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Bryan, Texas 77807  
970.516.8419  
www.teamtimberwolf.com

May 5, 2021

Mr. Cory Smith, Environmental Specialist  
New Mexico Oil Conservation Division – District 3  
1000 Rio Brazos Road  
Aztec, New Mexico 87410

Accepted for Record  
CS

Re: Status Report – 1<sup>st</sup> Quarter 2021  
San Juan 28-7 Unit 183M  
Rio Arriba County, New Mexico  
OCD Incident No. NCS1901627746

Dear Mr. Smith:

On behalf of Hilcorp Energy Company (Hilcorp), Timberwolf Environmental, LLC (Timberwolf) presents this report to document remedial activities conducted during the first quarter of 2021 (1Q21) at the San Juan 28-7 Unit 183M (Site).

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

The Site is situated on federal land managed by the Bureau of Land Management (BLM) in western Rio Arriba County, New Mexico (Figure 1). The area consists of sparse vegetative cover comprised primarily of scrub brush and native grasses. Area terrain is comprised of plateaus divided by canyons. The primary canyon in the area is Carrizo Canyon, which drains to the northwest into the San Juan River, approximately 19 miles from the Site (Figures 2 and 3).

The Site is situated along the rimrock of an unnamed side canyon to Carrizo Canyon. Average elevation at the Site is approximately 6,523 feet (ft) above mean sea level. The closest surface water is a first order tributary of Carrizo Creek, situated 1,500 ft southeast of the Site and 330 ft lower in elevation.

According to the U.S. Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS), the Site soil consists of the Vessilla-Menefee-Orlie complex, 2 to 30 percent slopes. The surface horizon is comprised of a sandy loam, underlain by bedrock encountered between 15 to 19 inches below ground surface (bgs). Native salinity of the soil is nonsaline to very slightly saline (0.0 to 2.0 millimhos per centimeter (mmhos/cm)).

Timberwolf Project No. HEC-190007

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## **Site History**

### ***Release Event***

Corrosion near the base of the former oil tank resulted in the release of approximately 150 barrels (bbls) of oil and 7 bbls of produced water. All released fluid was contained by the berm. Standing fluid was recovered; the tank was removed from service and disposed off-site. The initial investigation identified the area of the former tank battery as the primary area of concern (AOC).

Hilcorp constructed a new tank battery northeast of the original tank battery. Tanks and interconnective piping were removed from the original tank battery.

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

A soil investigation, conducted during March 2019, revealed the constituents of concern (COC) were: total BTEX (i.e., benzene, toluene, ethylbenzene, and xylene) and total petroleum hydrocarbons (TPH). Impacted soil was horizontally and vertically delineated; the vertical extent of impacted soil was approximately 27 ft bgs. Additionally, the soil investigation revealed that subsurface soil is unconsolidated to a depth of 10 ft below ground surface (bgs) which is underlain by sandstone. Findings of the investigation are documented in Timberwolf's report entitled: *Site Characterization Report and Remedial Action Plan*, dated May 21, 2019.

### ***Remediation – SVE System***

To remediate hydrocarbon impacted soil, a soil vapor extraction (SVE) system was designed, constructed, and installed at the Site. System start-up date was 12/18/19. The SVE system is comprised of 11 SVE wells, four vent wells, and a SVE trailer. The SVE trailer is comprised of a regenerative blower (i.e., vacuum pump), hour meter, moisture separator and filter, sampling port, and a manifold with three independent legs. Additionally, the SVE trailer is equipped with a programmable automation panel to control valves for each manifold leg.

The SVE system creates a treatment field of approximately 0.15 acres and treats soil to a depth of approximately 30 ft bgs for a total volume of approximately 7,021 cubic yards of soil. The SVE wells, measured radius of influence of 25 ft, and leg configurations are shown in Figure 4.

The work conducted is documented in the following reports:

- *Site Characterization Plan*, dated 03/05/19
- *Site Characterization and Remedial Action Plan*, dated 05/21/19
- *Status Report – 4<sup>th</sup> Quarter*, dated 01/31/20
- *Status Report – 1<sup>st</sup> Quarter 2020*, dated 04/30/20
- *Status Report – 2<sup>nd</sup> Quarter 2020*, dated 09/03/20
- *Status Report – 3<sup>rd</sup> Quarter 2020*, dated 11/25/20
- *Status Report – 4<sup>th</sup> Quarter 2020*, dated 01/28/21

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### **SVE System Operations**

The SVE system was designed with three independent legs (i.e., Leg 1, Leg 2, and Leg 3). Legs 1 and 3 provide vacuum extraction to the deep SVE wells; Leg 2 is piped to the shallow wells. The automation panel was programmed to oscillate between Legs 1, 2, and 3 every four hours for continuous 24-hr operations. Programmed runtimes are presented in Table 1 below.

**Table 1. Programmed Runtimes and Leg Configurations**

Leg	SVE Wells and Location	Scheduled Runtime
Leg 1	Deep Wells SVE7, SVE8, and SVE9 Eastern side of treatment zone	4 hours
Leg 2	Shallow Wells SVE1, SVE2, SVE3, and SVE4	4 hours
Leg 3	Deep Wells SVE5, SVE6, SVE10, and SVE11 Central and Western side of treatment zone	4 hours
Leg 1	Deep Wells SVE7, SVE8, and SVE9 Eastern side of treatment zone	4 hours
Leg 2	Shallow Wells SVE1, SVE2, SVE3, and SVE4	4 hours
Leg 3	Deep Wells SVE5, SVE6, SVE10, and SVE11 Central and Western side of treatment zone	4 hours

SVE – soil vapor extraction well

Water and condensate collected in the moisture separator was drained through a 1-inch PVC pipe and transferred to an open-top tank fitted with bird netting. Approximately 30 gallons of water/condensate was recovered during 1Q21.

Runtime, flow rates, and percentage of runtime for 1Q21 are documented in Table 2 below.

**Table 2. System Runtime and Flow Rates – 1Q21**

Measurement	Leg 1	Leg 2	Leg 3	Total
Runtime (hours)	480.6	480	480	1,440.6
Runtime (min)	28,836	28,800	28,800	86,436
Average CFM	11.2	9	20.6	--
Runtime Percentage	33.4%	33.3%	33.3%	100%

min – minutes

CFM – cubic feet per minute

The 1Q21 had 2,160 hours in the quarter; the SVE system ran for 1,440.6 hours. Therefore, runtime percentage (%) in 1Q21 was 66.7%. The limited runtime was directly related to generator malfunctions and replacement of repaired SVE system vacuum pump. On 01/12/21 the vacuum pump was reinstalled by Hilcorp and Timberwolf personnel. Hilcorp personnel conducted nine (9) operation and maintenance (O&M) events during 1Q21; a field log of O&M events and maintenance performed is provided in the attached Table A-1.

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### Mass Removal

Timberwolf used the results from the SVE gas analysis (collected on 02/12/20), flow rates, and runtimes to calculate constituent mass removal. Mass removal of GRO and BTEX and associated recovered volume for 1Q21 are presented in Table 3 below; cumulative totals are provided in the attached Table A-2.

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

Constituent	Mass Removal by Leg (kg) <sup>1</sup>			Total Mass Removed <sup>2</sup> (lbs)	Recovered Volume <sup>3</sup> (bbl)
	Leg 1	Leg 2	Leg 3		
GRO	220.47	176.15	440.38	1,841.41	6.83
Benzene	2.74	2.19	5.46	22.85	NC
Toluene	9.84	7.86	19.65	82.18	NC
Ethylbenzene	0.26	0.21	0.53	2.20	NC
Xylenes	1.99	1.59	3.98	16.65	NC

<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 = [Leg 1 + Leg 2 + Leg 3] \* 2.2 lbs/kg

<sup>3</sup>Calculation = lbs / 6.42 lb/gal / 42 gal/bbl

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 vapor have remained static since the collection of SVE gas sample

### Collection and Analysis of Gas Sample

On 03/23/21, Hilcorp personnel collected an annual gas sample utilizing a vacuum pump and Tedlar<sup>®</sup> bag. The vacuum pump was connected to the SVE systems sampling port while all three (3) legs were open. The valve on the sampling port was then opened and pump was activated to purge ambient air. After purging, the Tedlar<sup>®</sup> bag was connected to the vacuum pump outlet using dedicated tubing, the valve on the Tedlar<sup>®</sup> bag was opened and the vacuum pump was activated to collect the SVE gas sample. Once the Tedlar<sup>®</sup> bag was filled, the valve on the bag was closed and disconnected from the tubing. The sampling port was then closed, and vacuum pump disconnected from sampling port.

The gas sample (i.e., SVE) was shipped to Pace National in Mt. Juliet, Tennessee for chemical analysis 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.



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Constituents which exceed laboratory detection limits are presented in Table 4; laboratory results of all constituents are documented in the Attached Table A-3.

**Table 4. Gas Analysis – 03/23/21**

Constituents	SVE (mg/m <sup>3</sup> )
<b>Volatile Organic Carbons</b>	
Benzene	25.4
Cyclohexane	154
Ethanol	5.11
Ethylbenzene	14
4-Ethyltoluene	4.83
Heptane	257
N-Hexane	123
Isopropylbenzene	1.98
Toluene	180
1,2,4-Trimethylbenzene	2.04
1,3,5-Trimethylbenzene	3.52
Total Xylenes	150.6
TPH (GC/MS) Low Fraction (i.e., GRO)	661
<b>Organic Compounds</b>	
Oxygen	279,522
Carbon Dioxide	< 5,000

mg/m<sup>3</sup> – milligrams per cubic meter  
TPH – total petroleum hydrocarbons  
GRO – gasoline range organics

### Summary

System runtime during 1Q21 was 66.7% of total available hours in 1Q21. The limited runtime was directly related to: 1) generator malfunctions and 2) installation of repaired SVE system vacuum pump. Mass removal calculations indicated 6.83 bbls of GRO recovered during 1Q21.

### Further Actions – Second Quarter 2021

During 2Q21, the following activities are planned for the Site:

- Conduct regular Site O&M to ensure proper system function and drain any water/condensate accumulation in the moisture separator
- Prepare a 2Q21 status report

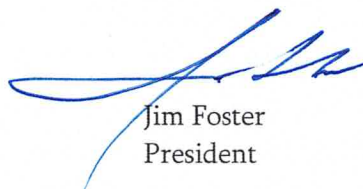
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If you have any questions regarding this report or need further assistance, please call us at 979-324-2139.

Sincerely,  
Timberwolf Environmental, LLC



Michael Morse  
Project Scientist



Jim Foster  
President

Attachments: Figures  
Attached Table  
Laboratory Report and Chain-of-Custody Documents

Cc: Clara Cardoza, Hilcorp Energy Company

## **Figures**

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Timberwolf Project No. HEC-190007



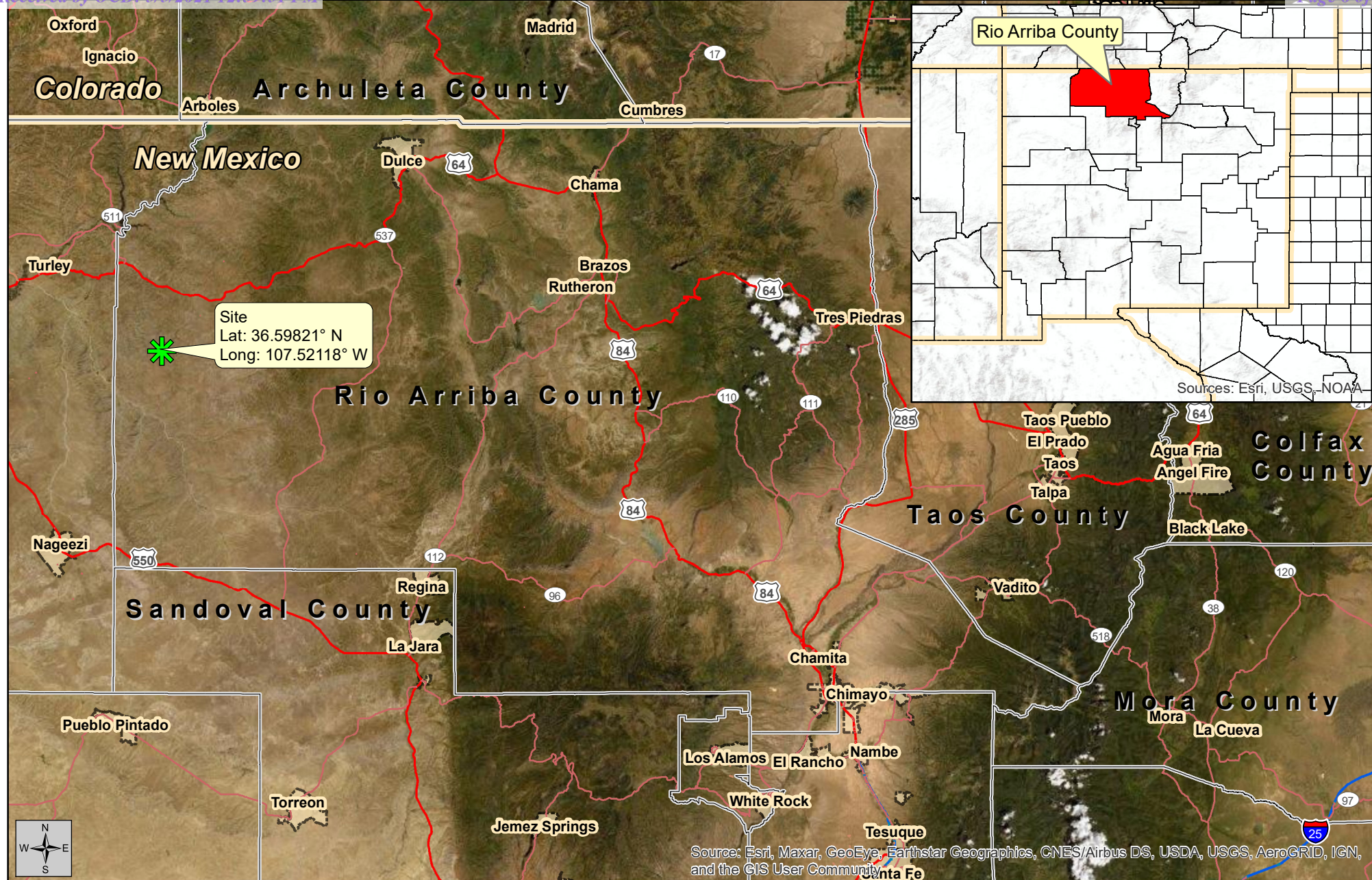


Figure 1  
Site Location Map

## Status Report - 1<sup>st</sup> Quarter 2021


March 30, 2021



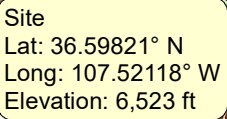
Created By:  
Kevin Cole  
TE Project No.: HEC-190007

San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)  
Hilcorp Energy Company  
Rio Arriba County, New Mexico

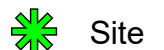
Datum: NAD83  
Imagery Source: ESRI  
Vector Source: ESRI and TE

 Site

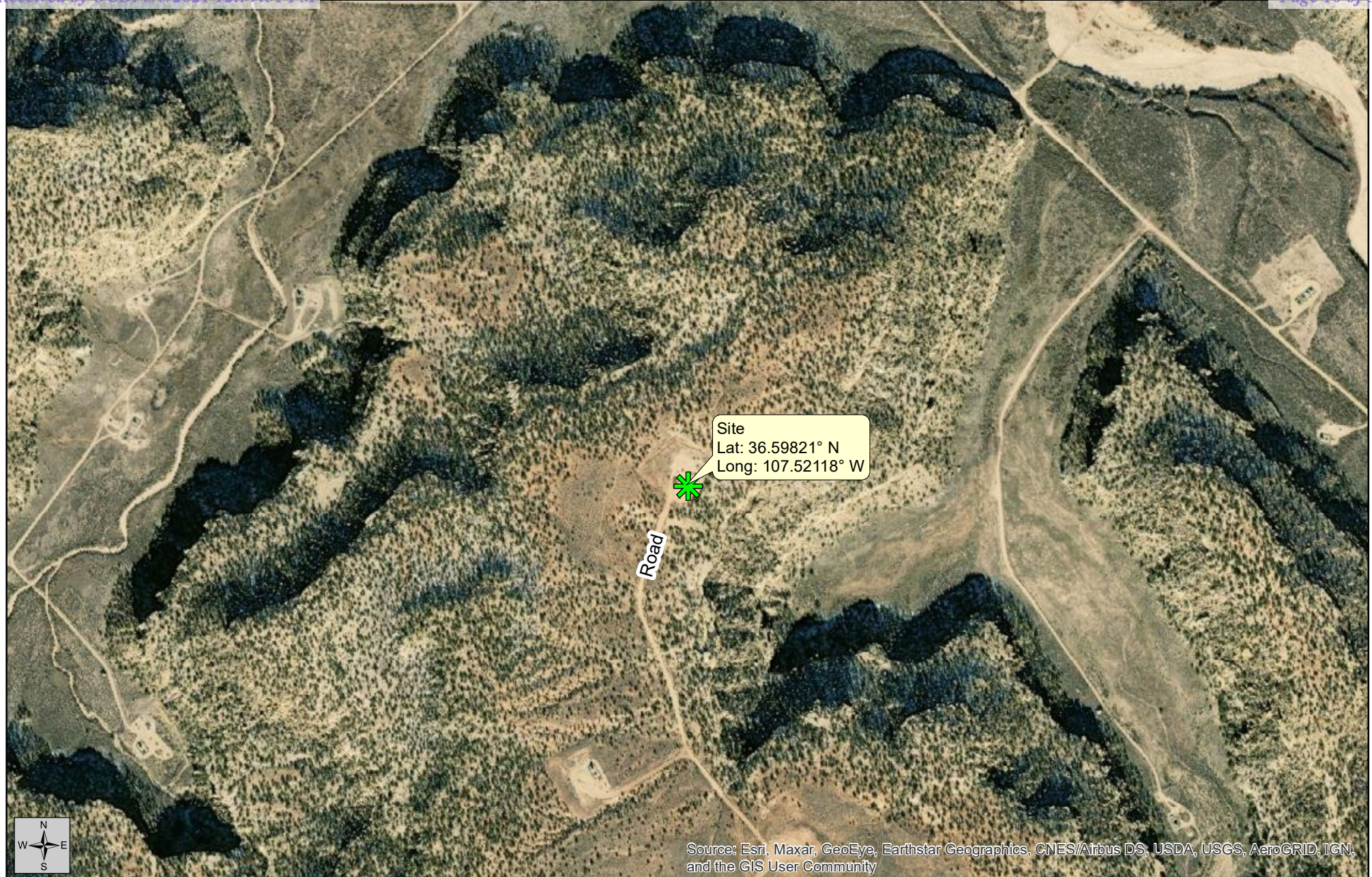




**March 30, 2021**







**Figure 3**  
**Aerial Map**

### Status Report - 1<sup>st</sup> Quarter 2021


March 30, 2021



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Kevin Cole  
TE Project No.: HEC-190007

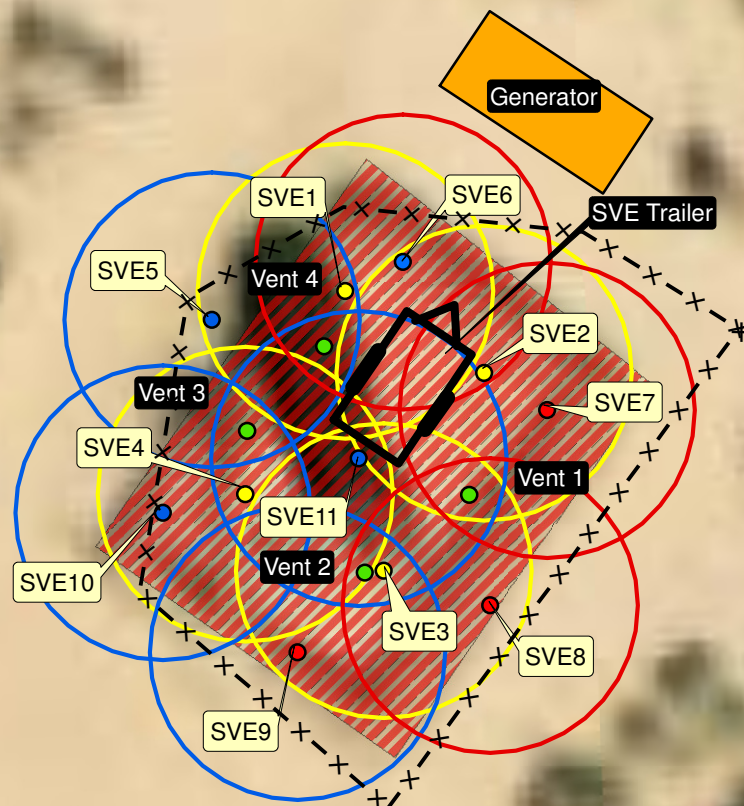
0 0.25 0.5 0.75 1 Miles  
1:10,000  
**San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)**  
**Hilcorp Energy Company**  
**Rio Arriba County, New Mexico**

Datum: NAD83  
Imagery Source: ESRI  
Vector Source: TE

 Site



Treatment Area= 6,320 ft<sup>2</sup>  
Assuming a 25 ft radius of influence



**Legend**

- Leg 1 SVE Wells (7, 8, & 9)
- Leg 2 SVE Wells (1, 2, 3, & 4)
- Leg 3 SVE Wells (5, 6, 10, & 11)
- Vent
- Leg 1
- Leg 2
- Leg 3
- ▨ Impacted Area
- SVE Trailer
- Generator
- x- Fence



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

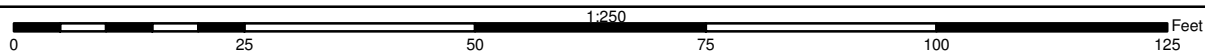
**Figure 4**  
**SVE System Overview**

**Status Report - 1<sup>st</sup> Quarter 2021**

**March 30, 2021**



Created By:  
Kevin Cole  
TE Project No.: HEC-190007



**San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)**  
**Hilcorp Energy Company**  
**Rio Arriba County, New Mexico**

Datum: NAD83  
Imagery Source: ESRI  
Vector Source: TE



**Attached Table**

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**Table A-1. Operation and Maintenance Events  
Status Report 1st Quarter 2021  
San Juan 28-7 183M**

Date	Hour Meter (hrs)	Water/Condensate Recovered (gal)	Maintenance
01/12/21	2064.0	0	<ul style="list-style-type: none"> <li>Hilcorp and Timberwolf personnel on Site to install replacement vacuum pump</li> <li>SVE system restarted without incident</li> </ul>
01/27/21	2419.9	0	<ul style="list-style-type: none"> <li>Kurt Hoekstra with Hilcorp performed SVE system O&amp;M</li> <li>All systems functioning properly</li> <li>Timberwolf personnel not on site</li> </ul>
02/03/21	2592.6	0	<ul style="list-style-type: none"> <li>Insulation installed on Leg 1, Leg 2, and Leg 3 valves and flow meters</li> <li>Heat tape installed on flow lines running to water / condensate separator</li> <li>All systems functioning properly</li> <li>Hour meter reading taken at 3:30pm</li> <li>Kurt Hoekstra with Hilcorp conducted all O&amp;M</li> </ul>
02/10/21	2728.8	25	<ul style="list-style-type: none"> <li>SVE system down upon arrival at Site. Generator still running. SVE system was down due to the moisture separator high level shut-off switch.</li> <li>25 gallons of fluid was removed from the moisture separator and the SVE system started back up</li> <li>All systems functioning properly</li> <li>Hour meter reading taken at 12:30pm</li> <li>Kurt Hoekstra with Hilcorp conducted all O&amp;M</li> </ul>
03/01/21	N/A	0	<ul style="list-style-type: none"> <li>SVE system and generator shut down. Cause: Generator alternator failure. Hilcorp personnel replaced alternator on generator and restarted the generator and SVE system</li> <li>Timberwolf personnel not on site</li> </ul>
03/08/21	N/A	4.5	<ul style="list-style-type: none"> <li>Kurt Hoekstra with Hilcorp performed SVE system O&amp;M</li> <li>Timberwolf personnel not on site</li> </ul>
03/23/21	N/A	0	<ul style="list-style-type: none"> <li>Kurt Hoekstra with Hilcorp collected the required annual air sample from the SVE system. Sample was collected utilizing a vacuum pump and the dedicated sample port. Sample collected into a Tedlar bag.</li> <li>Timberwolf personnel not on site to witness or collect the air sample</li> </ul>
03/26/21	N/A	0	<ul style="list-style-type: none"> <li>SVE system and generator down upon arrival. Cause: Generator low on oil. Hilcorp personnel added oil and restarted generator and SVE system</li> <li>Hilcorp personnel installed an oil makeup controller to maintain generator oil levels</li> <li>Timberwolf personnel not on site</li> </ul>
03/31/21	3504.6	0	<ul style="list-style-type: none"> <li>Kurt Hoekstra with Hilcorp performed SVE system O&amp;M. Hour meter reading taken at 11:00am</li> <li>Timberwolf personnel not on site</li> </ul>

N/A = not available

gal - gallons

hrs - hours

\* - Timberwolf personnel not on site



**Table A-2. Cumulative Mass Removal  
Status Report 1st Quarter 2021  
San Juan 28-7 183M**

Quarter	Constituent (lbs)					Recovered Volume (bbl)
	Benzene	Toluene	Ethylbenzene	Xylene	GRO	GRO
4Q19	18.5	32.4	0.73	6.27	1,017	3.77
1Q20	5.01	18.01	0.48	3.65	403.47	1.50
2Q20	6.66	23.95	0.64	4.85	536.65	1.99
3Q20	14.82	53.32	1.43	10.80	1,194.72	4.43
4Q20	1.71	6.16	0.16	1.25	138.07	0.51
1Q21	22.85	82.18	2.20	16.65	1,841.41	6.83
<b>Total</b>	69.55	216.02	5.64	43.47	5,131.32	19.03

mass (mg) removed equation = ((CFM\*volatile\*runtime in minutes)/(35.3147))

lbs - pounds

bbl - barrels

**Table A-3. Annual Gas Analysis - 03/23/21  
Status Report - 1st Quarter 2021  
San Juan 28-7 Unit 183M  
Rio Arriba County, New Mexico**

<b>Volatiles</b>	<b>SVE (mg/m<sup>3</sup>)</b>
Acetone	< 2.38
Allyl Chloride	< 0.501
Benzene	25.4
Benzyl Chloride	< 0.831
Bromodichloromethane	< 1.070
Bromoform	< 4.970
Bromomethane	< 0.621
1,3-Butadiene	< 3.540
Carbon Disulfide	< 0.498
Carbon Tetrachloride	< 1.010
Chlorobenzene	< 0.739
Chloroethane	< 0.422
Chloroform	< 0.779
Chloromethane	< 0.330
2-Chlorotoluene	< 0.825
Cyclohexane	154
Dibromochloromethane	< 1.36
1,2-Dibromoethane	< 1.23
1,2-Dichlorobenzene	< 0.962
1,3-Dichlorobenzene	< 0.962
1,4-Dichlorobenzene	< 0.962
1,2-Dichloroethane	< 0.648
1,1-Dichloroethane	< 0.641
1,1-Dichloroethene	< 0.634
Cis-1,2-Dichloroethene	< 0.634
Trans-1,2-Dichloroethene	< 0.634
1,2-Dichloropropane	< 0.739
Cis-1,3-Dichloropropene	< 0.726
Trans-1,3-Dichloropropene	< 0.726
1,4-Dioxane	< 0.577
Ethanol	5.11
Ethylbenzene	14
4-Ethyltoluene	4.83
Trichlorofluoromethane	< 0.899
Dichlorodifluoromethane	< 0.791
1,1,2-Trichlorotrifluoroethane	< 1.230
1,2-Dichlorotetrafluoroethane	< 1.120
Heptane	257
Hexachloro-1,3-Butadiene	< 5.380
N-Hexane	123

**Table A-3. Annual Gas Analysis - 03/23/21  
Status Report - 1st Quarter 2021  
San Juan 28-7 Unit 183M  
Rio Arriba County, New Mexico**

<b>Volatiles</b>	<b>SVE (mg/m<sup>3</sup>)</b>
Isopropylbenzene	1.98
Methylene Chloride	< 0.556
Methyl Butyl Ketone	< 4.09
2-Butanone (Mek)	< 2.95
4-Methyl-2-Pentanone (Mibk)	< 4.09
Methyl Methacrylate	< 0.655
Methyl Tert-Butyl Ether	< 0.577
Naphthalene	< 2.640
2-Propanol	< 2.460
Propene	< 0.551
Styrene	< 0.681
1,1,2,2-Tetrachloroethane	< 1.100
Tetrachloroethene	< 1.090
Tetrahydrofuran	< 0.472
Toluene	180
1,2,4-Trichlorobenzene	< 3.730
1,1,1-Trichloroethane	< 0.870
1,1,2-Trichloroethane	< 0.870
Trichloroethene	< 0.857
1,2,4-Trimethylbenzene	2.04
1,3,5-Trimethylbenzene	3.52
2,2,4-Trimethylpentane	< 0.747
Vinyl Chloride	< 0.409
Vinyl Bromide	< 0.700
Vinyl Acetate	< 0.563
Total Xylene	150.6
TPH (GC/MS) low fraction	661
Oxygen	279,522
Carbon Dioxide	< 5,000
Carbon Monoxide	< 20,000
Methane	< 4,000

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

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Timberwolf Project No. HEC-190007



## ANALYTICAL REPORT

April 14, 2021

Revised Report

**HilCorp-Farmington, NM**

Sample Delivery Group: L1330502  
Samples Received: 03/25/2021  
Project Number:  
Description: San Juan 28-7 Unit 183M  
Site: SAN JUAN 28-7 #183M  
Report To: Clara Cardoza  
382 Road 3100  
Aztec, NM 87410

<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

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.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)



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    L1330502-01	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	11	
Gl: Glossary of Terms	12	<sup>6</sup> Qc
Al: Accreditations & Locations	13	<sup>7</sup> Gl
Sc: Sample Chain of Custody	14	<sup>8</sup> Al
		<sup>9</sup> Sc

SVE L1330502-01 Air

Collected by  
K Hoekstra

Collected date/time  
03/23/21 10:35

Received date/time  
03/25/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1640301	800	03/25/21 19:14	03/25/21 19:14	GLN	Mt. Juliet, TN
Organic Compounds (GC) by Method D1946	WG1641976	1	03/30/21 11:39	03/30/21 11:39	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

### Report Revision History

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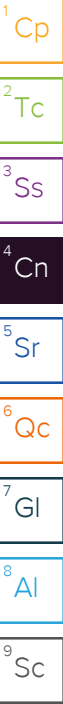
Level II Report - Version 1: 04/01/21 14:31

### Sample Delivery Group (SDG) Narrative

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Sample received in tedlar bag.

<u>Lab Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
<a href="#">L1330502-01</a>	<a href="#">SVE</a>	TO-15



Collected date/time: 03/23/21 10:35

L1330502

## 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
Acetone	67-64-1	58.10	1000	2380	ND	ND		800	<a href="#">WG1640301</a>
Allyl chloride	107-05-1	76.53	160	501	ND	ND		800	<a href="#">WG1640301</a>
Benzene	71-43-2	78.10	160	511	7960	25400		800	<a href="#">WG1640301</a>
Benzyl Chloride	100-44-7	127	160	831	ND	ND		800	<a href="#">WG1640301</a>
Bromodichloromethane	75-27-4	164	160	1070	ND	ND		800	<a href="#">WG1640301</a>
Bromoform	75-25-2	253	480	4970	ND	ND		800	<a href="#">WG1640301</a>
Bromomethane	74-83-9	94.90	160	621	ND	ND		800	<a href="#">WG1640301</a>
1,3-Butadiene	106-99-0	54.10	1600	3540	ND	ND		800	<a href="#">WG1640301</a>
Carbon disulfide	75-15-0	76.10	160	498	ND	ND		800	<a href="#">WG1640301</a>
Carbon tetrachloride	56-23-5	154	160	1010	ND	ND		800	<a href="#">WG1640301</a>
Chlorobenzene	108-90-7	113	160	739	ND	ND		800	<a href="#">WG1640301</a>
Chloroethane	75-00-3	64.50	160	422	ND	ND		800	<a href="#">WG1640301</a>
Chloroform	67-66-3	119	160	779	ND	ND		800	<a href="#">WG1640301</a>
Chloromethane	74-87-3	50.50	160	330	ND	ND		800	<a href="#">WG1640301</a>
2-Chlorotoluene	95-49-8	126	160	825	ND	ND		800	<a href="#">WG1640301</a>
Cyclohexane	110-82-7	84.20	160	551	44800	154000		800	<a href="#">WG1640301</a>
Dibromochloromethane	124-48-1	208	160	1360	ND	ND		800	<a href="#">WG1640301</a>
1,2-Dibromoethane	106-93-4	188	160	1230	ND	ND		800	<a href="#">WG1640301</a>
1,2-Dichlorobenzene	95-50-1	147	160	962	ND	ND		800	<a href="#">WG1640301</a>
1,3-Dichlorobenzene	541-73-1	147	160	962	ND	ND		800	<a href="#">WG1640301</a>
1,4-Dichlorobenzene	106-46-7	147	160	962	ND	ND		800	<a href="#">WG1640301</a>
1,2-Dichloroethane	107-06-2	99	160	648	ND	ND		800	<a href="#">WG1640301</a>
1,1-Dichloroethane	75-34-3	98	160	641	ND	ND		800	<a href="#">WG1640301</a>
1,1-Dichloroethene	75-35-4	96.90	160	634	ND	ND		800	<a href="#">WG1640301</a>
cis-1,2-Dichloroethene	156-59-2	96.90	160	634	ND	ND		800	<a href="#">WG1640301</a>
trans-1,2-Dichloroethene	156-60-5	96.90	160	634	ND	ND		800	<a href="#">WG1640301</a>
1,2-Dichloropropane	78-87-5	113	160	739	ND	ND		800	<a href="#">WG1640301</a>
cis-1,3-Dichloropropene	10061-01-5	111	160	726	ND	ND		800	<a href="#">WG1640301</a>
trans-1,3-Dichloropropene	10061-02-6	111	160	726	ND	ND		800	<a href="#">WG1640301</a>
1,4-Dioxane	123-91-1	88.10	160	577	ND	ND		800	<a href="#">WG1640301</a>
Ethanol	64-17-5	46.10	504	950	2710	5110		800	<a href="#">WG1640301</a>
Ethylbenzene	100-41-4	106	160	694	3220	14000		800	<a href="#">WG1640301</a>
4-Ethyltoluene	622-96-8	120	160	785	984	4830		800	<a href="#">WG1640301</a>
Trichlorofluoromethane	75-69-4	137.40	160	899	ND	ND		800	<a href="#">WG1640301</a>
Dichlorodifluoromethane	75-71-8	120.92	160	791	ND	ND		800	<a href="#">WG1640301</a>
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	160	1230	ND	ND		800	<a href="#">WG1640301</a>
1,2-Dichlorotetrafluoroethane	76-14-2	171	160	1120	ND	ND		800	<a href="#">WG1640301</a>
Heptane	142-82-5	100	160	654	62800	257000		800	<a href="#">WG1640301</a>
Hexachloro-1,3-butadiene	87-68-3	261	504	5380	ND	ND		800	<a href="#">WG1640301</a>
n-Hexane	110-54-3	86.20	504	1780	35000	123000		800	<a href="#">WG1640301</a>
Isopropylbenzene	98-82-8	120.20	160	787	402	1980		800	<a href="#">WG1640301</a>
Methylene Chloride	75-09-2	84.90	160	556	ND	ND		800	<a href="#">WG1640301</a>
Methyl Butyl Ketone	591-78-6	100	1000	4090	ND	ND		800	<a href="#">WG1640301</a>
2-Butanone (MEK)	78-93-3	72.10	1000	2950	ND	ND		800	<a href="#">WG1640301</a>
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1000	4090	ND	ND		800	<a href="#">WG1640301</a>
Methyl methacrylate	80-62-6	100.12	160	655	ND	ND		800	<a href="#">WG1640301</a>
MTBE	1634-04-4	88.10	160	577	ND	ND		800	<a href="#">WG1640301</a>
Naphthalene	91-20-3	128	504	2640	ND	ND		800	<a href="#">WG1640301</a>
2-Propanol	67-63-0	60.10	1000	2460	ND	ND		800	<a href="#">WG1640301</a>
Propene	115-07-1	42.10	320	551	ND	ND		800	<a href="#">WG1640301</a>
Styrene	100-42-5	104	160	681	ND	ND		800	<a href="#">WG1640301</a>
1,1,2,2-Tetrachloroethane	79-34-5	168	160	1100	ND	ND		800	<a href="#">WG1640301</a>
Tetrachloroethylene	127-18-4	166	160	1090	ND	ND		800	<a href="#">WG1640301</a>
Tetrahydrofuran	109-99-9	72.10	160	472	ND	ND		800	<a href="#">WG1640301</a>
Toluene	108-88-3	92.10	400	1510	47800	180000		800	<a href="#">WG1640301</a>
1,2,4-Trichlorobenzene	120-82-1	181	504	3730	ND	ND		800	<a href="#">WG1640301</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 03/23/21 10:35

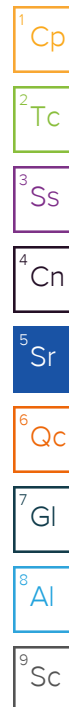
L1330502

## 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	160	870	ND	ND		800	<a href="#">WG1640301</a>
1,1,2-Trichloroethane	79-00-5	133	160	870	ND	ND		800	<a href="#">WG1640301</a>
Trichloroethylene	79-01-6	131	160	857	ND	ND		800	<a href="#">WG1640301</a>
1,2,4-Trimethylbenzene	95-63-6	120	160	785	416	2040		800	<a href="#">WG1640301</a>
1,3,5-Trimethylbenzene	108-67-8	120	160	785	718	3520		800	<a href="#">WG1640301</a>
2,2,4-Trimethylpentane	540-84-1	114.22	160	747	ND	ND		800	<a href="#">WG1640301</a>
Vinyl chloride	75-01-4	62.50	160	409	ND	ND		800	<a href="#">WG1640301</a>
Vinyl Bromide	593-60-2	106.95	160	700	ND	ND		800	<a href="#">WG1640301</a>
Vinyl acetate	108-05-4	86.10	160	563	ND	ND		800	<a href="#">WG1640301</a>
m&p-Xylene	1330-20-7	106	320	1390	29500	128000		800	<a href="#">WG1640301</a>
o-Xylene	95-47-6	106	160	694	5210	22600		800	<a href="#">WG1640301</a>
TPH (GC/MS) Low Fraction	8006-61-9	101	160000	661000	1390000	5740000		800	<a href="#">WG1640301</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		107				<a href="#">WG1640301</a>

## Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	5.00	21.0		1	<a href="#">WG1641976</a>
Carbon Monoxide	630-08-0	28	2.00	ND		1	<a href="#">WG1641976</a>
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	<a href="#">WG1641976</a>
Methane	74-82-8	16	0.400	ND		1	<a href="#">WG1641976</a>



Volatile Organic Compounds (MS) by Method TO-15

L1330502-01

Method Blank (MB)

(MB) R3635137-3 03/25/21 09:55

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.584	1.25
Allyl Chloride	U		0.114	0.200
Benzene	U		0.0715	0.200
Benzyl Chloride	0.0737	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
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
Isopropylbenzene	U		0.0777	0.200

<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

L1330502-01

Method Blank (MB)

(MB) R3635137-3 03/25/21 09:55

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
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	0.162	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	97.3			60.0-140

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3635137-1 03/25/21 08:35 • (LCSD) R3635137-2 03/25/21 09:16

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	4.24	4.31	113	115	55.0-148			1.64	25
Propene	3.75	4.19	4.37	112	117	64.0-144			4.21	25
Dichlorodifluoromethane	3.75	3.82	3.86	102	103	64.0-139			1.04	25
1,2-Dichlorotetrafluoroethane	3.75	3.90	3.87	104	103	70.0-130			0.772	25



Volatile Organic Compounds (MS) by Method TO-15

L1330502-01

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

(LCS) R3635137-1 03/25/21 08:35 • (LCSD) R3635137-2 03/25/21 09:16

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloromethane	3.75	4.15	4.15	111	111	70.0-130			0.000	25
Vinyl chloride	3.75	4.21	4.20	112	112	70.0-130			0.238	25
1,3-Butadiene	3.75	4.28	4.12	114	110	70.0-130			3.81	25
Bromomethane	3.75	3.99	3.92	106	105	70.0-130			1.77	25
Chloroethane	3.75	4.06	4.15	108	111	70.0-130			2.19	25
Trichlorofluoromethane	3.75	3.68	3.63	98.1	96.8	70.0-130			1.37	25
1,1,2-Trichlorotrifluoroethane	3.75	3.81	3.83	102	102	70.0-130			0.524	25
1,1-Dichloroethene	3.75	3.92	3.87	105	103	70.0-130			1.28	25
1,1-Dichloroethane	3.75	3.95	3.77	105	101	70.0-130			4.66	25
Acetone	3.75	4.04	4.10	108	109	70.0-130			1.47	25
2-Propanol	3.75	4.05	4.02	108	107	70.0-139			0.743	25
Carbon disulfide	3.75	3.73	3.83	99.5	102	70.0-130			2.65	25
Methylene Chloride	3.75	4.07	3.93	109	105	70.0-130			3.50	25
MTBE	3.75	3.77	3.84	101	102	70.0-130			1.84	25
trans-1,2-Dichloroethene	3.75	3.98	3.86	106	103	70.0-130			3.06	25
n-Hexane	3.75	3.96	3.77	106	101	70.0-130			4.92	25
Vinyl acetate	3.75	3.95	3.86	105	103	70.0-130			2.30	25
Methyl Ethyl Ketone	3.75	3.92	3.88	105	103	70.0-130			1.03	25
cis-1,2-Dichloroethene	3.75	3.96	3.93	106	105	70.0-130			0.760	25
Chloroform	3.75	3.75	3.73	100	99.5	70.0-130			0.535	25
Cyclohexane	3.75	3.83	3.86	102	103	70.0-130			0.780	25
1,1,1-Trichloroethane	3.75	3.76	3.63	100	96.8	70.0-130			3.52	25
Carbon tetrachloride	3.75	3.67	3.64	97.9	97.1	70.0-130			0.821	25
Benzene	3.75	3.82	3.77	102	101	70.0-130			1.32	25
1,2-Dichloroethane	3.75	3.87	3.88	103	103	70.0-130			0.258	25
Heptane	3.75	3.93	4.12	105	110	70.0-130			4.72	25
Trichloroethylene	3.75	3.69	3.84	98.4	102	70.0-130			3.98	25
1,2-Dichloropropane	3.75	4.02	3.91	107	104	70.0-130			2.77	25
1,4-Dioxane	3.75	3.62	3.60	96.5	96.0	70.0-140			0.554	25
Bromodichloromethane	3.75	3.73	3.86	99.5	103	70.0-130			3.43	25
cis-1,3-Dichloropropene	3.75	3.86	3.88	103	103	70.0-130			0.517	25
4-Methyl-2-pentanone (MIBK)	3.75	4.18	4.15	111	111	70.0-139			0.720	25
Toluene	3.75	3.85	3.82	103	102	70.0-130			0.782	25
trans-1,3-Dichloropropene	3.75	3.88	3.94	103	105	70.0-130			1.53	25
1,1,2-Trichloroethane	3.75	3.74	3.78	99.7	101	70.0-130			1.06	25
Tetrachloroethylene	3.75	3.62	3.67	96.5	97.9	70.0-130			1.37	25
Methyl Butyl Ketone	3.75	4.03	4.10	107	109	70.0-149			1.72	25
Dibromochloromethane	3.75	3.72	3.74	99.2	99.7	70.0-130			0.536	25
1,2-Dibromoethane	3.75	3.71	3.77	98.9	101	70.0-130			1.60	25
Chlorobenzene	3.75	3.78	3.83	101	102	70.0-130			1.31	25

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) R3635137-1 03/25/21 08:35 • (LCSD) R3635137-2 03/25/21 09:16

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Ethylbenzene	3.75	3.70	3.75	98.7	100	70.0-130			1.34	25
m&p-Xylene	7.50	7.44	7.43	99.2	99.1	70.0-130			0.135	25
o-Xylene	3.75	3.70	3.67	98.7	97.9	70.0-130			0.814	25
Styrene	3.75	3.70	3.74	98.7	99.7	70.0-130			1.08	25
Bromoform	3.75	3.63	3.66	96.8	97.6	70.0-130			0.823	25
1,1,2,2-Tetrachloroethane	3.75	3.75	3.78	100	101	70.0-130			0.797	25
4-Ethyltoluene	3.75	3.75	3.66	100	97.6	70.0-130			2.43	25
1,3,5-Trimethylbenzene	3.75	3.83	3.76	102	100	70.0-130			1.84	25
1,2,4-Trimethylbenzene	3.75	3.77	3.79	101	101	70.0-130			0.529	25
1,3-Dichlorobenzene	3.75	3.70	3.75	98.7	100	70.0-130			1.34	25
1,4-Dichlorobenzene	3.75	3.73	3.73	99.5	99.5	70.0-130			0.000	25
Benzyl Chloride	3.75	3.76	3.78	100	101	70.0-152			0.531	25
1,2-Dichlorobenzene	3.75	3.68	3.69	98.1	98.4	70.0-130			0.271	25
1,2,4-Trichlorobenzene	3.75	3.92	3.95	105	105	70.0-160			0.762	25
Hexachloro-1,3-butadiene	3.75	3.66	3.64	97.6	97.1	70.0-151			0.548	25
Naphthalene	3.75	3.80	3.81	101	102	70.0-159			0.263	25
TPH (GC/MS) Low Fraction	203	234	232	115	114	70.0-130			0.858	25
Allyl Chloride	3.75	4.42	3.89	118	104	70.0-130			12.8	25
2-Chlorotoluene	3.75	3.66	3.66	97.6	97.6	70.0-130			0.000	25
Methyl Methacrylate	3.75	3.65	3.73	97.3	99.5	70.0-130			2.17	25
Tetrahydrofuran	3.75	4.00	4.04	107	108	70.0-137			0.995	25
2,2,4-Trimethylpentane	3.75	3.93	3.90	105	104	70.0-130			0.766	25
Vinyl Bromide	3.75	3.76	3.77	100	101	70.0-130			0.266	25
Isopropylbenzene	3.75	3.71	3.72	98.9	99.2	70.0-130			0.269	25
(S) 1,4-Bromofluorobenzene				98.6	98.9	60.0-140				

<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

Organic Compounds (GC) by Method D1946

L1330502-01

Method Blank (MB)

(MB) R3636275-3 03/30/21 11:25

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Oxygen	U		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) R3636275-1 03/30/21 11:07 • (LCSD) R3636275-2 03/30/21 11:18

Analyte	Spike Amount %	LCS Result %	LCSD Result %	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Oxygen	20.0	22.8	21.8	114	109	70.0-130			4.48	20
Carbon Monoxide	2.50	2.83	2.69	113	108	70.0-130			5.07	20
Carbon Dioxide	2.50	2.43	2.33	97.2	93.2	70.0-130			4.20	20
Methane	2.00	2.13	2.08	107	104	70.0-130			2.38	20

<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

## 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.

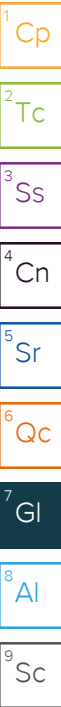
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

J	The identification of the analyte is acceptable; the reported value is an estimate.
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## 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

[illegible]



**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 27022

**CONDITIONS**

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 27022
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

**CONDITIONS**

Created By	Condition	Condition Date
csmith	Q1 2021 SVE Report Accepted for Record	7/6/2022