. Additionally, Hilcorp will incrementally increase the amount of time per day that the vacuum pump is in operation to assess the performance of the pump. If the pump is able to sustain increased runtime, cycles will continue to increase until the pump is running 24 hours per day. Once benzene concentrations decrease to below NMWQCC standards, an alternative sampling schedule may be recommended for operation, maintenance, and groundwater sampling.

WSP appreciates the opportunity to provide this report to the NMOCD. If you have any questions or comments regarding this work plan, do not hesitate to contact Stuart Hyde at (970) 903-1607 or at stuart.hyde@wsp.com, or Mitch Killough at (713) 757-5247 or at mkillough@hilcorp.com.

Kind regards,

A handwritten signature in black ink, appearing to read 'Stuart Hyde'.

Stuart Hyde, L.G.
Senior Geologist

A handwritten signature in blue ink, appearing to read 'Robert T. Rebel'.

Rob Rebel, P.E.
Technical Principal, Senior Lead Engineer



Enclosures:

Table 1 – Water Analytical Results

Table 2 – Well SJ-01737 Casing Pressure Readings

Table 3 – Gas and Air Vented

Enclosure A – Analytical Laboratory Reports

TABLES

**TABLE 1
WATER ANALYTICAL RESULTS**

**FEDERAL 18 #1T
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY**

Sample Date	Lab	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylene (µg/L)	Chlorides (mg/L)	TDS (mg/L)	EC (umhos/cm)	pH	Purge Water Volume (gallons)
NMWQCC Standard		5	1,000	700	620	250	1,000	NA	6 thru 9	---
11/5/2010	ESC	ND	5.2	ND	ND	15	1,400	2,600	7.2	NM
9/24/2010	ESC	150	ND	76	670	NS	NS	NS	NS	NM
9/24/2010	ESC	190	170	24	210	6,800	13,000	18,000	6.1	NM
9/24/2010	Etech	143	221	63.6	950	NS	NS	NS	NS	NM
9/24/2010	Etech	320	377	31.8	568	7,150	11,100	16,000	5.84	NM
12/10/2011	Hall	NS	NS	NS	NS	2,800	7,610	8,900	6.36	3,033
1/5/2011	Hall	67	93	7.9	25	NS	NS	NS	NS	7,798
1/5/2011	ESC	73	99	10	39	1,600	4,800	6,000	6.6	7,798
1/29/2011	ESC	60	93	10	33	930	NS	4,900	6.4	10,791
2/28/2011	ESC	42	60	6.1	20	550	3,400	4,000	6.7	14,795
4/1/2011	ESC	23	27	1.8	6.8	260	2,700	3,100	6.8	31,238
4/29/2011	ESC	29	28	2.4	7.3	140	2,600	2,900	6.9	50,217
5/31/2011	ESC	14	19	1.4	4.9	89	2,500	2,800	6.7	76,513
6/14/2011	ESC	55	81	2.8	15	73	2,500	2,700	6.7	88,120
6/30/2011	ESC	52	67	2.6	12	61	2,500	2,700	6.9	101,209
8/15/2011	ESC	21	25	1.2	5.8	44	2,500	2,600	6.8	140,267
9/2/2011	ESC	10	12	0.64	3.2	41	2,500	2,600	7.2	155,801
9/16/2011	ESC	9.6	11	0.64	3	38	2,400	2,500	7.2	168,040
9/30/2011	ESC	7.2	8.7	0.64	2.5	35	2,500	2,600	7	180,393
10/28/2011	ESC	5.1	ND	1.8	2.7	31	2,300	2,600	6.9	205,220
11/30/2011	ESC	4	ND	3.9	2	27	2,500	2,600	7.1	233,488
12/30/2011	ESC	3.4	ND	ND	2.9	27	2,500	2,500	7.5	261,391
4/3/2012	ESC	6	ND	ND	1.6	NS	NS	NS	NS	351,300
4/9/2012	ESC	NS	NS	NS	NS	19	2,400	2,400	7.4	NM
7/3/2012	ESC	5.3	ND	ND	ND	16	2,300	2,400	7.4	NM
7/6/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	441,053
9/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	521,271
9/27/2012	ESC	6.2	ND	ND	ND	15	2,300	2,500	7.1	NM
12/14/2012	NA	NS	NS	NS	NS	NS	NS	NS	NS	598,540
12/31/2012	Etech	13.9	1.1	ND	3.3	15.5	2,690	2,440	7.05	604,689

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NMWQCC Standard		5	1,000	700	620	250	1,000	NA	6 thru 9	---
1/23/2013	ESC	160	190	ND	26	15	2,400	2,500	8	NM
2/22/2013	ESC	7.1	77	ND	1.8	15	2,100	2,500	7.1	605,860
5/2/2013	ESC	9	6.9	ND	ND	15	2,400	2,600	7.5	612,601
8/19/2013	ESC	20	11	ND	2.3	16	2,200	2,600	7.2	NM
9/23/2013	ESC	13	11	ND	2.2	16	2,300	2,500	7.1	621,744
11/25/2013	ESC	4.6	5.2	ND	ND	15	2,200	2,700	7.7	631,430
2/4/2014	ESC	15	17	0.72	3.1	16	2,200	2,500	7.3	636,120
10/1/2015	ESC	54.2	57	1.37	9.77	21.3	2,260	2,640	6.98	639,410
10/20/2015	ESC	42.3	39.9	0.964	7.06	18.1	2,330	1,460	7.09	642,650
3/28/2016	ESC	38	34.1	0.835	4.82	21.6	2,230	2,570	6.86	650,850
6/14/2016	ESC	78.3	58.4	1.16	7.22	13.7	2,890	2,600	6.89	704,371
8/29/2016	ESC	19	ND	ND	2.18	14.8	2,410	2,590	7.02	763,261
11/18/2016	ESC	13.2	5.61	ND	2.33	13.9	2,470	2,580	7.03	842,610
3/31/2017	ESC	9.61	7.87	ND	ND	14.4	2,300	2,570	7.28	858,190
6/16/2017	ESC	64.6	29.2	0.781	5.4	14.2	2,360	2,570	7.05	927,854
9/7/2017	ESC	4.61	1.73	ND	ND	13.7	2,030	2,450	7.14	997,330
12/5/2017	ESC	138	51.5	1.65	9.378	14.4	2,230	2,590	7.2	1,080,550
3/6/2018	ESC	19.9	14.8	0.543	2.71	14.4	2,290	2,620	7.13	1,080,840
8/7/2018	Pace	7.9	8.06	<0.5	<1.5	13.7	2,200	2,300	7.19	1,082,751
1/3/2019	Pace	7.07	3.29	0.177	1.08	15.8	2,080	6,750	6.35	1,120,220
2/22/2019	Pace	19.8	11.1	<0.5	3.97	14.1	2,270	2,710	7.46	1,120,366
5/24/2019	Pace	11.9	10.8	ND	ND	13.4	2,380	2,760	7.15	1,123,853
9/10/2019	Pace	23.2	18.8	ND	ND	14.3	2,260	2,600	7.37	1,125,478
10/29/2019	Pace	5.41	5.68	ND	ND	14	2,300	2,530	7.09	1,127,076
2/27/2020	Pace	20.7	19.3	ND	ND	14.4	2,280	2,580	7.06	1,128,506
5/15/2020	Pace	10.3	8.91	ND	ND	13.6	2,460	2,570	7.27	1,131,033
8/25/2020	Pace	3.9	3.5	ND	ND	13.9	2,190	2,640	7.62	1,131,100
10/27/2020	Pace	31.1	24.4	ND	ND	13.9	2,240	2,530	7.43	1,131,119

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HILCORP ENERGY COMPANY**

Sample Date	Lab	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylene (µg/L)	Chlorides (mg/L)	TDS (mg/L)	EC (umhos/cm)	pH	Purge Water Volume (gallons)
NMWQCC Standard		5	1,000	700	620	250	1,000	NA	6 thru 9	---
2/17/2021	Hall	73	<1	<1	<1.5	18	2,200	2,400	7.42	1,131,123
6/29/2021 (1)	---	NS	NS	NS	NS	NS	NS	NS	NS	1,134,031
9/30/2021	Hall	130	87	<5.0	8.1	19	2,300	2,500	7.20	1,134,167
12/6/2021	Hall	33	20	<1.0	6.0	15	2,430	2,500	7.15	1,143,239

Notes:

- (1) - Water pump not functioning
- ND - Not Detected above laboratory reporting limits
- NM - Not Measured
- NMWQCC - New Mexico Water Quality Control Commission
- NS - Not Sampled
- Values in **BOLD** exceed WQCC Standards

Baseline Sample (Well SJ 1737)

TABLE 2
WELL SJ-01737 CASING PRESSURE READINGS

FEDERAL 18 #1T
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Date	Casing Pressure (ounces)	Average
9/17/2019	1	0.143
10/7/2019	0	0.000
10/21/2019	1.75	0.125
10/28/2019	0	0.000
12/5/2019	0	0.000
12/19/2019	3	0.214
1/7/2020	0	0.000
1/17/2020	1.25	0.125
1/30/2020	0	0.000
2/12/2020	2.25	0.173
2/25/2020	0	0.000
4/3/2020	1.75	0.046
4/9/2020	0	0.000
4/15/2020	3	0.500
4/23/2020	0	0.000
4/30/2020	0.5	0.071
5/15/2020	0	0.000
5/21/2020	1.25	0.208
5/29/2020	0	0.000
6/5/2020	0.5	0.071
6/29/2020	0	0.000
7/8/2020	0.75	0.083
7/22/2020	0	0.000
8/11/2020	0	0.000
8/25/2020	0	0.000
9/16/2020	0	0.000
9/22/2020	0	0.000
10/26/2020	2.75	0.081
11/9/2020	0	0.000
12/8/2020	0	0.000
12/18/2020	0	0.000
1/5/2021	1.75	0.097
1/20/2021	0	0.000
2/11/2021	1.75	0.080
2/17/2021	0	0.000
3/25/2021	3.5	0.097
10/4/2021	0	0.000
10/11/2021	2.5	0.357
10/18/2021	0	0.000
10/26/2021	3.25	0.406
11/1/2021	0	0.000
11/9/2021	0.5	0.063
11/23/2021	3.0	0.214
11/29/2021	0	0.000
12/6/2021	3.0	0.429
12/14/2021	0	0.000
12/20/2021	0	0.000
12/30/2021	0	0.000

**TABLE 3
GAS AND AIR VENTED**

**FEDERAL 18 #1T
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY**

Date	SCFM	ACFM	Total Vented Gas and Air (MCF)
9/17/2019	3	6	26,677
10/7/2019	3	6	26,849
10/21/2019	3	6	26,969
10/28/2019	3	6	27,030
12/5/2019	3	6	27,356
12/19/2019	3	6	27,477
1/7/2020	3	6	27,954
1/17/2020	3	6	28,040
1/30/2020	3	6	28,153
2/12/2020	3	6	28,265
2/25/2020	3	6	28,377
4/3/2020	3	6	28,705
4/9/2020	3	6	28,756
4/15/2020	3	6	28,808
4/23/2020	3	6	28,877
4/30/2020	3	6	28,937
5/15/2020	3	6	29,067
5/21/2020	3	6	29,118
5/29/2020	3	6	29,179
6/5/2020	3	6	29,239
6/29/2020	0	0	Hot, not running
7/8/2020	0	0	Unit Down
8/11/2020	0	0	Unit Down
8/25/2020	0	0	Unit Down
9/16/2020	0	0	Unit Down
9/22/2020	0	0	Unit Down
10/26/2020	0	0	Unit Down
11/9/2020	0	0	Unit Down
12/8/2020	0	0	Unit Down
1/5/2021	0	0	Unit Down
1/20/2021	0	0	Unit Down
2/11/2021	0	0	Unit Down
2/17/2021	0	0	Unit Down
3/22/2021	0	0	Unit Down
*3/31/2021	5.6	7	29,241
6/29/2021	5.6	7	29,262
9/30/2021	5.6	7	29,281
12/31/2021	5.6	7	29,320

Notes:

ACFM - flow rate in actual cubic feet per minute

MCF - thousand cubic feet

SCFM - flow rate in standard cubic feet per minute

* - Pump operated from 3/23 - 3/31/2021.

SCFM per day based on manufacture specifications.

ACFM is estimated based on site elevation and/or observed vacuum

ENCLOSURE A – ANALYTICAL LABORATORY REPORT



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

January 03, 2022

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

RE: Federal 18 IT

OrderNo.: 2112724

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/8/2021 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a white background.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2112724

Date Reported: 1/3/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Hilcorp Energy

Client Sample ID: Tubing

Project: Federal 18 IT

Collection Date: 12/6/2021 8:40:00 AM

Lab ID: 2112724-001

Matrix: GROUNDWA

Received Date: 12/8/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LRN
Chloride	15	5.0		mg/L	10	12/14/2021 3:07:15 PM	R84545
SM2510B: SPECIFIC CONDUCTANCE							Analyst: LRN
Conductivity	2500	10		µmhos/c	1	12/13/2021 11:20:06 AM	R84513
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: CJS
Total Dissolved Solids	2430	40.0	*D	mg/L	1	12/14/2021 2:50:00 PM	64451
SM4500-H+B / 9040C: PH							Analyst: LRN
pH	7.15		H	pH units	1	12/13/2021 11:20:06 AM	R84513
EPA METHOD 8260B: VOLATILES							Analyst: CCM
Benzene	33	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Toluene	20	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Ethylbenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Naphthalene	ND	2.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
2-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Acetone	13	10		µg/L	1	12/15/2021 1:34:00 PM	R84549
Bromobenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Bromodichloromethane	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Bromoform	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Bromomethane	ND	3.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
2-Butanone	ND	10		µg/L	1	12/15/2021 1:34:00 PM	R84549
Carbon disulfide	ND	10		µg/L	1	12/15/2021 1:34:00 PM	R84549
Carbon Tetrachloride	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Chlorobenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Chloroethane	ND	2.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Chloroform	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Chloromethane	ND	3.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
2-Chlorotoluene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
4-Chlorotoluene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
cis-1,2-DCE	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Dibromochloromethane	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549

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

Qualifiers:			
*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Page 1 of 9

Analytical Report

Lab Order 2112724

Date Reported: 1/3/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Hilcorp Energy

Client Sample ID: Tubing

Project: Federal 18 IT

Collection Date: 12/6/2021 8:40:00 AM

Lab ID: 2112724-001

Matrix: GROUNDWA

Received Date: 12/8/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: CCM
Dibromomethane	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,1-Dichloroethane	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,1-Dichloroethene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,2-Dichloropropane	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,3-Dichloropropane	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
2,2-Dichloropropane	ND	2.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,1-Dichloropropene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Hexachlorobutadiene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
2-Hexanone	ND	10		µg/L	1	12/15/2021 1:34:00 PM	R84549
Isopropylbenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
4-Isopropyltoluene	1.4	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
4-Methyl-2-pentanone	ND	10		µg/L	1	12/15/2021 1:34:00 PM	R84549
Methylene Chloride	ND	3.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
n-Butylbenzene	ND	3.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
n-Propylbenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
sec-Butylbenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Styrene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
tert-Butylbenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Tetrachloroethene (PCE)	1.1	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
trans-1,2-DCE	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Trichlorofluoromethane	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Vinyl chloride	ND	1.0		µg/L	1	12/15/2021 1:34:00 PM	R84549
Xylenes, Total	6.0	1.5		µg/L	1	12/15/2021 1:34:00 PM	R84549
Surr: 1,2-Dichloroethane-d4	95.8	70-130		%Rec	1	12/15/2021 1:34:00 PM	R84549
Surr: 4-Bromofluorobenzene	99.1	70-130		%Rec	1	12/15/2021 1:34:00 PM	R84549
Surr: Dibromofluoromethane	98.7	70-130		%Rec	1	12/15/2021 1:34:00 PM	R84549

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order 2112724

Date Reported: 1/3/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Hilcorp Energy

Client Sample ID: Tubing

Project: Federal 18 IT

Collection Date: 12/6/2021 8:40:00 AM

Lab ID: 2112724-001

Matrix: GROUNDWA

Received Date: 12/8/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: CCM
Surr: Toluene-d8	97.3	70-130		%Rec	1	12/15/2021 1:34:00 PM	R84549

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112724

03-Jan-22

Client: Hilcorp Energy

Project: Federal 18 IT

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R84545	RunNo: 84545								
Prep Date:	Analysis Date: 12/14/2021	SeqNo: 2971330	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: LCS	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R84545	RunNo: 84545								
Prep Date:	Analysis Date: 12/14/2021	SeqNo: 2971331	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2112724

03-Jan-22

Client: Hilcorp Energy**Project:** Federal 18 IT

Sample ID: 100ng lcs	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R84514		RunNo: 84514							
Prep Date:	Analysis Date: 12/14/2021		SeqNo: 2970477		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.3	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.7	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.5	70	130			
Surr: Toluene-d8	9.9		10.00		98.6	70	130			

Sample ID: MB	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R84514		RunNo: 84514							
Prep Date:	Analysis Date: 12/14/2021		SeqNo: 2970480		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.9	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.5	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.2	70	130			
Surr: Toluene-d8	9.9		10.00		98.6	70	130			

Sample ID: 100ng lcs	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R84549		RunNo: 84549							
Prep Date:	Analysis Date: 12/15/2021		SeqNo: 2971577		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.3	70	130			
Toluene	20	1.0	20.00	0	98.6	70	130			
Chlorobenzene	20	1.0	20.00	0	101	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	89.1	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	93.9	70	130			
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.4	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.4	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Sample ID: mb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R84549		RunNo: 84549							
Prep Date:	Analysis Date: 12/15/2021		SeqNo: 2971578		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Estimated value
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Limit
S % Recovery outside of range due to dilution or matrix interference	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112724

03-Jan-22

Client: Hilcorp Energy

Project: Federal 18 IT

Sample ID: mb	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES
Client ID: PBW	Batch ID: R84549	RunNo: 84549
Prep Date:	Analysis Date: 12/15/2021	SeqNo: 2971578 Units: µg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Estimated value |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| PQL Practical Quantitative Limit | RL Reporting Limit |
| S % Recovery outside of range due to dilution or matrix interference | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112724

03-Jan-22

Client: Hilcorp Energy

Project: Federal 18 IT

Sample ID: mb	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: R84549	RunNo: 84549								
Prep Date:	Analysis Date: 12/15/2021	SeqNo: 2971578			Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.0	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.0	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.7		10.00		96.7	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112724

03-Jan-22

Client: Hilcorp Energy

Project: Federal 18 IT

Sample ID: Ics-1 99.3uS eC	SampType: Ics	TestCode: SM2510B: Specific Conductance								
Client ID: LCSW	Batch ID: R84513	RunNo: 84513								
Prep Date:	Analysis Date: 12/13/2021	SeqNo: 2969951	Units: µmhos/cm							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	10	99.30	0	99.9	85	115			

Sample ID: Ics-2 99.3uS eC	SampType: Ics	TestCode: SM2510B: Specific Conductance								
Client ID: LCSW	Batch ID: R84513	RunNo: 84513								
Prep Date:	Analysis Date: 12/13/2021	SeqNo: 2970003	Units: µmhos/cm							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.30	0	104	85	115			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112724

03-Jan-22

Client: Hilcorp Energy

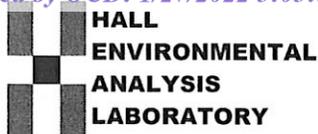
Project: Federal 18 IT

Sample ID: MB-64451	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 64451	RunNo: 84529								
Prep Date: 12/13/2021	Analysis Date: 12/14/2021	SeqNo: 2970538	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-64451	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 64451	RunNo: 84529								
Prep Date: 12/13/2021	Analysis Date: 12/14/2021	SeqNo: 2970539	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit



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

Sample Log-In Check List

Client Name: Hilcorp Energy Work Order Number: 2112724 RcptNo: 1

Received By: Tracy Casarrubias 12/8/2021 7:30:00 AM

Completed By: Cheyenne Cason 12/9/2021 5:13:57 PM

Reviewed By: [Signature]

[Signature]

Chain of Custody

1. Is Chain of Custody complete? Yes [checked] No [] Not Present []

2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes [checked] No [] NA []

4. Were all samples received at a temperature of >0° C to 6.0°C Yes [checked] No [] NA []

5. Sample(s) in proper container(s)? Yes [checked] No []

6. Sufficient sample volume for indicated test(s)? Yes [checked] No []

7. Are samples (except VOA and ONG) properly preserved? Yes [checked] No []

8. Was preservative added to bottles? Yes [] No [checked] NA []

9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes [checked] No [] NA []

10. Were any sample containers received broken? Yes [] No [checked]

of preserved bottles checked for pH:
(<2 or >12 unless noted)
Adjusted?
Checked by: [Signature]

11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes [checked] No []

12. Are matrices correctly identified on Chain of Custody? Yes [checked] No []

13. Is it clear what analyses were requested? Yes [checked] No []

14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes [checked] No []

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Contains 2 rows of data.

Chain-of-Custody Record

Client: Hilcorp Energy

Mailing Address: _____

Phone #: 505-486-5043

email or Fax#: kneekstree@hilcorp.com

QA/QC Package: mk.ilough@hilcorp.com

Standard Level 4 (Full Validation)

Accreditation: AZ Compliance NELAC Other

EDD (Type) _____

Turn-Around Time: _____

Standard Rush

Project Name: FEDERAL IS # 11

Project #: _____

Project Manager: Mitch Kinnouch

Sampler: Kwei

On Ice: Yes No

of Coolers: 2

Cooler Temp (including CP): See Remarks (°C)

Container Type and #: 5 HELIX

Preservative Type: HELI

HEAL No.: 2112724

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

BTX / 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)	X
8270 (Semi-VOA)	
Total Coliform (Present/Absent)	X
(Aldehyde off)	X
SPECIM ID'S	
No Samples filed	
Filtered	

Received by: [Signature] Date: 12/7/21 Time: 1500

Relinquished by: [Signature]

Received by: [Signature] Date: 12/10/21 Time: 7:30

Relinquished by: [Signature]

Remarks:

1.) -0.4 - 0 = -0.4 samples not frozen.

2.) 1.0 - 0 = 1.0 - TMA 12/6/21

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 76102

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 76102
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Review of 4Q 2021 Remediation System Update Report: Content satisfactory 1. Continue sampling to monitor the benzene concentrations in the groundwater 2. Continued operation of the vacuum and water pumps 3. Incrementally increase the amount of time per day that the vacuum pump is in operation to assess the performance. If the pump is able to sustain increased runtime, continue to increase cycles until the pump is capable of running 24 hours per day 4. Continue quarterly reporting to OCD. 2022 first quarter reporting expected to be submitted no later than 05/31/2022.	2/9/2022