



NV

1115 Welsh Ave, Ste. B  
College Station, Texas 77840  
979.324.2139  
www.teamtimberwolf.com

October 14, 2022

Mr. Nelson Velez, Environmental Specialist – Advanced  
New Mexico Oil Conservation Division – District 3  
1000 Rio Brazos Road  
Aztec, New Mexico 87410

Re: Status Report – 3<sup>rd</sup> Quarter 2022  
Fifield 5 No. 1 (SE ¼, SW ¼, Sec. 5, T29N, R11W)  
Hilcorp Energy Company  
San Juan County, New Mexico  
OCD Incident No.: NVF1718155324

Dear Mr. Velez:

On behalf of Hilcorp Energy Company (Hilcorp), Timberwolf Environmental, LLC (Timberwolf) presents this report to document activities conducted during the 3<sup>rd</sup> quarter 2022 (3Q22) at the Fifield 5 No. 1 (Site). The Site is a plugged well site, located in northeast San Juan County, New Mexico (Figures 1 through 3).

### **Environmental Setting and Site Geology**

The area immediately surrounding the Site consists of sparse vegetative cover comprised primarily of scrub brush. Area topography consists of ridges divided by shallow valleys with intermittent streams that flow south into the San Juan River. The Site is situated east of an unnamed mesa; average elevation at the Site is approximately 5,786 feet (ft) above mean sea level. The nearest water way is an unnamed intermittent stream located approximately 1,350 ft west of the Site. The intermittent stream empties into the San Juan River, approximately 3.4 miles south of the Site.

According to the U.S. Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS), the Site soil consists of the Gypsiorthids-Badland-Stumble complex, 5 to 30 percent slopes. The surface layer consists of sandy loam, underlain by lithic bedrock encountered between 16 to 20 inches below ground surface (bgs). Native salinity of the soil is very slightly saline to slightly saline (2.0 to 4.0 millimhos per centimeter (mmhos/cm)).

### **Site History**

#### ***Release Event***

The Fifield 5 No. 1 well has been plugged and all surface equipment removed from the Site; however, Hilcorp's Hali Meador #005R is located immediately west of the Site and remains active. Historically, the Site has consisted of a well head, line heater and separator with associated below-grade tank (BGT) for produced water, sales meter, and tank battery comprised of one above-ground storage tank

Timberwolf Project No. HEC-190009

HEC-190009  
October 14, 2022  
Page 2

(AST) and one BGT. On or about 06/01/17, removal and closure of the BGT revealed historical contamination beneath the BGT. All surface equipment was removed, and the well was plugged and abandoned.

### ***Investigation and Site Characterization***

Initial assessment efforts were conducted by Rule Engineering, LLC (Rule), a subcontractor of ConocoPhillips Company (ConocoPhillips). Hilcorp acquired the property in 2017 and Rule conducted additional assessments in 2018. All findings by Rule Engineering are documented in Timberwolf's *Site Characterization and Remedial Action Plan*, dated February 28, 2019. The initial assessment identified the following constituents of concern (COCs): benzene, toluene, ethylbenzene, and xylene (BTEX) and Total Petroleum Hydrocarbons (TPH).

On 03/20/19, additional borings were installed at the Site to delineate petroleum hydrocarbon impacts vertically and horizontally in soil. All findings are documented in the Timberwolf's *Site Characterization Report and Remedial Action Plan*, dated June 14, 2019.

### ***Remediation – SVE System***

In 2019, Hilcorp installed a soil vapor extraction (SVE) system to treat impacted soil related to historical pit tank releases. The SVE system is comprised of 18 SVE wells, 6 vent wells, and a SVE trailer (housing: control valves, flow and vacuum gauges, manifolds, fluid-air separator, automated controls, and a vacuum pump). The system remained inoperative while awaiting a power source.

In September 2021, Hilcorp installed a power source for the SVE system. The power source is a skid-mounted gas-fired motor with a pulley and belt drive apparatus to transfer power to a vacuum pump. The new vacuum pump was plumbed into the existing SVE trailer; the automation system was by-passed so that all legs remain open.

Work conducted at this Site is documented in the following reports:

- *Site Characterization and Remedial Action Plan*, dated 02/28/19
- *Site Characterization and Remedial Action Plan*, dated 07/14/19
- *Status Report – 1<sup>st</sup> Quarter 2020*, dated 09/20/21
- *Status Report – 2<sup>nd</sup> Quarter 2020*, dated 09/27/21
- *Status Report – 3<sup>rd</sup> Quarter 2020*, dated 09/27/21
- *Status Report – 4<sup>th</sup> Quarter 2020*, dated 09/27/21
- *Status Report – 1<sup>st</sup> Quarter 2021*, dated 09/27/21
- *Status Report – 2<sup>nd</sup> Quarter 2021*, dated 09/27/21
- *Status Report – 3<sup>rd</sup> Quarter 2021*, dated 11/01/21
- *Status Report – 4<sup>th</sup> Quarter 2021*, dated 01/29/22
- *Status Report – 1<sup>st</sup> Quarter 2022*, dated 04/15/22
- *Status Report- 2<sup>nd</sup> Quarter 2022*, dated 07/14/22

HEC-190009  
 October 14, 2022  
 Page 3

### **SVE System Operations**

The SVE system is equipped with four independent legs (i.e., Leg 1, Leg 2, Leg 3, and Leg 4). Legs 1 provides vacuum to the shallow wells and Legs 2, 3, and 4 provide vacuum extraction to the deep SVE wells. The automation panel is currently by-passed, and the system has run with all legs open; however, damage to certain parts of the manifold have necessitated the shut-in of Legs 2 and 4.

Water and condensate are recovered with a moisture separator, which is fitted with a 1-inch PVC pipe to transfer fluids to an open-top tank fitted with bird netting. No water or condensate was recovered during 3Q22. SVE system runtime for 3Q22 is documented in Table 2 below.

**Table 1. System Runtime – 3Q22**

Date	Hour Meter
06/21/22	3430
07/10/22	3884
07/25/22	4237
08/05/22	4504
08/18/22	4815
09/07/22	5296
09/23/22	5670
Total Runtime*	2,240

\*Runtime between 06/21/22 and 09/23/22

System runtime between the last reading during 2Q22 (6/21/22) and the final reading of 3Q22 (9/23/22) was 2,240 hours; the total available hours for that period was 2,256 hours. Therefore, the system runtime in 3Q22 was 99.3 percent (%). Photographs of relevant meter readings are documented in the attached Photographic Log.

During 3Q22, Hilcorp personnel conducted six (6) operation and maintenance (O&M) events in total. A field log of O&M events and maintenance performed is provided in the attached Table A-1.

### **Collection and Analysis of Quarterly Soil-Gas Sample**

On 09/07/22, a composite soil-gas sample was collected from SVE Legs 1 and 3 using a single Tedlar bag. The Tedlar bag was connected to the SVE trailer sampling port, which is situated downstream of the 4-leg manifold and upstream of the air-water separator. The sampling port valve was opened to purge air within the tubing between the sampling port and Tedlar bag. After purging, the Tedlar bag valve was opened to collect the air sample.

The gas sample was transported to Hall Environmental and Analytical Laboratory (HEAL) in Albuquerque, New Mexico. HEAL subcontracted the analysis to Pace National in Mt. Juliet, Tennessee for chemical analysis. All sample transfers were conducted under proper chain-of-custody protocol.

The sample was analyzed for volatile organic compounds (VOCs) using EPA Method Toxic Organics 15 (i.e., TO-15) and Organic Compounds (GC) by ASTM Method D1946. Laboratory report and chain-of-custody documents are attached.

HEC-190009  
October 14, 2022  
Page 4

Laboratory results of constituents that exceeded laboratory detection limits are presented in Table 2; analytical results of all constituents are presented in the attached Table A-2.

**Table 2. Quarterly Soil-Gas Analysis – 09/07/22**

Volatile Organic Carbons	SVE (mg/m <sup>3</sup> )
<b>Volatile Organic Carbons, mg/m<sup>3</sup></b>	
Benzene	48.2
Cyclohexane	225
Ethylbenzene	12.8
Heptane	380
n-Hexane	238
2-Propanol	29.3
Toluene	231
1,2,4-Trimethylbenzene	5.25
1,3,5-Trimethylbenzene	5.64
Total Xylenes	142.5
TPH (GC/MS) Low Fraction	5,000
Methyl Cyclohexane	655
<b>Organic Compounds, %</b>	
Oxygen	21.1

mg/m<sup>3</sup> – milligrams per cubic meter  
% - percent

### Mass Removal

Timberwolf used the results from the soil gas analysis (as reported in Table 2), flow rates, and runtimes to calculate constituent mass removal. Mass removal of BTEX and associated recovered volumes for 3Q22 are presented in Table 3 below.

**Table 3. Mass Removal and Associated Volume – 3Q22**

Constituent	Mass Removal (kg) <sup>1</sup>	Total Mass Removed (lbs) <sup>2</sup>	Recovered Volume (bbl)
Benzene	4.36	9.58	NC
Toluene	20.88	45.9	NC
Ethylbenzene	1.16	2.55	NC
Xylene	12.9	28.3	NC
GRO	451.9	994.3	3.69

<sup>1</sup>Calculation = minutes ran \* CFM \* Concentration (mg/m<sup>3</sup>) \* 1 M<sup>3</sup>/35.3147 ft<sup>3</sup>\*1g/1000 mg \* 1 kg/1000 g

<sup>2</sup>Calculation = [Mass Removal] \* 2.2 lbs/kg

GRO = from TPH (GC/MS) Low Fraction (i.e., gasoline range organics)

kg – kilograms

lbs – pounds

bbl -barrel

NC – not calculated

#### **Assumptions:**

- API Gravity = 52
- Concentrations of VOCs in soil-gas vapors have remained static throughout the quarter
- Runtime readings based on hour meter readings on 06/21/22, 09/23/22, and Cygnet remote monitoring data.

HEC-190009  
October 14, 2022  
Page 5

**Summary**

The SVE system runtime during 3Q22 was 99.3 % of the total available hours during the period. Runtime hours are based on hour meter readings taken on 06/21/22, 09/23/22. Cygnet remote monitoring system confirms operation through the quarter.

Mass removal calculations indicated the following recovery during the quarter:

- 3.69 bbl of GRO
- 9.58 lbs of benzene
- 45.9 lbs of toluene
- 2.55 lbs of ethylbenzene
- 28.3 lbs of xylene

**Further Actions - 4<sup>th</sup> Quarter 2022**

During 4Q22, the following activities are planned for the Site:

- Conduct bi-weekly Site O&M to ensure proper system function and drain any water/condensate accumulation in the moisture separator as needed
- Repair manifold
- Collect a quarterly soil-gas sample and for laboratory analysis
- Prepare a 4Q22 status report

If you have any questions regarding this report or need further assistance, please call us at 979-324-2139.

Sincerely,  
Timberwolf Environmental, LLC



Kevin Cole  
Project Manager



Jim Foster  
President

Attachments: Figures  
Tables  
Photographic Log  
Laboratory Report

cc: Kate Kaufman, Hilcorp Energy Company

## Figures

---

Timberwolf Project No. HEC-190009

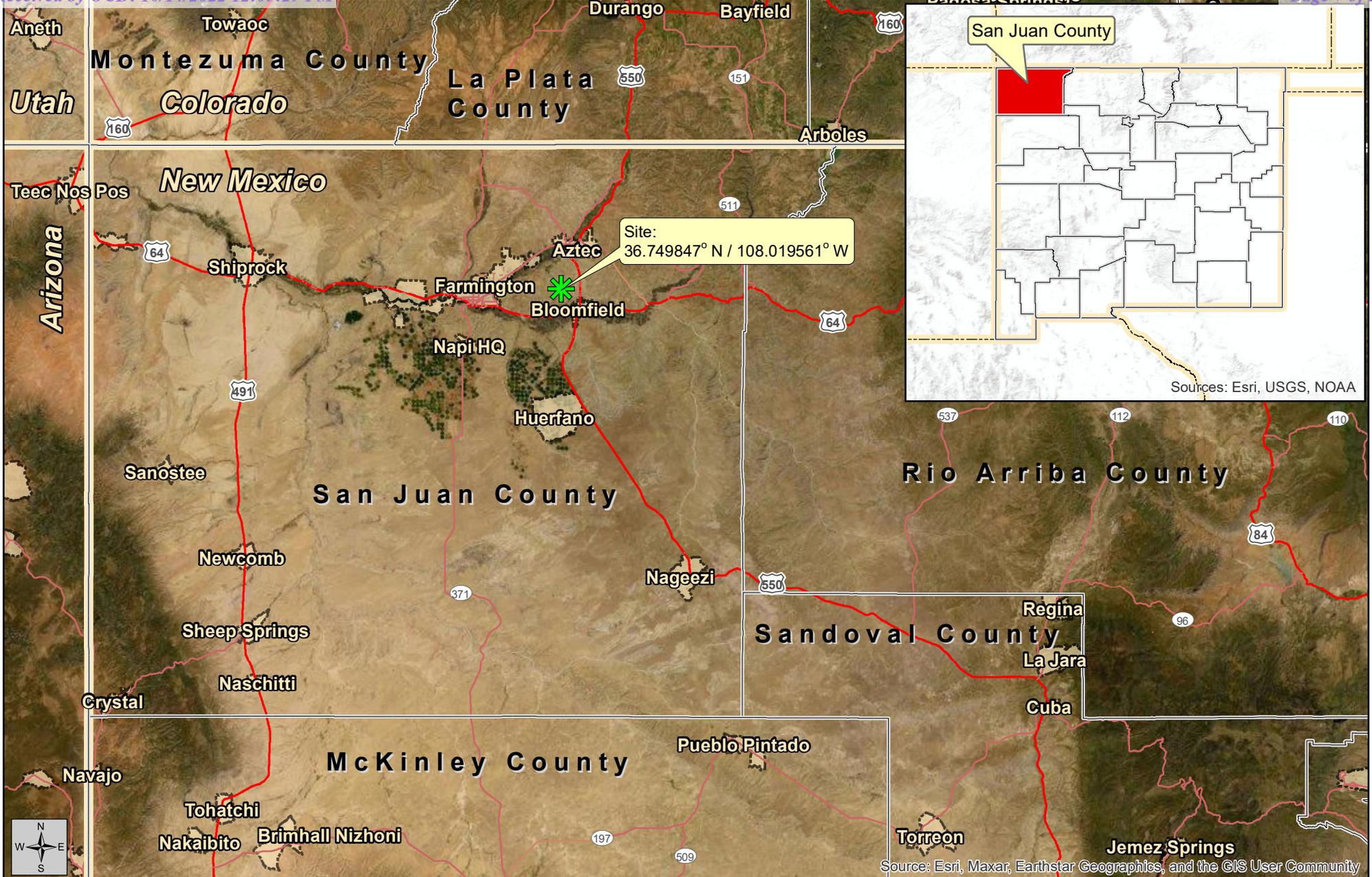


Figure 1  
Site Location Map

### Status Report - 3<sup>rd</sup> Quarter 2022

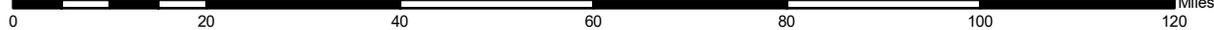
October 11, 2022



Created By:  
Brett Berno  
TE Project No.: HEC-190009

Fifield 5 No. 1 (OCD Incident No. NVF1718155324)  
Hilcorp Energy Company  
San Juan County, New Mexico

1:1,250,000



Datum: NAD83  
Imagery Source: ESRI  
Vector Source: ESRI and TE

Site

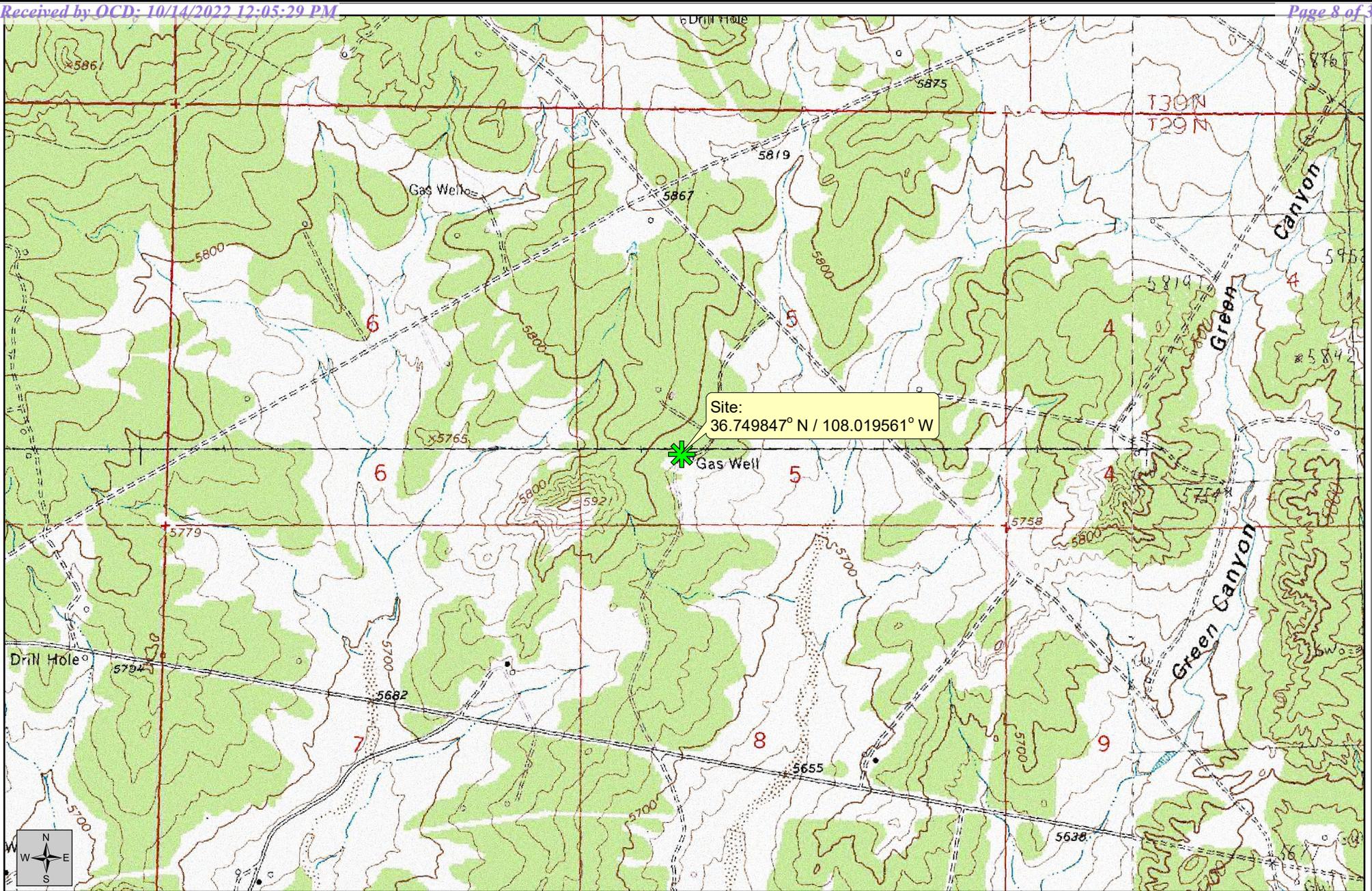


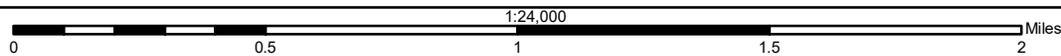
Figure 2  
Topographic Map

### Status Report - 3<sup>rd</sup> Quarter 2022

October 11, 2022



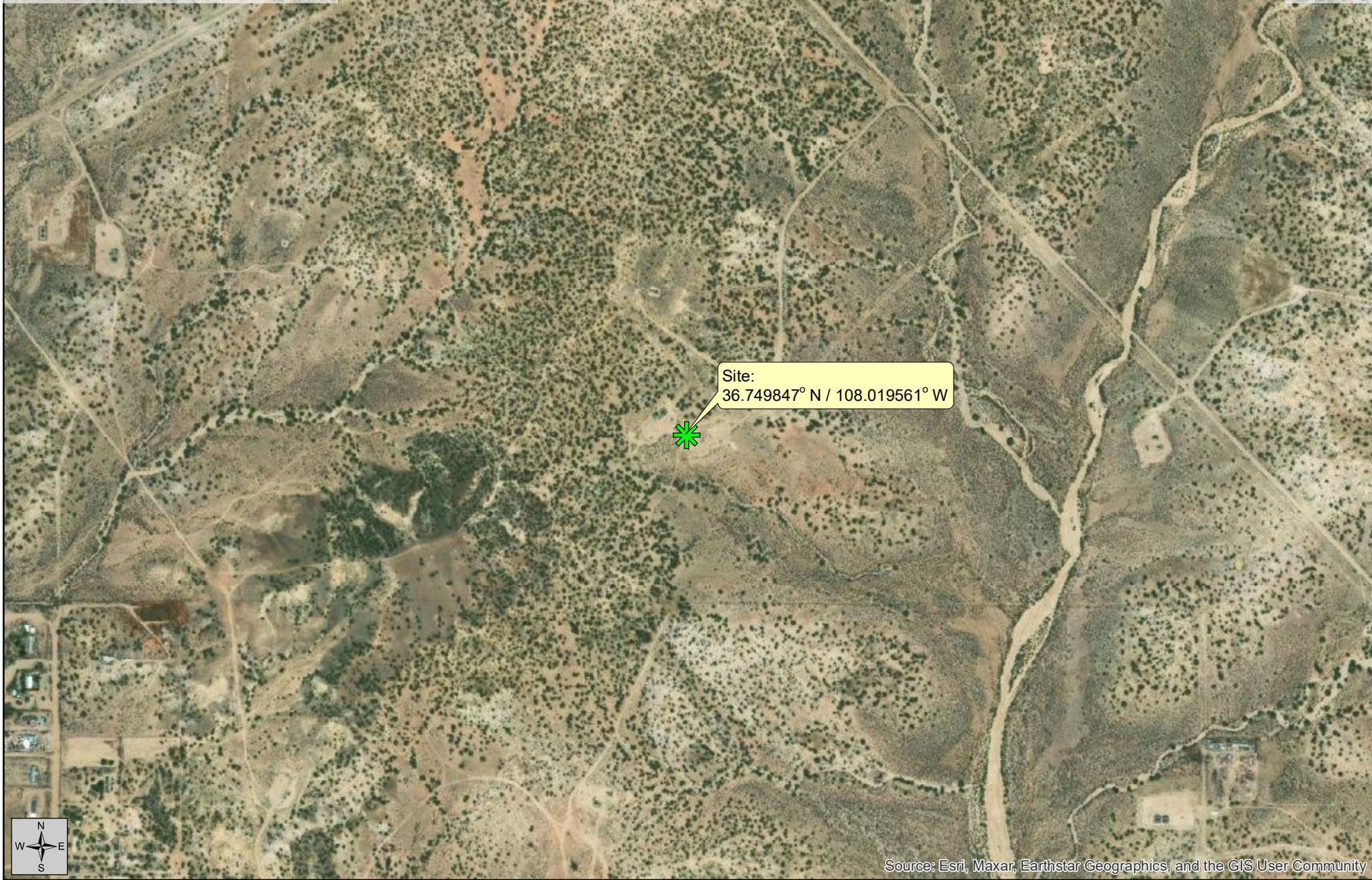
Created By:  
Brett Berno  
TE Project No.: HEC-190009



**Fifield 5 No. 1 (OCD Incident No. NVF1718155324)**  
**Hilcorp Energy Company**  
**San Juan County, New Mexico**

Datum: NAD83  
 Imagery Source: USGS  
 Quads: Aztec, Bloomfield,  
 Flora Vista, Horn Canyon  
 Vector Source: TE

 Site



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 3  
Aerial Map

Status Report - 3<sup>rd</sup> Quarter 2022

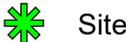
October 11, 2022



Created By:  
Brett Berno  
TE Project No.: HEC-190009

Fifield 5 No. 1 (OCD Incident No. NVF1718155324)  
Hilcorp Energy Company  
San Juan County, New Mexico

Datum: NAD83  
Imagery Source: ESRI  
Vector Source: TE



Site

## **Photographic Log**

---

Timberwolf Project No. HEC-190009



1920 W. Villa Maria Suite 205  
 Bryan, TX 77807  
 (979) 485-9094  
 www.teamtimberwolf.com

### PHOTOGRAPHIC LOG

<b>Project No.:</b>	HEC-190009	<b>Client:</b>	Hilcorp Energy Company
<b>Project Name:</b>	Fifield 5 No. 1	<b>Site Location:</b>	San Juan County, New Mexico
<b>Task Description:</b>	Status Report – 3rd Quarter 2022	<b>Date:</b>	July-Sept, 2022
<b>Photo No.:</b> 1			
<b>Direction:</b> N/A			
<b>Comments:</b> View of hour meter from 6/21/22.			
<b>Photo No.:</b> 2			
<b>Direction:</b> N/A			
<b>Comments:</b> View of hour meter on 09/23/22.			

HEC-190009  
October 14, 2022  
Page 8

## **Tables**

---

**Table A-1. Operation and Maintenance Events  
Status Report - 3rd Quarter 2022  
Fifield 5 No. 1 (OCD Incident No. NVF1718155324)  
San Juan County, New Mexico**

Date	Hour Meter Reading (hr)	Water/Condensate Recovered (gal)	Maintenance and Activities Performed
07/10/22	3,884	0	<ul style="list-style-type: none"> <li>• Hilcorp operator performed SVE system O&amp;M checks</li> <li>• All system functions operating correctly</li> </ul>
07/25/22	4,237	0	<ul style="list-style-type: none"> <li>• Hilcorp operator performed SVE system O&amp;M checks</li> <li>• Replaced broken generator belt</li> </ul>
08/05/22	4,504	0	<ul style="list-style-type: none"> <li>• Hilcorp operator performed SVE system O&amp;M checks</li> <li>• All system functions operating correctly</li> </ul>
08/18/22	4,815	0	<ul style="list-style-type: none"> <li>• Hilcorp operator performed SVE system O&amp;M checks</li> <li>• All system functions operating correctly</li> </ul>
09/07/22	5,296	0	<ul style="list-style-type: none"> <li>• Hilcorp operator performed SVE system O&amp;M checks</li> <li>• All system functions operating correctly; collected soil-gas sample</li> </ul>
09/23/22	5,670	0	<ul style="list-style-type: none"> <li>• Hilcorp operator performed SVE system O&amp;M checks</li> <li>• Replaced motor on generator</li> </ul>

gal - gallons

hr - hours

**Table A-2. Gas Analysis 09/07/22  
Status Report - 3rd Quarter 2022  
Fifield 5 No. 1 (OCD Incident No. NVF1718155324)  
San Juan County, New Mexico**

<b>Volatiles (ug/m3)</b>	<b>SVE</b>
Acetone	< 5,940
Allyl chloride	< 1,250
Benzene	48,200
Benzyl Chloride	< 2,080
Bromodichloromethane	< 2,680
Bromoform	< 12,400
Bromomethane	< 1,550
1,3-Butadiene	< 8,850
Carbon disulfide	< 1,240
Carbon tetrachloride	< 2,520
Chlorobenzene	< 1,850
Chloroethane	< 1,060
Chloroform	< 1,950
Chloromethane	< 826
2-Chlorotoluene	< 2,060
Cyclohexane	225,000
Dibromochloromethane	< 3,400
1,2-Dibromoethane	< 3,080
1,2-Dichlorobenzene	< 2,400
1,3-Dichlorobenzene	< 2,400
1,4-Dichlorobenzene	< 2,400
1,2-Dichloroethane	< 1,620
1,1-Dichloroethane	< 1,600
1,1-Dichloroethene	< 1,590
cis-1,2-Dichloroethene	< 1,590
trans-1,2-Dichloroethene	< 1,590
1,2-Dichloropropane	< 1,850
cis-1,3-Dichloropropene	< 1,820
trans-1,3-Dichloropropene	< 1,820
1,4-Dioxane	< 1,440
Ethanol	< 4,710
Ethylbenzene	12,800
4-Ethyltoluene	7,170
Trichlorofluoromethane	< 2,250
Dichlorodifluoromethane	< 1,980
1,1,2-Trichlorotrifluoroethane	< 3,070
1,2-Dichlorotetrafluoroethane	< 2,800
Heptane	380,000
Hexachloro-1,3-butadiene	< 13,500
n-Hexane	238,000
Isopropylbenzene	< 1,970

**Table A-2. Gas Analysis 09/07/22  
Status Report - 3rd Quarter 2022  
Fifield 5 No. 1 (OCD Incident No. NVF1718155324)  
San Juan County, New Mexico**

<b>Volatiles (ug/m3)</b>	<b>SVE</b>
Methylene Chloride	< 1,390
Methyl Butyl Ketone	< 10,200
2-Butanone (MEK)	< 7,370
4-Methyl-2-pentanone (MIBK)	< 10,200
Methyl methacrylate	< 1,640
MTBE	< 1,440
Naphthalene	< 6,600
2-Propanol	29,300
Propene	< 4,300
Styrene	< 1,700
1,1,2,2-Tetrachloroethane	< 2,750
Tetrachloroethylene	< 2,720
Tetrahydrofuran	< 1,180
Toluene	231,000
1,2,4-Trichlorobenzene	< 9,330
1,1,1-Trichloroethane	< 2,180
1,1,2-Trichloroethane	< 2,180
Trichloroethylene	< 2,140
1,2,4-Trimethylbenzene	5,250
1,3,5-Trimethylbenzene	5,640
2,2,4-Trimethylpentane	< 1,870
Vinyl chloride	< 1,020
Vinyl Bromide	< 1,750
Vinyl acetate	< 1,410
m&p-Xylene	122,000
o-Xylene	20,500
TPH (GC/MS) Low Fraction	5,000,000
1,1-Difluoroethane	< 5,400
1,2,3-Trimethylbenzene	< 1,960
Chlorodifluoromethane	< 1,420
Ethyl acetate	< 1,440
Methyl Cyclohexane	655,000
Tert-Amyl Ethyl Ether	< 1,900
Oxygen %	21.1
Carbon Monoxide %	< 2.00
Carbon Dioxide %	< 0.500
Methane %	< 0.400

ug/m3 Micrograms per cubic meter

HEC-190009  
October 14, 2022  
Page 9

## **Laboratory Report and Chain-of-custody Documents**

---



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

September 14, 2022

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

RE: Fifield 5 001

OrderNo.: 2209359

Dear Kate Kaufman:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/8/2022 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](http://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

September 13, 2022

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

## Hall Environmental Analysis Laboratory

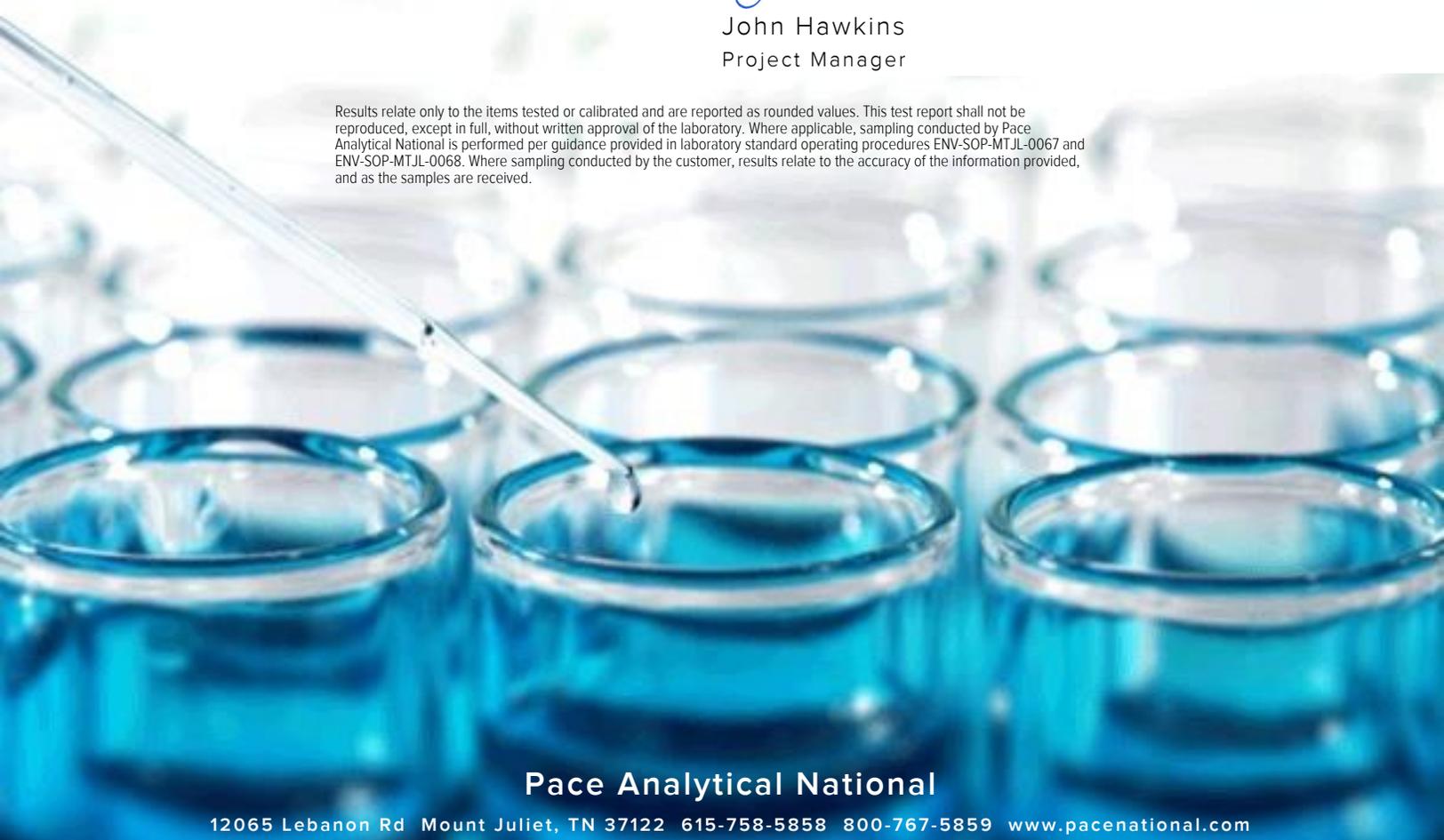
Sample Delivery Group: L1533867  
 Samples Received: 09/09/2022  
 Project Number:  
 Description:

Report To: Andy Freeman  
 4901 Hawkins NE  
 Albuquerque, NM 87109

Entire Report Reviewed By:

John Hawkins  
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.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

**Cp: Cover Page** 1

**Tc: Table of Contents** 2

**Ss: Sample Summary** 3

**Cn: Case Narrative** 4

**Sr: Sample Results** 5

**2209359-001A SVE-1 L1533867-01** 5

**Qc: Quality Control Summary** 7

**Volatile Organic Compounds (MS) by Method TO-15** 7

**Organic Compounds (GC) by Method D1946** 11

**Gl: Glossary of Terms** 12

**Al: Accreditations & Locations** 13

**Sc: Sample Chain of Custody** 14



2209359-001A SVE-1 L1533867-01 Air

Collected by  
Collected date/time  
Received date/time  
09/07/22 12:00 09/09/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1923714	2000	09/10/22 02:38	09/10/22 02:38	DAH	Mt. Juliet, TN
Organic Compounds (GC) by Method D1946	WG1925552	1	09/13/22 15:03	09/13/22 15:03	JAP	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.

John Hawkins  
Project Manager

### Sample Delivery Group (SDG) Narrative

---

Sample received in tedlar bag.

<u>Lab Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
<a href="#">L1533867-01</a>	<a href="#">2209359-001A SVE-1</a>	TO-15, D1946

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 09/07/22 12:00

L1533867

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
Acetone	67-64-1	58.10	2500	5940	ND	ND		2000	WG1923714
Allyl chloride	107-05-1	76.53	400	1250	ND	ND		2000	WG1923714
Benzene	71-43-2	78.10	400	1280	15100	48200		2000	WG1923714
Benzyl Chloride	100-44-7	127	400	2080	ND	ND		2000	WG1923714
Bromodichloromethane	75-27-4	164	400	2680	ND	ND		2000	WG1923714
Bromoform	75-25-2	253	1200	12400	ND	ND		2000	WG1923714
Bromomethane	74-83-9	94.90	400	1550	ND	ND		2000	WG1923714
1,3-Butadiene	106-99-0	54.10	4000	8850	ND	ND	J4	2000	WG1923714
Carbon disulfide	75-15-0	76.10	400	1240	ND	ND		2000	WG1923714
Carbon tetrachloride	56-23-5	154	400	2520	ND	ND		2000	WG1923714
Chlorobenzene	108-90-7	113	400	1850	ND	ND		2000	WG1923714
Chloroethane	75-00-3	64.50	400	1060	ND	ND		2000	WG1923714
Chloroform	67-66-3	119	400	1950	ND	ND		2000	WG1923714
Chloromethane	74-87-3	50.50	400	826	ND	ND		2000	WG1923714
2-Chlorotoluene	95-49-8	126	400	2060	ND	ND		2000	WG1923714
Cyclohexane	110-82-7	84.20	400	1380	65400	225000		2000	WG1923714
Dibromochloromethane	124-48-1	208	400	3400	ND	ND		2000	WG1923714
1,2-Dibromoethane	106-93-4	188	400	3080	ND	ND		2000	WG1923714
1,2-Dichlorobenzene	95-50-1	147	400	2400	ND	ND		2000	WG1923714
1,3-Dichlorobenzene	541-73-1	147	400	2400	ND	ND		2000	WG1923714
1,4-Dichlorobenzene	106-46-7	147	400	2400	ND	ND		2000	WG1923714
1,2-Dichloroethane	107-06-2	99	400	1620	ND	ND		2000	WG1923714
1,1-Dichloroethane	75-34-3	98	400	1600	ND	ND		2000	WG1923714
1,1-Dichloroethene	75-35-4	96.90	400	1590	ND	ND		2000	WG1923714
cis-1,2-Dichloroethene	156-59-2	96.90	400	1590	ND	ND		2000	WG1923714
trans-1,2-Dichloroethene	156-60-5	96.90	400	1590	ND	ND		2000	WG1923714
1,2-Dichloropropane	78-87-5	113	400	1850	ND	ND		2000	WG1923714
cis-1,3-Dichloropropene	10061-01-5	111	400	1820	ND	ND		2000	WG1923714
trans-1,3-Dichloropropene	10061-02-6	111	400	1820	ND	ND		2000	WG1923714
1,4-Dioxane	123-91-1	88.10	400	1440	ND	ND		2000	WG1923714
Ethanol	64-17-5	46.10	2500	4710	ND	ND		2000	WG1923714
Ethylbenzene	100-41-4	106	400	1730	2950	12800		2000	WG1923714
4-Ethyltoluene	622-96-8	120	400	1960	1460	7170		2000	WG1923714
Trichlorofluoromethane	75-69-4	137.40	400	2250	ND	ND		2000	WG1923714
Dichlorodifluoromethane	75-71-8	120.92	400	1980	ND	ND		2000	WG1923714
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	400	3070	ND	ND		2000	WG1923714
1,2-Dichlorotetrafluoroethane	76-14-2	171	400	2800	ND	ND		2000	WG1923714
Heptane	142-82-5	100	400	1640	92800	380000		2000	WG1923714
Hexachloro-1,3-butadiene	87-68-3	261	1260	13500	ND	ND		2000	WG1923714
n-Hexane	110-54-3	86.20	1260	4440	67400	238000		2000	WG1923714
Isopropylbenzene	98-82-8	120.20	400	1970	ND	ND		2000	WG1923714
Methylene Chloride	75-09-2	84.90	400	1390	ND	ND		2000	WG1923714
Methyl Butyl Ketone	591-78-6	100	2500	10200	ND	ND		2000	WG1923714
2-Butanone (MEK)	78-93-3	72.10	2500	7370	ND	ND		2000	WG1923714
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2500	10200	ND	ND		2000	WG1923714
Methyl methacrylate	80-62-6	100.12	400	1640	ND	ND		2000	WG1923714
MTBE	1634-04-4	88.10	400	1440	ND	ND		2000	WG1923714
Naphthalene	91-20-3	128	1260	6600	ND	ND		2000	WG1923714
2-Propanol	67-63-0	60.10	2500	6150	11900	29300		2000	WG1923714
Propene	115-07-1	42.10	2500	4300	ND	ND		2000	WG1923714
Styrene	100-42-5	104	400	1700	ND	ND		2000	WG1923714
1,1,2,2-Tetrachloroethane	79-34-5	168	400	2750	ND	ND		2000	WG1923714
Tetrachloroethylene	127-18-4	166	400	2720	ND	ND		2000	WG1923714
Tetrahydrofuran	109-99-9	72.10	400	1180	ND	ND		2000	WG1923714
Toluene	108-88-3	92.10	1000	3770	61200	231000		2000	WG1923714
1,2,4-Trichlorobenzene	120-82-1	181	1260	9330	ND	ND		2000	WG1923714

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

Collected date/time: 09/07/22 12:00

L1533867

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	400	2180	ND	ND		2000	WG1923714
1,1,2-Trichloroethane	79-00-5	133	400	2180	ND	ND		2000	WG1923714
Trichloroethylene	79-01-6	131	400	2140	ND	ND		2000	WG1923714
1,2,4-Trimethylbenzene	95-63-6	120	400	1960	1070	5250		2000	WG1923714
1,3,5-Trimethylbenzene	108-67-8	120	400	1960	1150	5640		2000	WG1923714
2,2,4-Trimethylpentane	540-84-1	114.22	400	1870	ND	ND		2000	WG1923714
Vinyl chloride	75-01-4	62.50	400	1020	ND	ND		2000	WG1923714
Vinyl Bromide	593-60-2	106.95	400	1750	ND	ND		2000	WG1923714
Vinyl acetate	108-05-4	86.10	400	1410	ND	ND		2000	WG1923714
m&p-Xylene	1330-20-7	106	800	3470	28100	122000		2000	WG1923714
o-Xylene	95-47-6	106	400	1730	4740	20500		2000	WG1923714
TPH (GC/MS) Low Fraction	8006-61-9	101	400000	1650000	1210000	5000000		2000	WG1923714
1,1-Difluoroethane	75-37-6	66.05	2000	5400	ND	ND		2000	WG1923714
1,2,3-Trimethylbenzene	526-73-8	120.10	400	1960	ND	ND		2000	WG1923714
Chlorodifluoromethane	75-45-6	86.50	400	1420	ND	ND		2000	WG1923714
Ethyl acetate	141-78-6	88	400	1440	ND	ND		2000	WG1923714
Methyl Cyclohexane	108-87-2	98.1860	400	1610	163000	655000		2000	WG1923714
Tert-Amyl Ethyl Ether	919-94-8	116.20	400	1900	ND	ND		2000	WG1923714
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		100				WG1923714

- 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 %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	5.00	21.1	Q	1	WG1925552
Carbon Monoxide	630-08-0	28	2.00	ND	Q	1	WG1925552
Carbon Dioxide	124-38-9	44.01	0.500	ND	Q	1	WG1925552
Methane	74-82-8	16	0.400	ND	Q	1	WG1925552

Volatile Organic Compounds (MS) by Method TO-15

[L1533867-01](#)

Method Blank (MB)

(MB) R3835719-3 09/09/22 10:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ppbv		ppbv	ppbv
Acetone	U		0.584	1.25
Allyl Chloride	U		0.114	0.200
Benzene	U		0.0715	0.200
Benzyl Chloride	U		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
Cyclohexane	U		0.0753	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
Ethanol	U		0.265	1.25
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
n-Hexane	U		0.206	0.630

<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

Volatile Organic Compounds (MS) by Method TO-15

[L1533867-01](#)

Method Blank (MB)

(MB) R3835719-3 09/09/22 10:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ppbv		ppbv	ppbv
Isopropylbenzene	U		0.0777	0.200
Methylene Chloride	U		0.0979	0.200
Methyl Butyl Ketone	U		0.133	1.25
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	0.225	U	0.0932	1.25
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
TPH (GC/MS) Low Fraction	U		39.7	200
1,1-Difluoroethane	0.510	U	0.129	1.00
1,2,3-Trimethylbenzene	U		0.0805	0.200
Chlorodifluoromethane	U		0.131	0.200
Ethyl acetate	U		0.100	0.200
Methyl Cyclohexane	U		0.0813	0.200
Tert-Amyl Ethyl Ether	U		0.0778	0.200
(S) 1,4-Bromofluorobenzene	97.6			60.0-140

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

Volatile Organic Compounds (MS) by Method TO-15

L1533867-01

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

(LCS) R3835719-1 09/09/22 09:28 • (LCSD) R3835719-2 09/09/22 10:10

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	3.75	3.83	3.90	102	104	70.0-130			1.81	25
Allyl Chloride	3.75	3.95	4.00	105	107	70.0-130			1.26	25
Benzene	3.75	3.62	3.71	96.5	98.9	70.0-130			2.46	25
Benzyl Chloride	3.75	3.75	3.85	100	103	70.0-152			2.63	25
Bromodichloromethane	3.75	3.87	4.00	103	107	70.0-130			3.30	25
Bromoform	3.75	4.01	4.06	107	108	70.0-130			1.24	25
Bromomethane	3.75	3.82	3.90	102	104	70.0-130			2.07	25
1,3-Butadiene	3.75	5.07	5.07	135	135	70.0-130	J4	J4	0.000	25
Carbon disulfide	3.75	3.88	3.97	103	106	70.0-130			2.29	25
Carbon tetrachloride	3.75	3.93	4.02	105	107	70.0-130			2.26	25
Chlorobenzene	3.75	3.81	3.91	102	104	70.0-130			2.59	25
Chloroethane	3.75	3.86	3.86	103	103	70.0-130			0.000	25
Chloroform	3.75	3.76	3.85	100	103	70.0-130			2.37	25
Chloromethane	3.75	4.55	3.77	121	101	70.0-130			18.8	25
2-Chlorotoluene	3.75	3.89	3.97	104	106	70.0-130			2.04	25
Cyclohexane	3.75	3.76	3.87	100	103	70.0-130			2.88	25
Dibromochloromethane	3.75	3.93	4.07	105	109	70.0-130			3.50	25
1,2-Dibromoethane	3.75	3.91	3.99	104	106	70.0-130			2.03	25
1,2-Dichlorobenzene	3.75	3.84	3.92	102	105	70.0-130			2.06	25
1,3-Dichlorobenzene	3.75	3.89	3.96	104	106	70.0-130			1.78	25
1,4-Dichlorobenzene	3.75	3.99	4.07	106	109	70.0-130			1.99	25
1,2-Dichloroethane	3.75	3.76	3.82	100	102	70.0-130			1.58	25
1,1-Dichloroethane	3.75	3.84	3.91	102	104	70.0-130			1.81	25
1,1-Dichloroethene	3.75	3.82	3.91	102	104	70.0-130			2.33	25
cis-1,2-Dichloroethene	3.75	3.83	3.91	102	104	70.0-130			2.07	25
trans-1,2-Dichloroethene	3.75	3.84	3.92	102	105	70.0-130			2.06	25
1,2-Dichloropropane	3.75	3.68	3.78	98.1	101	70.0-130			2.68	25
cis-1,3-Dichloropropene	3.75	3.77	3.86	101	103	70.0-130			2.36	25
trans-1,3-Dichloropropene	3.75	3.81	3.98	102	106	70.0-130			4.36	25
1,4-Dioxane	3.75	3.20	3.29	85.3	87.7	70.0-140			2.77	25
Ethanol	3.75	3.62	3.67	96.5	97.9	55.0-148			1.37	25
Ethylbenzene	3.75	3.88	3.96	103	106	70.0-130			2.04	25
4-Ethyltoluene	3.75	3.98	4.04	106	108	70.0-130			1.50	25
Trichlorofluoromethane	3.75	3.87	3.95	103	105	70.0-130			2.05	25
Dichlorodifluoromethane	3.75	3.87	3.94	103	105	64.0-139			1.79	25
1,1,2-Trichlorotrifluoroethane	3.75	3.87	3.96	103	106	70.0-130			2.30	25
1,2-Dichlorotetrafluoroethane	3.75	4.47	3.93	119	105	70.0-130			12.9	25
Heptane	3.75	3.62	3.77	96.5	101	70.0-130			4.06	25
Hexachloro-1,3-butadiene	3.75	3.96	4.03	106	107	70.0-151			1.75	25
n-Hexane	3.75	3.70	3.80	98.7	101	70.0-130			2.67	25

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (MS) by Method TO-15

L1533867-01

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

(LCS) R3835719-1 09/09/22 09:28 • (LCSD) R3835719-2 09/09/22 10:10

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Isopropylbenzene	3.75	3.83	3.91	102	104	70.0-130			2.07	25
Methylene Chloride	3.75	3.63	3.75	96.8	100	70.0-130			3.25	25
Methyl Butyl Ketone	3.75	3.44	3.53	91.7	94.1	70.0-149			2.58	25
Methyl Ethyl Ketone	3.75	3.89	3.97	104	106	70.0-130			2.04	25
4-Methyl-2-pentanone (MIBK)	3.75	3.53	3.63	94.1	96.8	70.0-139			2.79	25
Methyl Methacrylate	3.75	3.74	3.82	99.7	102	70.0-130			2.12	25
MTBE	3.75	3.74	3.84	99.7	102	70.0-130			2.64	25
Naphthalene	3.75	3.81	3.90	102	104	70.0-159			2.33	25
2-Propanol	3.75	3.59	3.69	95.7	98.4	70.0-139			2.75	25
Propene	3.75	3.68	3.74	98.1	99.7	64.0-144			1.62	25
Styrene	3.75	3.92	4.00	105	107	70.0-130			2.02	25
1,1,2,2-Tetrachloroethane	3.75	3.74	3.84	99.7	102	70.0-130			2.64	25
Tetrachloroethylene	3.75	3.82	3.93	102	105	70.0-130			2.84	25
Tetrahydrofuran	3.75	3.49	3.57	93.1	95.2	70.0-137			2.27	25
Toluene	3.75	3.78	3.92	101	105	70.0-130			3.64	25
1,2,4-Trichlorobenzene	3.75	3.64	3.71	97.1	98.9	70.0-160			1.90	25
1,1,1-Trichloroethane	3.75	3.89	3.95	104	105	70.0-130			1.53	25
1,1,2-Trichloroethane	3.75	3.85	3.94	103	105	70.0-130			2.31	25
Trichloroethylene	3.75	3.80	3.90	101	104	70.0-130			2.60	25
1,2,4-Trimethylbenzene	3.75	3.97	4.04	106	108	70.0-130			1.75	25
1,3,5-Trimethylbenzene	3.75	3.93	4.00	105	107	70.0-130			1.77	25
2,2,4-Trimethylpentane	3.75	3.70	3.79	98.7	101	70.0-130			2.40	25
Vinyl chloride	3.75	4.71	4.69	126	125	70.0-130			0.426	25
Vinyl Bromide	3.75	3.89	3.94	104	105	70.0-130			1.28	25
Vinyl acetate	3.75	3.41	3.54	90.9	94.4	70.0-130			3.74	25
m&p-Xylene	7.50	7.72	7.88	103	105	70.0-130			2.05	25
o-Xylene	3.75	3.79	3.88	101	103	70.0-130			2.35	25
TPH (GC/MS) Low Fraction	203	211	215	104	106	70.0-130			1.88	25
1,1-Difluoroethane	3.75	4.13	4.21	110	112	70.0-130			1.92	25
1,2,3-Trimethylbenzene	3.75	3.92	4.02	105	107	70.0-130			2.52	25
Chlorodifluoromethane	3.75	3.98	4.40	106	117	70.0-130			10.0	25
Ethyl acetate	3.75	4.11	4.17	110	111	70.0-130			1.45	25
Methyl Cyclohexane	3.75	3.80	3.92	101	105	70.0-130			3.11	25
Tert-Amyl Ethyl Ether	3.75	3.69	3.81	98.4	102	70.0-130			3.20	25
(S) 1,4-Bromofluorobenzene				98.7	98.8	60.0-140				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Organic Compounds (GC) by Method D1946

[L1533867-01](#)

Method Blank (MB)

(MB) R3836643-3 09/13/22 14:40

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Oxygen	2.27		0.225	5.00
Carbon Monoxide	U		0.665	2.00
Carbon Dioxide	U		0.121	0.500
Methane	U		0.0584	0.400

<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

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

(LCS) R3836643-1 09/13/22 14:33 • (LCSD) R3836643-2 09/13/22 14:37

Analyte	Spike Amount %	LCS Result %	LCSD Result %	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Oxygen	20.0	18.9	18.9	94.5	94.5	70.0-130			0.000	20
Carbon Monoxide	2.50	2.49	2.51	99.6	100	70.0-130			0.800	20
Carbon Dioxide	2.50	2.64	2.65	106	106	70.0-130			0.378	20
Methane	2.00	2.19	2.20	110	110	70.0-130			0.456	20

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.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
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

\* 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 Analytical.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

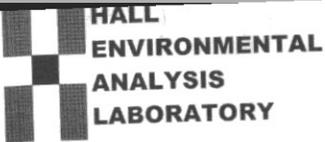
<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

# CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1



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

B155

SUB CONTRACTOR: <b>Pace TN</b>		COMPANY: <b>PACE TN</b>		PHONE: <b>(800) 767-5859</b>	FAX: <b>(615) 758-5859</b>		
ADDRESS: <b>12065 Lebanon Rd</b>				ACCOUNT #:	EMAIL:		
CITY, STATE, ZIP: <b>Mt. Juliet, TN 37122</b>				<b>1533867</b>			
ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2209359-001A	SVE-1	TEDLAR	Air	9/7/2022 12:00:00 PM	2	TO-15, TPH, + O2 + CO2 D1946

TO 15 VOC & TPH

309.9.22

Sample Receipt Checklist

COC Seal Present/Intact:  Y  N If Applicable

COC Signed/Accurate:  Y  N VOA Zero Headspace:  Y  N

Bottles arrive intact:  Y  N Pres. Correct/Check:  Y  N

Correct bottles used:  Y  N

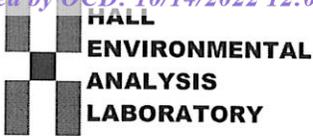
Sufficient volume sent:  Y  N

RAD Screen <0.5 mR/hr:  Y  N

5755 80933293

**SPECIAL INSTRUCTIONS / COMMENTS:**  
 Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you. OK

Relinquished By:	Date: 9/8/2022	Time: 10:15 AM	Received By:	Date:	Time:	REPORT TRANSMITTAL DESIRED: <input type="checkbox"/> HARD COPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE  FOR LAB USE ONLY  Temp of samples _____ °C    Attempt to Cool? _____  Comments: _____
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	
Relinquished By:	Date:	Time:	Received By:	Date: 9/9/22	Time: 8:45	
TAT:    Standard <input checked="" type="checkbox"/> RUSH    Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>						



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

Sample Log-In Check List

Client Name: Hilcorp Energy Work Order Number: 2209359 RcptNo: 1

Received By: Tracy Casarrubias 9/8/2022 7:35:00 AM

Completed By: Tracy Casarrubias 9/8/2022 9:17:48 AM

Reviewed By: KPG 9.08.22 JN 9/8/22
KPa 9.08.22

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [ ] Not Present [ ]
2. How was the sample delivered? Courier

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 [ ] No [checked] 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 [ ] No [ ] NA [checked]
10. Were any sample containers received broken? Yes [ ] No [checked]
11. Does paperwork match bottle labels? 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? Yes [checked] No [ ]

# of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: KPa 9.08.22

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. Row 1: 1, NA, Good, Yes, [ ], [ ], [ ]



**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 150988

**CONDITIONS**

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 150988
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

**CONDITIONS**

Created By	Condition	Condition Date
nvelez	Accepted for the record. See app ID 175997 for most updated status.	2/28/2023