



Accepted - 09/27/2022

NV

February 17, 2021

Mr. Cory Smith  
 New Mexico Oil Conservation Division  
 1000 Rio Brazos Road  
 Aztec, NM 87410

**RE: 4th Quarter-2020 - Solar SVE System Update**

**Hilcorp Energy Company**  
**Bell Federal GC B #1**  
**San Juan County, New Mexico**  
**API # 30-045-09772**  
**Incident # NCS1729355513**

Dear Mr. Smith:

Hilcorp Energy Company (Hilcorp) presents the following quarterly summary report discussing the solar soil vapor extraction (SVE) system performance at the Bell Federal GC B #1 natural gas production well (Site). The solar SVE system was installed on January 16, 2018, to remediate subsurface soil impacts following an act of vandalism, resulting in the release of approximately 58 barrels (bbl) of natural gas condensate. SVE installation, soil sampling, and delineation activities are summarized in earlier reports submitted to the New Mexico Oil Conservation Division (NMOCD) for each quarter of operation.

The solar SVE system consists of a 1/3 horsepower blower capable of producing 22 cubic feet per minute (cfm) at 29 inches of water column vacuum. The blower is powered by four 12-volt deep cycle batteries that are charged throughout the day via three solar panels with a nominal maximum power output of 915 watts. The blower runs off a timer that is scheduled to maximize runtime that coincides with the seasonally available solar recharge, typically 10 hours in the winter and 12 hours in the summer for Farmington, New Mexico. Between startup, January 16, 2018, and the last site visit on December 8, 2020, there have been 1,057 days of operation, with an estimated 12,563 total hours of available nominal daylight in which the solar SVE system should be in operation. Of the available runtime of 12,563 hours since installation, the system has an actual runtime of 11,613 hours, for an overall runtime efficiency of 92.4 percent (%). Below is a table of SVE runtime in comparison with nominal available daylight hours, per month, according to the National Oceanic and Atmospheric Administration's National Weather Service.

| Time Period               | January 16, 2018 to September 16, 2020 | September 17, 2020 to October 31, 2020 | November 1, 2020 to November 30, 2020 | December 1, 2020 to December 8, 2020 |
|---------------------------|----------------------------------------|----------------------------------------|---------------------------------------|--------------------------------------|
| Days                      | 974                                    | 45                                     | 30                                    | 8                                    |
| Avg. Nominal Daylight Hrs | 12                                     | 11                                     | 10                                    | 10                                   |
| Available Runtime Hrs     | 11688                                  | 495                                    | 300                                   | 80                                   |

**Total Available Daylight Runtime Hours** 12563

**Actual Runtime Hours** 11613.4

**% Runtime** 92.4%



An initial air sample was collected on January 24, 2018, from the solar SVE system discharge exhaust stack. Subsequent air samples have been collected quarterly (Table 1) with the last sample collected on December 8, 2020. No air sample was collected during the second quarter of 2018, due to a change in operator from XTO Energy to Hilcorp, and no air sample was collected during the fourth quarter 2018 due to additional delineation in January 2019.

Samples were collected in Tedlar® bags and submitted to Pace Analytical Laboratory of Mount Juliet, TN for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (EPA) Method 8021, and total volatile petroleum hydrocarbons (TVPH) via EPA Method 8015. In addition, a full list of volatile organic compounds (VOCs) by EPA method 8260, including oxygen and carbon dioxide were analyzed. Laboratory analytical results are summarized in Table 1, with complete laboratory reports included as Attachment 1. Overall benzene concentrations have decreased since the solar SVE system installation from 280 micrograms per liter (µg/L) to 114 µg/L.

Since the solar SVE system installation, a total of approximately 56.9 gallons of liquid phase separated hydrocarbons (PSH) have been recovered from the SVE wells and liquid-vapor separator tank. Based on the air sample data collected to date, the estimated mass air emissions were calculated using air sample analytical results and exhaust flowrates (Table 2). The impacted mass source removal via the solar SVE system to date is an estimated 14,738 pounds of TVPH. Including the PSH and vapor phase hydrocarbons, an estimated total of 2,434 gallons or 58 bbl of PSH and air equivalent condensate has been recovered to date. A discrepancy was discovered in the formula that calculated "Delta Flow (cf)" which caused those numbers and "Total Flow (cf)" numbers to be incorrect. The issue has been fixed and the spreadsheet updated with the correct amounts.

During the upcoming 1st quarter 2021 of operations, Site visits will resume on a bi-weekly basis by Hilcorp and LTE personnel to ensure 90% runtime efficiency continues and that any maintenance issues are addressed. An air sample will be collected in the 1st quarter and analyzed for BTEX by EPA Method 8021 and TVPH by EPA Method 8015. An updated quarterly report with sample results, runtime, and mass source removal will be submitted.

If you have any questions or comments regarding this work plan, do not hesitate to contact me at (505) 324-5128 or at [jdeal@hilcorp.com](mailto:jdeal@hilcorp.com).

Sincerely,

A handwritten signature in black ink that reads 'Jennifer Deal'.

Jennifer Deal  
Environmental Specialist  
Hilcorp Energy Company – L48 West  
[jdeal@hilcorp.com](mailto:jdeal@hilcorp.com)  
505-324-5128 – Office  
505-801-6517 – Cell

**Attachments:**

Table 1 – Air Sampling Analytical Results  
Table 2 – Soil Vapor Extraction System Recovery & Emissions Summary  
Attachment 1 – Analytical Laboratory Reports

**TABLE 1**  
**AIR SAMPLE ANALYTICAL RESULTS**

**BELL FEDERAL GAS COM B 1**  
**SAN JUAN COUNTY, NEW MEXICO**  
**HILCORP ENERGY COMPANY**

| Sample ID             | Sample Date | Vapor (PPM) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-Benzene (µg/L) | Total Xylenes (µg/L) |
|-----------------------|-------------|-------------|----------------|----------------|----------------------|----------------------|
| Bell Fed GC B#1 SVE   | 1/24/2018   | 1,435       | 280            | 200            | 5.0                  | 38                   |
| Stack Exhaust 01      | 8/17/2018   | 1,873       | 160            | 380            | 21                   | 320                  |
| SVE Effluent          | 3/22/2019   | 1,607       | 490            | 920            | 24                   | 480                  |
| Influent 6/18         | 6/18/2019   | 1,026       | 72             | 270            | 27                   | 290                  |
| Bell Fed 9/25         | 9/25/2019   | 1,762       | 220            | 480            | 21                   | 440                  |
| Influent 12/16        | 12/16/2019  | 1,902       | 130            | 840            | 21                   | 220                  |
| Bell Fed 3/10/20      | 3/10/2020   | 1,171       | 120            | 380            | 19                   | 330                  |
| Influent 6/25         | 6/25/2020   | 978         | 180            | 430            | 25                   | 480                  |
| SVE Air Sample        | 9/16/2020   | 1,766       | 186            | 433            | 18                   | 497                  |
| SVE Q4 Air Sample     | 12/8/2020   | 1,741       | 114            | 292            | 10.6                 | 323.8                |
| <b>Percent Change</b> |             | 21%         | -59%           | 46%            | 112%                 | 752%                 |

## Notes:

µg/L - micrograms per liter

NA - not analyzed

ppm - parts per million

TVPH - total volatile petroleum hydrocarbons

Italics denote that the laboratory method detection limit was used for calculations for a non-detected result

**TABLE 2**  
**SOIL VAPOR EXTRACTION SYSTEM RECOVERY & EMISSIONS SUMMARY**

**BELL FEDERAL GAS COM B 1**  
**SAN JUAN COUNTY, NEW MEXICO**  
**HILCORP ENERGY COMPANY**

**Sample Information and Lab Analysis**

| Date       | Total Flow<br>(cf) | Delta Flow<br>(cf) | PID<br>(ppm) | Benzene<br>(µg/L) | Toluene<br>(µg/L) | Ethyl-benzene<br>(µg/L) | Total Xylenes<br>(µg/L) | TVPH<br>(µg/L) |
|------------|--------------------|--------------------|--------------|-------------------|-------------------|-------------------------|-------------------------|----------------|
| 1/24/2018  | 164,400            | 164,400            | 1,435        | 280               | 200               | 5.0                     | 38                      | 30,000         |
| 8/17/2018  | 2,010,120          | 1,845,720          | 1,873        | 160               | 380               | 21                      | 320                     | 18,000         |
| 3/22/2019  | 3,978,120          | 1,968,000          | 1,607        | 490               | 920               | 24                      | 480                     | NA             |
| 6/18/2019  | 4,938,120          | 960,000            | 1,026        | 72                | 270               | 27                      | 290                     | NA             |
| 9/25/2019  | 6,004,920          | 1,066,800          | 1,762        | 220               | 480               | 21                      | 440                     | 35,000         |
| 12/16/2019 | 6,956,280          | 951,360            | 1,902        | 130               | 840               | 21                      | 220                     | 22,000         |
| 3/10/2020  | 8,151,480          | 1,195,200          | 1,171        | 120               | 380               | 19                      | 330                     | 31,000         |
| 6/25/2020  | 9,446,280          | 1,294,800          | 978          | 180               | 430               | 25                      | 480                     | 45,000         |
| 9/16/2020  | 10,434,480         | 988,200            | 1,766        | 186               | 433               | 18                      | 497                     | 32,100         |
| 12/8/2020  | 11,229,024         | 794,544            | 1,741        | 114               | 292               | 10.6                    | 323.8                   | 16,000         |
| Average    |                    |                    | 1,502        | 204               | 481               | 20                      | 344                     | 30,443         |

**Vapor Extraction Calculations**

| Vapor Extraction Calculations |                    |                    |                    |                          |                          |                 |
|-------------------------------|--------------------|--------------------|--------------------|--------------------------|--------------------------|-----------------|
| Date                          | Flow Rate<br>(cfm) | Benzene<br>(lb/hr) | Toluene<br>(lb/hr) | Ethyl-benzene<br>(lb/hr) | Total Xylenes<br>(lb/hr) | TVPH<br>(lb/hr) |
| 1/24/2018                     | 40                 | 0.0419             | 0.0299             | 0.0007                   | 0.0057                   | 4.4921          |
| 8/17/2018                     | 12                 | 0.0072             | 0.0171             | 0.0009                   | 0.0144                   | 0.8086          |
| 3/22/2019                     | 16                 | 0.0293             | 0.0551             | 0.0014                   | 0.0287                   | NA              |
| 6/18/2019                     | 16                 | 0.0043             | 0.0162             | 0.0016                   | 0.0174                   | NA              |
| 9/25/2019                     | 14                 | 0.0115             | 0.0252             | 0.0011                   | 0.0231                   | 1.8343          |
| 12/16/2019                    | 16                 | 0.0078             | 0.0503             | 0.0013                   | 0.0132                   | 1.3177          |
| 3/10/2020                     | 20                 | 0.009              | 0.0284             | 0.0014                   | 0.0247                   | 2.3209          |
| 6/25/2020                     | 20                 | 0.0135             | 0.0322             | 0.0019                   | 0.0359                   | 3.369           |
| 9/16/2020                     | 18                 | 0.0125             | 0.0292             | 0.0012                   | 0.0335                   | 2.1643          |
| 12/8/2020                     | 19                 | 0.0083             | 0.0213             | 0.0008                   | 0.0236                   | 1.1664          |
| Average                       | 19                 | 0.0145             | 0.0305             | 0.0012                   | 0.0220                   | 2.1842          |

**Pounds Extracted Over Total Operating Time**

| Date                           | Total<br>Operational<br>Hours | Delta Hours | Benzene (lbs) | Toluene (lbs) | Ethyl-benzene<br>(lbs) | Total Xylenes<br>(lbs) | TVPH (lbs) | TVPH (tons) |
|--------------------------------|-------------------------------|-------------|---------------|---------------|------------------------|------------------------|------------|-------------|
| 1/24/2018                      | 68.5                          | 68.5        | 2.9           | 2.1           | 0.1                    | 0.4                    | 308        | 0.2         |
| 8/17/2018                      | 2,632                         | 2,563.5     | 18.4          | 43.8          | 2.4                    | 36.9                   | 2,073      | 1.0         |
| 3/22/2019                      | 4,682                         | 2,050.0     | 60.2          | 112.9         | 2.9                    | 58.9                   | NA         | NA          |
| 6/18/2019                      | 5,682                         | 1,000.0     | 4.3           | 16.2          | 1.6                    | 17.4                   | NA         | NA          |
| 9/25/2019                      | 6,952                         | 1,270       | 14.6          | 31.9          | 1.4                    | 29.3                   | 2,330      | 1.2         |
| 12/16/2019                     | 7,943                         | 991         | 7.7           | 49.9          | 1.2                    | 13.1                   | 1,306      | 0.7         |
| 3/10/2020                      | 8,939                         | 996         | 8.9           | 28.3          | 1.4                    | 24.6                   | 2,312      | 1.2         |
| 6/25/2020                      | 10,018                        | 1,079       | 14.5          | 34.7          | 2.0                    | 38.8                   | 3,635      | 1.8         |
| 9/16/2020                      | 10,933                        | 915         | 11.5          | 26.7          | 1.1                    | 30.7                   | 1,980      | 1.0         |
| 12/8/2020                      | 11,613                        | 680         | 5.7           | 14.5          | 0.5                    | 16.1                   | 793.6      | 0.4         |
| Avg. Mass Extracted Per Period |                               |             | 14.9          | 36.1          | 1.5                    | 26.6                   | 1842.2     | 0.9         |
| Total Mass Extracted to Date   |                               |             | 148.6         | 361.0         | 14.6                   | 266.1                  | 14737.9    | 7.5         |

**NOTES**

cf - cubic feet

cfm - cubic feet per minute

lbs - pounds

lb/hr - pounds per hour

µg/L - micrograms per hour

NA - not analyzed

PID - photoionization detector

ppm - parts per million

TVPH - total volatile petroleum hydrocarbons

Italics denote the laboratory method detection limit was used for calculations for a non-detected result

## HilCorp-Farmington, NM

Sample Delivery Group: L1294285  
Samples Received: 12/09/2020  
Project Number:  
Description: Bell Federal Gas Com B 1  
Site: BELL FEDERAL GAS COM B 1  
Report To: Jennifer Deal  
382 Road 3100  
Aztec, NM 87410

Entire Report Reviewed By:



Olivia Studebaker  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



|                                                 |    |                 |
|-------------------------------------------------|----|-----------------|
| Cp: Cover Page                                  | 1  | <sup>1</sup> Cp |
| Tc: Table of Contents                           | 2  |                 |
| Ss: Sample Summary                              | 3  | <sup>2</sup> Tc |
| Cn: Case Narrative                              | 4  |                 |
| Sr: Sample Results                              | 5  | <sup>3</sup> Ss |
| SVE Q4 AIR SAMPLE L1294285-01                   | 5  |                 |
| Qc: Quality Control Summary                     | 7  | <sup>4</sup> Cn |
| Volatile Organic Compounds (MS) by Method TO-15 | 7  | <sup>5</sup> Sr |
| Organic Compounds (GC) by Method D1946          | 12 |                 |
| Gl: Glossary of Terms                           | 13 | <sup>6</sup> Qc |
| Al: Accreditations & Locations                  | 14 | <sup>7</sup> Gl |
| Sc: Sample Chain of Custody                     | 15 | <sup>8</sup> Al |
|                                                 |    | <sup>9</sup> Sc |



SVE Q4 AIR SAMPLE L1294285-01 Air

Collected by  
K Hoekstra

Collected date/time  
12/08/20 10:05

Received date/time  
12/09/20 10:00

| Method                                          | Batch     | Dilution | Preparation date/time | Analysis date/time | Analyst | Location       |
|-------------------------------------------------|-----------|----------|-----------------------|--------------------|---------|----------------|
| Volatile Organic Compounds (MS) by Method TO-15 | WG1589694 | 2000     | 12/11/20 00:44        | 12/11/20 00:44     | MBF     | Mt. Juliet, TN |
| Volatile Organic Compounds (MS) by Method TO-15 | WG1592182 | 10000    | 12/15/20 17:20        | 12/15/20 17:20     | CAW     | Mt. Juliet, TN |
| Organic Compounds (GC) by Method D1946          | WG1589564 | 1        | 12/10/20 12:03        | 12/10/20 12:03     | DAH     | Mt. Juliet, TN |

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Olivia Studebaker  
Project Manager

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## SVE Q4 AIR SAMPLE

Collected date/time: 12/08/20 10:05

## SAMPLE RESULTS - 01

L1294285

ONE LAB. NATIONWIDE.



## Volatile Organic Compounds (MS) by Method TO-15

| Analyte                        | CAS #      | Mol. Wt. | RDL1<br>ppbv | RDL2<br>ug/m3 | Result<br>ppbv | Result<br>ug/m3 | Qualifier | Dilution | Batch                     |
|--------------------------------|------------|----------|--------------|---------------|----------------|-----------------|-----------|----------|---------------------------|
| Acetone                        | 67-64-1    | 58.10    | 2500         | 5940          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Allyl chloride                 | 107-05-1   | 76.53    | 400          | 1250          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Benzene                        | 71-43-2    | 78.10    | 400          | 1280          | 35600          | 114000          |           | 2000     | <a href="#">WG1589694</a> |
| Benzyl Chloride                | 100-44-7   | 127      | 400          | 2080          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Bromodichloromethane           | 75-27-4    | 164      | 400          | 2680          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Bromoform                      | 75-25-2    | 253      | 1200         | 12400         | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Bromomethane                   | 74-83-9    | 94.90    | 400          | 1550          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,3-Butadiene                  | 106-99-0   | 54.10    | 4000         | 8850          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Carbon disulfide               | 75-15-0    | 76.10    | 400          | 1240          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Carbon tetrachloride           | 56-23-5    | 154      | 400          | 2520          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Chlorobenzene                  | 108-90-7   | 113      | 400          | 1850          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Chloroethane                   | 75-00-3    | 64.50    | 400          | 1060          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Chloroform                     | 67-66-3    | 119      | 400          | 1950          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Chloromethane                  | 74-87-3    | 50.50    | 400          | 826           | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 2-Chlorotoluene                | 95-49-8    | 126      | 400          | 2060          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Cyclohexane                    | 110-82-7   | 84.20    | 2000         | 6890          | 897000         | 3090000         |           | 10000    | <a href="#">WG1592182</a> |
| Dibromochloromethane           | 124-48-1   | 208      | 400          | 3400          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,2-Dibromoethane              | 106-93-4   | 188      | 400          | 3080          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,2-Dichlorobenzene            | 95-50-1    | 147      | 400          | 2400          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,3-Dichlorobenzene            | 541-73-1   | 147      | 400          | 2400          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,4-Dichlorobenzene            | 106-46-7   | 147      | 400          | 2400          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,2-Dichloroethane             | 107-06-2   | 99       | 400          | 1620          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,1-Dichloroethane             | 75-34-3    | 98       | 400          | 1600          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,1-Dichloroethene             | 75-35-4    | 96.90    | 400          | 1590          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| cis-1,2-Dichloroethene         | 156-59-2   | 96.90    | 400          | 1590          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| trans-1,2-Dichloroethene       | 156-60-5   | 96.90    | 400          | 1590          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,2-Dichloropropane            | 78-87-5    | 113      | 400          | 1850          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| cis-1,3-Dichloropropene        | 10061-01-5 | 111      | 400          | 1820          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| trans-1,3-Dichloropropene      | 10061-02-6 | 111      | 400          | 1820          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,4-Dioxane                    | 123-91-1   | 88.10    | 400          | 1440          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Ethanol                        | 64-17-5    | 46.10    | 1260         | 2380          | 2330           | 4390            |           | 2000     | <a href="#">WG1589694</a> |
| Ethylbenzene                   | 100-41-4   | 106      | 400          | 1730          | 2450           | 10600           |           | 2000     | <a href="#">WG1589694</a> |
| 4-Ethyltoluene                 | 622-96-8   | 120      | 400          | 1960          | 4790           | 23500           |           | 2000     | <a href="#">WG1589694</a> |
| Trichlorofluoromethane         | 75-69-4    | 137.40   | 400          | 2250          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Dichlorodifluoromethane        | 75-71-8    | 120.92   | 400          | 1980          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,1,2-Trichlorotrifluoroethane | 76-13-1    | 187.40   | 400          | 3070          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,2-Dichlorotetrafluoroethane  | 76-14-2    | 171      | 400          | 2800          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Heptane                        | 142-82-5   | 100      | 400          | 1640          | 160000         | 654000          |           | 2000     | <a href="#">WG1589694</a> |
| Hexachloro-1,3-butadiene       | 87-68-3    | 261      | 1260         | 13500         | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| n-Hexane                       | 110-54-3   | 86.20    | 6300         | 22200         | 424000         | 1490000         |           | 10000    | <a href="#">WG1592182</a> |
| Isopropylbenzene               | 98-82-8    | 120.20   | 400          | 1970          | 539            | 2650            |           | 2000     | <a href="#">WG1589694</a> |
| Methylene Chloride             | 75-09-2    | 84.90    | 400          | 1390          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Methyl Butyl Ketone            | 591-78-6   | 100      | 2500         | 10200         | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 2-Butanone (MEK)               | 78-93-3    | 72.10    | 2500         | 7370          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 4-Methyl-2-pentanone (MIBK)    | 108-10-1   | 100.10   | 2500         | 10200         | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Methyl methacrylate            | 80-62-6    | 100.12   | 400          | 1640          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| MTBE                           | 1634-04-4  | 88.10    | 400          | 1440          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Naphthalene                    | 91-20-3    | 128      | 1260         | 6600          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 2-Propanol                     | 67-63-0    | 60.10    | 2500         | 6150          | 10400          | 25600           |           | 2000     | <a href="#">WG1589694</a> |
| Propene                        | 115-07-1   | 42.10    | 800          | 1380          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Styrene                        | 100-42-5   | 104      | 400          | 1700          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,1,2,2-Tetrachloroethane      | 79-34-5    | 168      | 400          | 2750          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Tetrachloroethylene            | 127-18-4   | 166      | 400          | 2720          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Tetrahydrofuran                | 109-99-9   | 72.10    | 400          | 1180          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Toluene                        | 108-88-3   | 92.10    | 1000         | 3770          | 77400          | 292000          |           | 2000     | <a href="#">WG1589694</a> |
| 1,2,4-Trichlorobenzene         | 120-82-1   | 181      | 1260         | 9330          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

HilCorp-Farmington, NM

PROJECT:

SDG:

L1294285

DATE/TIME:

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Collected date/time: 12/08/20 10:05

L1294285

Volatile Organic Compounds (MS) by Method TO-15

| Analyte                    | CAS #     | Mol. Wt. | RDL1<br>ppbv | RDL2<br>ug/m3 | Result<br>ppbv | Result<br>ug/m3 | Qualifier | Dilution | Batch                     |
|----------------------------|-----------|----------|--------------|---------------|----------------|-----------------|-----------|----------|---------------------------|
| 1,1,1-Trichloroethane      | 71-55-6   | 133      | 400          | 2180          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,1,2-Trichloroethane      | 79-00-5   | 133      | 400          | 2180          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Trichloroethylene          | 79-01-6   | 131      | 400          | 2140          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| 1,2,4-Trimethylbenzene     | 95-63-6   | 120      | 400          | 1960          | 3550           | 17400           |           | 2000     | <a href="#">WG1589694</a> |
| 1,3,5-Trimethylbenzene     | 108-67-8  | 120      | 400          | 1960          | 4280           | 21000           |           | 2000     | <a href="#">WG1589694</a> |
| 2,2,4-Trimethylpentane     | 540-84-1  | 114.22   | 400          | 1870          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Vinyl chloride             | 75-01-4   | 62.50    | 400          | 1020          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Vinyl Bromide              | 593-60-2  | 106.95   | 400          | 1750          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| Vinyl acetate              | 108-05-4  | 86.10    | 400          | 1410          | ND             | ND              |           | 2000     | <a href="#">WG1589694</a> |
| m&p-Xylene                 | 1330-20-7 | 106      | 800          | 3470          | 60800          | 264000          |           | 2000     | <a href="#">WG1589694</a> |
| o-Xylene                   | 95-47-6   | 106      | 400          | 1730          | 13800          | 59800           |           | 2000     | <a href="#">WG1589694</a> |
| TPH (GC/MS) Low Fraction   | 8006-61-9 | 101      | 400000       | 1650000       | 3870000        | 16000000        |           | 2000     | <a href="#">WG1589694</a> |
| (S) 1,4-Bromofluorobenzene | 460-00-4  | 175      | 60.0-140     |               | 103            |                 |           |          | <a href="#">WG1589694</a> |
| (S) 1,4-Bromofluorobenzene | 460-00-4  | 175      | 60.0-140     |               | 97.8           |                 |           |          | <a href="#">WG1592182</a> |

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Organic Compounds (GC) by Method D1946

| Analyte         | CAS #     | Mol. Wt. | RDL<br>% | Result<br>% | Qualifier | Dilution | Batch                     |
|-----------------|-----------|----------|----------|-------------|-----------|----------|---------------------------|
| Oxygen          | 7782-44-7 | 32       | 5.00     | 17.3        |           | 1        | <a href="#">WG1589564</a> |
| Carbon Monoxide | 630-08-0  | 28       | 2.00     | ND          |           | 1        | <a href="#">WG1589564</a> |
| Carbon Dioxide  | 124-38-9  | 44.01    | 0.500    | 4.45        |           | 1        | <a href="#">WG1589564</a> |
| Methane         | 74-82-8   | 16       | 0.400    | ND          |           | 1        | <a href="#">WG1589564</a> |

Method Blank (MB)

(MB) R3602177-3 12/10/20 10:00

| Analyte                        | MB Result<br>ppbv | MB Qualifier | MB MDL<br>ppbv | MB RDL<br>ppbv |
|--------------------------------|-------------------|--------------|----------------|----------------|
| Acetone                        | U                 |              | 0.584          | 1.25           |
| Allyl Chloride                 | U                 |              | 0.114          | 0.200          |
| Benzene                        | U                 |              | 0.0715         | 0.200          |
| Benzyl Chloride                | 1.04              |              | 0.0598         | 0.200          |
| Bromodichloromethane           | U                 |              | 0.0702         | 0.200          |
| Bromoform                      | U                 |              | 0.0732         | 0.600          |
| Bromomethane                   | U                 |              | 0.0982         | 0.200          |
| 1,3-Butadiene                  | U                 |              | 0.104          | 2.00           |
| Carbon disulfide               | U                 |              | 0.102          | 0.200          |
| Carbon tetrachloride           | U                 |              | 0.0732         | 0.200          |
| Chlorobenzene                  | U                 |              | 0.0832         | 0.200          |
| Chloroethane                   | U                 |              | 0.0996         | 0.200          |
| Chloroform                     | U                 |              | 0.0717         | 0.200          |
| Chloromethane                  | U                 |              | 0.103          | 0.200          |
| 2-Chlorotoluene                | U                 |              | 0.0828         | 0.200          |
| Dibromochloromethane           | U                 |              | 0.0727         | 0.200          |
| 1,2-Dibromoethane              | U                 |              | 0.0721         | 0.200          |
| 1,2-Dichlorobenzene            | U                 |              | 0.128          | 0.200          |
| 1,3-Dichlorobenzene            | U                 |              | 0.182          | 0.200          |
| 1,4-Dichlorobenzene            | U                 |              | 0.0557         | 0.200          |
| 1,2-Dichloroethane             | U                 |              | 0.0700         | 0.200          |
| 1,1-Dichloroethane             | U                 |              | 0.0723         | 0.200          |
| 1,1-Dichloroethene             | U                 |              | 0.0762         | 0.200          |
| cis-1,2-Dichloroethene         | U                 |              | 0.0784         | 0.200          |
| trans-1,2-Dichloroethene       | U                 |              | 0.0673         | 0.200          |
| 1,2-Dichloropropane            | U                 |              | 0.0760         | 0.200          |
| cis-1,3-Dichloropropene        | U                 |              | 0.0689         | 0.200          |
| trans-1,3-Dichloropropene      | U                 |              | 0.0728         | 0.200          |
| 1,4-Dioxane                    | U                 |              | 0.0833         | 0.200          |
| Ethylbenzene                   | U                 |              | 0.0835         | 0.200          |
| 4-Ethyltoluene                 | U                 |              | 0.0783         | 0.200          |
| Trichlorofluoromethane         | U                 |              | 0.0819         | 0.200          |
| Dichlorodifluoromethane        | U                 |              | 0.137          | 0.200          |
| 1,1,2-Trichlorotrifluoroethane | U                 |              | 0.0793         | 0.200          |
| 1,2-Dichlorotetrafluoroethane  | U                 |              | 0.0890         | 0.200          |
| Heptane                        | U                 |              | 0.104          | 0.200          |
| Hexachloro-1,3-butadiene       | U                 |              | 0.105          | 0.630          |
| Isopropylbenzene               | U                 |              | 0.0777         | 0.200          |
| Methylene Chloride             | U                 |              | 0.0979         | 0.200          |
| Methyl Butyl Ketone            | U                 |              | 0.133          | 1.25           |

ACCOUNT:  
HilCorp-Farmington, NM

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12/16/20 15:46

Method Blank (MB)

(MB) R3602177-3 12/10/20 10:00

| Analyte                     | MB Result<br>ppbv | MB Qualifier | MB MDL<br>ppbv | MB RDL<br>ppbv |
|-----------------------------|-------------------|--------------|----------------|----------------|
| 2-Butanone (MEK)            | U                 |              | 0.0814         | 1.25           |
| 4-Methyl-2-pentanone (MIBK) | U                 |              | 0.0765         | 1.25           |
| Methyl Methacrylate         | U                 |              | 0.0876         | 0.200          |
| MTBE                        | U                 |              | 0.0647         | 0.200          |
| Naphthalene                 | U                 |              | 0.350          | 0.630          |
| 2-Propanol                  | U                 |              | 0.264          | 1.25           |
| Propene                     | U                 |              | 0.0932         | 0.400          |
| Styrene                     | U                 |              | 0.0788         | 0.200          |
| 1,1,2,2-Tetrachloroethane   | U                 |              | 0.0743         | 0.200          |
| Tetrachloroethylene         | U                 |              | 0.0814         | 0.200          |
| Tetrahydrofuran             | U                 |              | 0.0734         | 0.200          |
| Toluene                     | U                 |              | 0.0870         | 0.500          |
| 1,2,4-Trichlorobenzene      | U                 |              | 0.148          | 0.630          |
| 1,1,1-Trichloroethane       | U                 |              | 0.0736         | 0.200          |
| 1,1,2-Trichloroethane       | U                 |              | 0.0775         | 0.200          |
| Trichloroethylene           | U                 |              | 0.0680         | 0.200          |
| 1,2,4-Trimethylbenzene      | U                 |              | 0.0764         | 0.200          |
| 1,3,5-Trimethylbenzene      | U                 |              | 0.0779         | 0.200          |
| 2,2,4-Trimethylpentane      | U                 |              | 0.133          | 0.200          |
| Vinyl chloride              | U                 |              | 0.0949         | 0.200          |
| Vinyl Bromide               | U                 |              | 0.0852         | 0.200          |
| Vinyl acetate               | U                 |              | 0.116          | 0.200          |
| m&p-Xylene                  | U                 |              | 0.135          | 0.400          |
| o-Xylene                    | U                 |              | 0.0828         | 0.200          |
| Ethanol                     | U                 |              | 0.265          | 0.630          |
| TPH (GC/MS) Low Fraction    | U                 |              | 39.7           | 200            |
| (S) 1,4-Bromofluorobenzene  | 96.7              |              |                | 60.0-140       |

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3602177-1 12/10/20 08:39 • (LCSD) R3602177-2 12/10/20 09:20

| Analyte                       | Spike Amount<br>ppbv | LCS Result<br>ppbv | LCSD Result<br>ppbv | LCS Rec.<br>% | LCSD Rec.<br>% | Rec. Limits<br>% | LCS Qualifier | LCSD Qualifier | RPD<br>% | RPD Limits<br>% |
|-------------------------------|----------------------|--------------------|---------------------|---------------|----------------|------------------|---------------|----------------|----------|-----------------|
| Ethanol                       | 3.75                 | 2.89               | 2.80                | 77.1          | 74.7           | 55.0-148         |               |                | 3.16     | 25              |
| Propene                       | 3.75                 | 3.74               | 3.66                | 99.7          | 97.6           | 64.0-144         |               |                | 2.16     | 25              |
| Dichlorodifluoromethane       | 3.75                 | 3.70               | 3.95                | 98.7          | 105            | 64.0-139         |               |                | 6.54     | 25              |
| 1,2-Dichlorotetrafluoroethane | 3.75                 | 3.67               | 3.71                | 97.9          | 98.9           | 70.0-130         |               |                | 1.08     | 25              |
| Chloromethane                 | 3.75                 | 3.56               | 3.54                | 94.9          | 94.4           | 70.0-130         |               |                | 0.563    | 25              |
| Vinyl chloride                | 3.75                 | 3.75               | 3.63                | 100           | 96.8           | 70.0-130         |               |                | 3.25     | 25              |

ACCOUNT:  
HilCorp-Farmington, NM

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WG1589694

QUALITY CONTROL SUMMARY

Volatile Organic Compounds (MS) by Method TO-15

L1294285-01

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3602177-1 12/10/20 08:39 • (LCSD) R3602177-2 12/10/20 09:20

| Analyte                        | Spike Amount<br>ppbv | LCS Result<br>ppbv | LCSD Result<br>ppbv | LCS Rec.<br>% | LCSD Rec.<br>% | Rec. Limits<br>% | LCS Qualifier | LCSD Qualifier | RPD<br>% | RPD Limits<br>% |
|--------------------------------|----------------------|--------------------|---------------------|---------------|----------------|------------------|---------------|----------------|----------|-----------------|
| 1,3-Butadiene                  | 3.75                 | 3.87               | 3.57                | 103           | 95.2           | 70.0-130         |               |                | 8.06     | 25              |
| Bromomethane                   | 3.75                 | 3.63               | 3.59                | 96.8          | 95.7           | 70.0-130         |               |                | 1.11     | 25              |
| Chloroethane                   | 3.75                 | 3.42               | 3.59                | 91.2          | 95.7           | 70.0-130         |               |                | 4.85     | 25              |
| Trichlorofluoromethane         | 3.75                 | 3.87               | 3.80                | 103           | 101            | 70.0-130         |               |                | 1.83     | 25              |
| 1,1,2-Trichlorotrifluoroethane | 3.75                 | 3.65               | 3.61                | 97.3          | 96.3           | 70.0-130         |               |                | 1.10     | 25              |
| 1,1-Dichloroethene             | 3.75                 | 3.82               | 3.81                | 102           | 102            | 70.0-130         |               |                | 0.262    | 25              |
| 1,1-Dichloroethane             | 3.75                 | 3.64               | 3.56                | 97.1          | 94.9           | 70.0-130         |               |                | 2.22     | 25              |
| Acetone                        | 3.75                 | 3.24               | 3.17                | 86.4          | 84.5           | 70.0-130         |               |                | 2.18     | 25              |
| 2-Propanol                     | 3.75                 | 3.27               | 3.19                | 87.2          | 85.1           | 70.0-139         |               |                | 2.48     | 25              |
| Carbon disulfide               | 3.75                 | 3.65               | 3.59                | 97.3          | 95.7           | 70.0-130         |               |                | 1.66     | 25              |
| Methylene Chloride             | 3.75                 | 3.47               | 3.40                | 92.5          | 90.7           | 70.0-130         |               |                | 2.04     | 25              |
| MTBE                           | 3.75                 | 4.01               | 3.92                | 107           | 105            | 70.0-130         |               |                | 2.27     | 25              |
| trans-1,2-Dichloroethene       | 3.75                 | 3.75               | 3.71                | 100           | 98.9           | 70.0-130         |               |                | 1.07     | 25              |
| Vinyl acetate                  | 3.75                 | 3.28               | 3.13                | 87.5          | 83.5           | 70.0-130         |               |                | 4.68     | 25              |
| Methyl Ethyl Ketone            | 3.75                 | 3.57               | 3.66                | 95.2          | 97.6           | 70.0-130         |               |                | 2.49     | 25              |
| cis-1,2-Dichloroethene         | 3.75                 | 3.74               | 3.69                | 99.7          | 98.4           | 70.0-130         |               |                | 1.35     | 25              |
| Chloroform                     | 3.75                 | 3.69               | 3.65                | 98.4          | 97.3           | 70.0-130         |               |                | 1.09     | 25              |
| 1,1,1-Trichloroethane          | 3.75                 | 3.80               | 3.69                | 101           | 98.4           | 70.0-130         |               |                | 2.94     | 25              |
| Carbon tetrachloride           | 3.75                 | 3.77               | 3.64                | 101           | 97.1           | 70.0-130         |               |                | 3.51     | 25              |
| Benzene                        | 3.75                 | 3.75               | 3.59                | 100           | 95.7           | 70.0-130         |               |                | 4.36     | 25              |
| 1,2-Dichloroethane             | 3.75                 | 3.86               | 3.76                | 103           | 100            | 70.0-130         |               |                | 2.62     | 25              |
| Heptane                        | 3.75                 | 3.76               | 3.80                | 100           | 101            | 70.0-130         |               |                | 1.06     | 25              |
| Trichloroethylene              | 3.75                 | 3.85               | 3.84                | 103           | 102            | 70.0-130         |               |                | 0.260    | 25              |
| 1,2-Dichloropropane            | 3.75                 | 3.65               | 3.65                | 97.3          | 97.3           | 70.0-130         |               |                | 0.000    | 25              |
| 1,4-Dioxane                    | 3.75                 | 3.24               | 3.51                | 86.4          | 93.6           | 70.0-140         |               |                | 8.00     | 25              |
| Bromodichloromethane           | 3.75                 | 3.67               | 3.68                | 97.9          | 98.1           | 70.0-130         |               |                | 0.272    | 25              |
| cis-1,3-Dichloropropene        | 3.75                 | 3.73               | 3.68                | 99.5          | 98.1           | 70.0-130         |               |                | 1.35     | 25              |
| 4-Methyl-2-pentanone (MIBK)    | 3.75                 | 3.71               | 3.77                | 98.9          | 101            | 70.0-139         |               |                | 1.60     | 25              |
| Toluene                        | 3.75                 | 3.94               | 3.89                | 105           | 104            | 70.0-130         |               |                | 1.28     | 25              |
| trans-1,3-Dichloropropene      | 3.75                 | 3.69               | 3.65                | 98.4          | 97.3           | 70.0-130         |               |                | 1.09     | 25              |
| 1,1,2-Trichloroethane          | 3.75                 | 3.64               | 3.53                | 97.1          | 94.1           | 70.0-130         |               |                | 3.07     | 25              |
| Tetrachloroethylene            | 3.75                 | 3.93               | 3.89                | 105           | 104            | 70.0-130         |               |                | 1.02     | 25              |
| Methyl Butyl Ketone            | 3.75                 | 3.67               | 3.62                | 97.9          | 96.5           | 70.0-149         |               |                | 1.37     | 25              |
| Dibromochloromethane           | 3.75                 | 3.78               | 3.70                | 101           | 98.7           | 70.0-130         |               |                | 2.14     | 25              |
| 1,2-Dibromoethane              | 3.75                 | 3.87               | 3.87                | 103           | 103            | 70.0-130         |               |                | 0.000    | 25              |
| Chlorobenzene                  | 3.75                 | 3.70               | 3.69                | 98.7          | 98.4           | 70.0-130         |               |                | 0.271    | 25              |
| Ethylbenzene                   | 3.75                 | 3.73               | 3.69                | 99.5          | 98.4           | 70.0-130         |               |                | 1.08     | 25              |
| m&p-Xylene                     | 7.50                 | 7.86               | 7.87                | 105           | 105            | 70.0-130         |               |                | 0.127    | 25              |
| o-Xylene                       | 3.75                 | 4.07               | 4.09                | 109           | 109            | 70.0-130         |               |                | 0.490    | 25              |
| Styrene                        | 3.75                 | 3.94               | 3.86                | 105           | 103            | 70.0-130         |               |                | 2.05     | 25              |

ACCOUNT:  
HilCorp-Farmington, NM

PROJECT:

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Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3602177-1 12/10/20 08:39 • (LCSD) R3602177-2 12/10/20 09:20

| Analyte                    | Spike Amount<br>ppbv | LCS Result<br>ppbv | LCSD Result<br>ppbv | LCS Rec.<br>% | LCSD Rec.<br>% | Rec. Limits<br>% | <u>LCS Qualifier</u> | <u>LCSD Qualifier</u> | RPD<br>% | RPD Limits<br>% |
|----------------------------|----------------------|--------------------|---------------------|---------------|----------------|------------------|----------------------|-----------------------|----------|-----------------|
| Bromoform                  | 3.75                 | 3.82               | 3.73                | 102           | 99.5           | 70.0-130         |                      |                       | 2.38     | 25              |
| 1,1,2,2-Tetrachloroethane  | 3.75                 | 3.55               | 3.50                | 94.7          | 93.3           | 70.0-130         |                      |                       | 1.42     | 25              |
| 4-Ethyltoluene             | 3.75                 | 4.05               | 3.94                | 108           | 105            | 70.0-130         |                      |                       | 2.75     | 25              |
| 1,3,5-Trimethylbenzene     | 3.75                 | 3.96               | 3.96                | 106           | 106            | 70.0-130         |                      |                       | 0.000    | 25              |
| 1,2,4-Trimethylbenzene     | 3.75                 | 4.10               | 4.09                | 109           | 109            | 70.0-130         |                      |                       | 0.244    | 25              |
| 1,3-Dichlorobenzene        | 3.75                 | 3.70               | 3.78                | 98.7          | 101            | 70.0-130         |                      |                       | 2.14     | 25              |
| 1,4-Dichlorobenzene        | 3.75                 | 3.82               | 3.80                | 102           | 101            | 70.0-130         |                      |                       | 0.525    | 25              |
| Benzyl Chloride            | 3.75                 | 3.18               | 3.04                | 84.8          | 81.1           | 70.0-152         |                      |                       | 4.50     | 25              |
| 1,2-Dichlorobenzene        | 3.75                 | 3.88               | 3.73                | 103           | 99.5           | 70.0-130         |                      |                       | 3.94     | 25              |
| 1,2,4-Trichlorobenzene     | 3.75                 | 4.03               | 3.68                | 107           | 98.1           | 70.0-160         |                      |                       | 9.08     | 25              |
| Hexachloro-1,3-butadiene   | 3.75                 | 3.84               | 3.84                | 102           | 102            | 70.0-151         |                      |                       | 0.000    | 25              |
| Naphthalene                | 3.75                 | 4.08               | 3.95                | 109           | 105            | 70.0-159         |                      |                       | 3.24     | 25              |
| TPH (GC/MS) Low Fraction   | 203                  | 208                | 208                 | 102           | 102            | 70.0-130         |                      |                       | 0.000    | 25              |
| Allyl Chloride             | 3.75                 | 3.63               | 3.49                | 96.8          | 93.1           | 70.0-130         |                      |                       | 3.93     | 25              |
| 2-Chlorotoluene            | 3.75                 | 3.97               | 3.85                | 106           | 103            | 70.0-130         |                      |                       | 3.07     | 25              |
| Methyl Methacrylate        | 3.75                 | 3.73               | 3.70                | 99.5          | 98.7           | 70.0-130         |                      |                       | 0.808    | 25              |
| Tetrahydrofuran            | 3.75                 | 3.50               | 3.50                | 93.3          | 93.3           | 70.0-137         |                      |                       | 0.000    | 25              |
| 2,2,4-Trimethylpentane     | 3.75                 | 3.96               | 3.88                | 106           | 103            | 70.0-130         |                      |                       | 2.04     | 25              |
| Vinyl Bromide              | 3.75                 | 3.79               | 3.79                | 101           | 101            | 70.0-130         |                      |                       | 0.000    | 25              |
| Isopropylbenzene           | 3.75                 | 4.09               | 4.09                | 109           | 109            | 70.0-130         |                      |                       | 0.000    | 25              |
| (S) 1,4-Bromofluorobenzene |                      |                    |                     | 101           | 101            | 60.0-140         |                      |                       |          |                 |

ACCOUNT:  
HilCorp-Farmington, NM

PROJECT:

SDG:  
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DATE/TIME:  
12/16/20 15:46

Method Blank (MB)

(MB) R3603767-3 12/15/20 12:53

|                            | MB Result | MB Qualifier | MB MDL | MB RDL   |
|----------------------------|-----------|--------------|--------|----------|
| Analyte                    | ppbv      |              | ppbv   | ppbv     |
| Cyclohexane                | U         |              | 0.0753 | 0.200    |
| n-Hexane                   | U         |              | 0.206  | 0.630    |
| (S) 1,4-Bromofluorobenzene | 95.5      |              |        | 60.0-140 |

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3603767-1 12/15/20 11:33 • (LCSD) R3603767-2 12/15/20 12:14

|                            | Spike Amount | LCS Result | LCSD Result | LCS Rec. | LCSD Rec. | Rec. Limits | LCS Qualifier | LCSD Qualifier | RPD  | RPD Limits |
|----------------------------|--------------|------------|-------------|----------|-----------|-------------|---------------|----------------|------|------------|
| Analyte                    | ppbv         | ppbv       | ppbv        | %        | %         | %           |               |                | %    | %          |
| n-Hexane                   | 3.75         | 4.16       | 4.07        | 111      | 109       | 70.0-130    |               |                | 2.19 | 25         |
| Cyclohexane                | 3.75         | 4.14       | 4.08        | 110      | 109       | 70.0-130    |               |                | 1.46 | 25         |
| (S) 1,4-Bromofluorobenzene |              |            |             | 98.1     | 97.9      | 60.0-140    |               |                |      |            |

ACCOUNT:  
HilCorp-Farmington, NM

PROJECT:

SDG:  
L1294285

DATE/TIME:  
12/16/20 15:46

Method Blank (MB)

(MB) R3602254-3 12/10/20 11:57

|                 | MB Result | <u>MB Qualifier</u> | MB MDL | MB RDL |
|-----------------|-----------|---------------------|--------|--------|
| Analyte         | %         |                     | %      | %      |
| Oxygen          | 0.917     |                     | 0.225  | 5.00   |
| Carbon Monoxide | U         |                     | 0.665  | 2.00   |
| Carbon Dioxide  | U         |                     | 0.121  | 0.500  |
| Methane         | U         |                     | 0.0584 | 0.400  |

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3602254-1 12/10/20 11:44 • (LCSD) R3602254-2 12/10/20 11:51

|                 | Spike Amount | LCS Result | LCSD Result | LCS Rec. | LCSD Rec. | Rec. Limits | <u>LCS Qualifier</u> | <u>LCSD Qualifier</u> | RPD  | RPD Limits |
|-----------------|--------------|------------|-------------|----------|-----------|-------------|----------------------|-----------------------|------|------------|
| Analyte         | %            | %          | %           | %        | %         | %           |                      |                       | %    | %          |
| Oxygen          | 20.0         | 20.6       | 20.3        | 103      | 102       | 70.0-130    |                      |                       | 1.47 | 20         |
| Carbon Monoxide | 2.50         | 2.29       | 2.24        | 91.6     | 89.6      | 70.0-130    |                      |                       | 2.21 | 20         |
| Carbon Dioxide  | 2.50         | 2.48       | 2.44        | 99.2     | 97.6      | 70.0-130    |                      |                       | 1.63 | 20         |
| Methane         | 2.00         | 1.95       | 1.90        | 97.5     | 95.0      | 70.0-130    |                      |                       | 2.60 | 20         |

ACCOUNT:  
HilCorp-Farmington, NM

PROJECT:

SDG:  
L1294285

DATE/TIME:  
12/16/20 15:46





## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MDL                          | Method Detection Limit.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ND                           | Not detected at the Reporting Limit (or MDL where applicable).                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| RDL                          | Reported Detection Limit.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Rec.                         | Recovery.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| RPD                          | Relative Percent Difference.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| SDG                          | Sample Delivery Group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| (S)                          | Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.                                                                                                                                                                                                                                               |
| U                            | Not detected at the Reporting Limit (or MDL where applicable).                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Analyte                      | The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.                                                                                                                                                                                                                                                                                                                                                                                                 |
| Dilution                     | If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.                                                                                    |
| Limits                       | These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.                                                                                                                                                                                                                                                      |
| Qualifier                    | This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.                                                                                                                                                                  |
| Result                       | The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte. |
| Uncertainty (Radiochemistry) | Confidence level of 2 sigma.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Case Narrative (Cn)          | A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.                                                                                                                                                                          |
| Quality Control Summary (Qc) | This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.                                                                                                                                                                                              |
| Sample Chain of Custody (Sc) | This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.                                                              |
| Sample Results (Sr)          | This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.                                                                                                                                                                                             |
| Sample Summary (Ss)          | This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.                                                                                                                                                                                                                                                                                                                                                            |

## Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

|                         |             |                             |                  |
|-------------------------|-------------|-----------------------------|------------------|
| Alabama                 | 40660       | Nebraska                    | NE-OS-15-05      |
| Alaska                  | 17-026      | Nevada                      | TN000032021-1    |
| Arizona                 | AZ0612      | New Hampshire               | 2975             |
| Arkansas                | 88-0469     | New Jersey–NELAP            | TN002            |
| California              | 2932        | New Mexico <sup>1</sup>     | TN00003          |
| Colorado                | TN00003     | New York                    | 11742            |
| Connecticut             | PH-0197     | North Carolina              | Env375           |
| Florida                 | E87487      | North Carolina <sup>1</sup> | DW21704          |
| Georgia                 | NELAP       | North Carolina <sup>3</sup> | 41               |
| Georgia <sup>1</sup>    | 923         | North Dakota                | R-140            |
| Idaho                   | TN00003     | Ohio–VAP                    | CL0069           |
| Illinois                | 200008      | Oklahoma                    | 9915             |
| Indiana                 | C-TN-01     | Oregon                      | TN200002         |
| Iowa                    | 364         | Pennsylvania                | 68-02979         |
| Kansas                  | E-10277     | Rhode Island                | LA000356         |
| Kentucky <sup>1 6</sup> | KY90010     | South Carolina              | 84004            |
| Kentucky <sup>2</sup>   | 16          | South Dakota                | n/a              |
| Louisiana               | AI30792     | Tennessee <sup>1 4</sup>    | 2006             |
| Louisiana <sup>1</sup>  | LA180010    | Texas                       | T104704245-20-18 |
| Maine                   | TN00003     | Texas <sup>5</sup>          | LAB0152          |
| Maryland                | 324         | Utah                        | TN00003          |
| Massachusetts           | M-TN003     | Vermont                     | VT2006           |
| Michigan                | 9958        | Virginia                    | 460132           |
| Minnesota               | 047-999-395 | Washington                  | C847             |
| Mississippi             | TN00003     | West Virginia               | 233              |
| Missouri                | 340         | Wisconsin                   | 998093910        |
| Montana                 | CERT0086    | Wyoming                     | A2LA             |

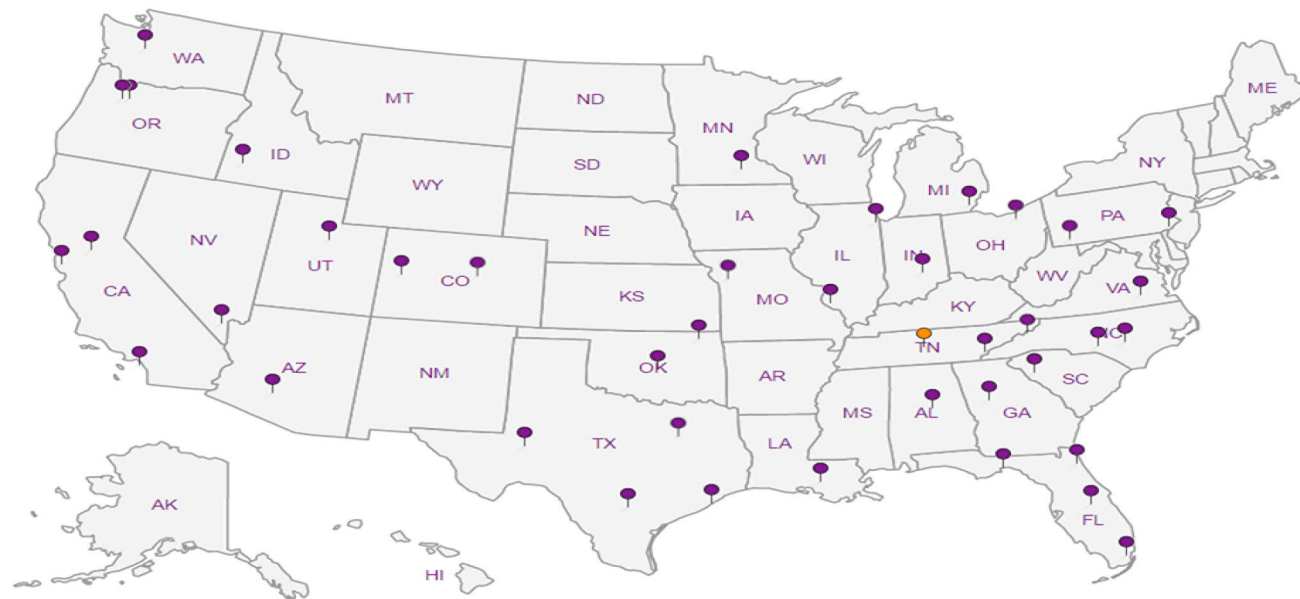
## Third Party Federal Accreditations

|                               |         |                     |               |
|-------------------------------|---------|---------------------|---------------|
| A2LA – ISO 17025              | 1461.01 | AIHA-LAP, LLC EMLAP | 100789        |
| A2LA – ISO 17025 <sup>5</sup> | 1461.02 | DOD                 | 1461.01       |
| Canada                        | 1461.01 | USDA                | P330-15-00234 |
| EPA–Crypto                    | TN00003 |                     |               |

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Released to Imaging: 9/27/2022 8:07:16 AM

**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 18291

**CONDITIONS**

|                                                                                |                                                                          |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Operator:<br>HILCORP ENERGY COMPANY<br>1111 Travis Street<br>Houston, TX 77002 | OGRID:<br>372171                                                         |
|                                                                                | Action Number:<br>18291                                                  |
|                                                                                | Action Type:<br>[UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT) |

**CONDITIONS**

| Created By | Condition                                                           | Condition Date |
|------------|---------------------------------------------------------------------|----------------|
| nvelez     | Accepted for the record. See App ID 124694 for most updated status. | 9/27/2022      |