

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nVF1828341427
District RP	
Facility ID	
Application ID	

Release Notification

NMOCD

NOV 29 2018

DISTRICT III

Responsible Party

Responsible Party Hilcorp Energy Company	OGRID - 372171
Contact Name Jennifer Deal	Contact Telephone (505) 801-6517
Contact email jdeal@hilcorp.com	Incident # nVF1828341427
Contact mailing address 382 Road 3100, Aztec NM 87410	

Location of Release Source

Latitude 36.7962799 Longitude -108.0538712
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Jose Jaquez 1	Site Type Gas Well
Date Release Discovered 9/30/2018 @ 10:30am	API# 30-045-09341

Unit Letter	Section	Township	Range	County
K	24	30N	12W	San Juan

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input checked="" type="checkbox"/> Other (describe) Screw Oil	Volume/Weight Released (provide units) ~3 gallons	Volume/Weight Recovered (provide units)

Cause of Release

A release of ~3 gallons of screw oil was discovered by the landowner who called it in to the SJC Emergency dispatch. Hilcorp was notified and the operator went to location. It was discovered that the compressor was installed incorrectly and the compressor blew down and sprayed screw oil on approximately 5'x5' area inside the location's fence and an 11'x5' are on the landowners property for a total area of 16'x5'. Operator shut in the compressor.

38

Fields, Vanessa, EMNRD

From: Fields, Vanessa, EMNRD
Sent: Thursday, November 29, 2018 8:14 AM
To: Jennifer Deal
Cc: Smith, Cory, EMNRD
Subject: RE: Final C-141 - Jose Jaquez 1 Determining Groundwater

Good morning Jennifer,

I have reviewed the final C-141 and everything looks good except HilCorps determination of depth to groundwater.

I have provided what I have determined depth to ground water to be at the Jose Jaquez #001.

Jose Jaquez #001 elevation 5535'

McDonald Well SJ 02616 well depth to groundwater is 5' with an elevation of 5523

Total: subtract $5535 - 5523 = 12'$ + 5' groundwater = 17' depth to groundwater at the Jose Jaquez #001.

Please let me know if you have any questions.



Thank you,
Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119
Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Jennifer Deal <jdeal@hilcorp.com>

Sent: Tuesday, November 27, 2018 4:46 PM

To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>

Subject: [EXT] Final C-141 - Jose Jaquez 1

Good afternoon,

Please find attached the final C-141 and report for the release that occurred at the Jose Jaquez #1. A paper copy will be mailed out tomorrow. Let me know if you have any questions.

Thank you,

Jennifer Deal

Environmental Specialist

Hilcorp Energy – L48 West

jdeal@hilcorp.com

382 Road 3100

Aztec, NM 87410

Office: (505) 324-5128

Cell: (505) 801-6517

Incident ID	nVF1828341427
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

GWD 12

What is the shallowest depth to groundwater beneath the area affected by the release?	254 (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: Each of the following items must be included in the report.

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Incident ID	nVF1828341427
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Jennifer Deal Title: Environmental Specialist

Signature:  Date: 11/27/2018

email: jdeal@hilcorp.com Telephone: (505) 324-5128

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nVF1828341427
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Jennifer Deal Title: Environmental Specialist

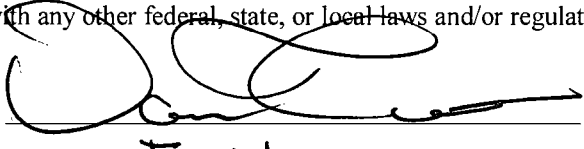
Signature:  Date: 11/27/2018

email: jdeal@hilcorp.com Telephone: 505-801-6517

OCD Only

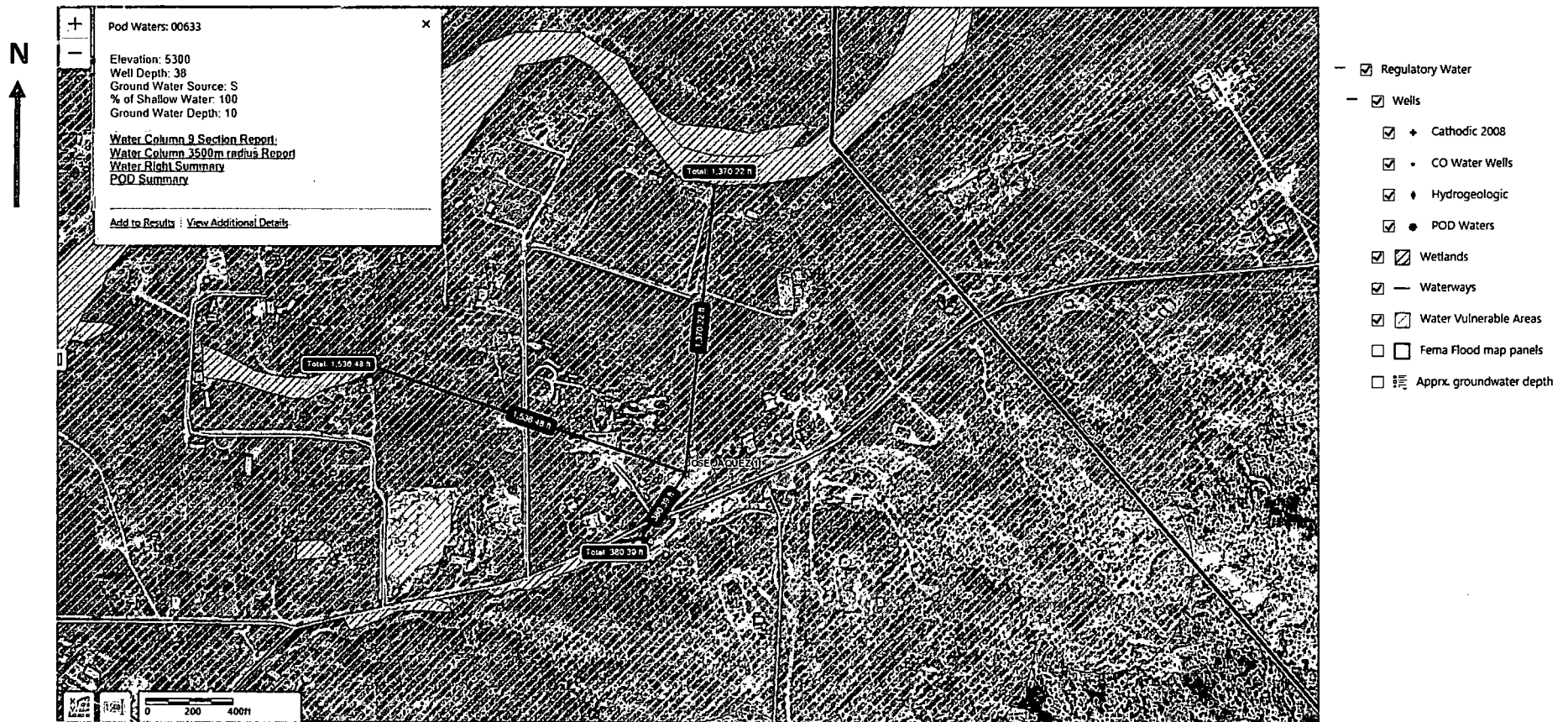
Received by: Vanessa Fields Date: 11/29/2018

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

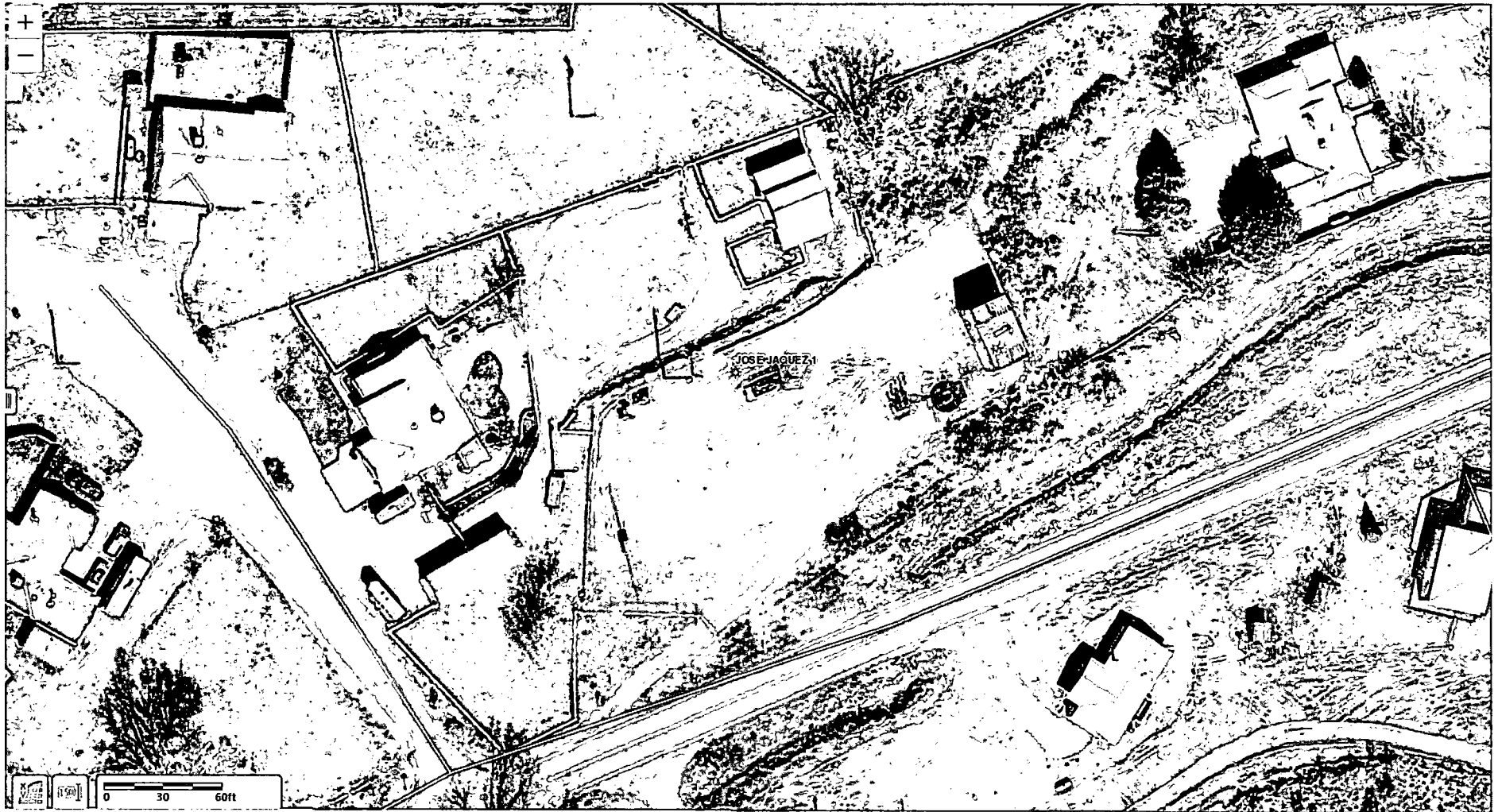
Closure Approved by:  Date: 11/29/2018
Printed Name: Vanessa Fields Title: Environmental Specialist

COT = Depth to Ground Water 17'

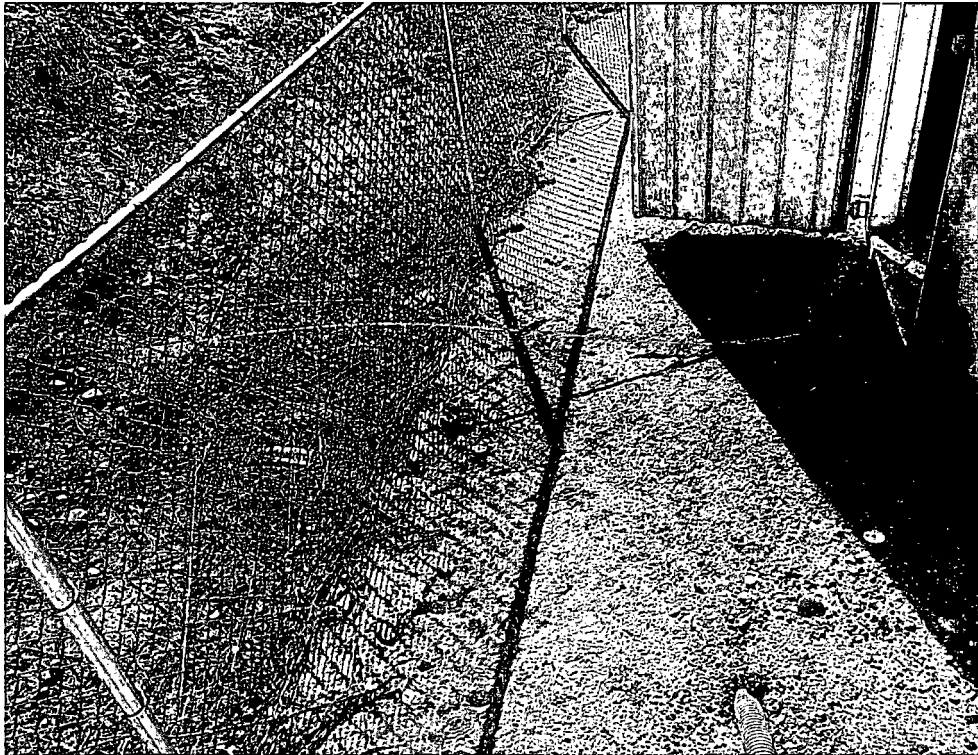
Jose Jaquez #1 – Considered a major release due to distance from residential area <200 ft and spray affected landowners land. Depth to ground water is 254ft/bgs ($5524 - 5300 = 224 + 30 = 254$)



Jose Jaquez 1 – Aerial/Facility Layout



Pictures of release



Pictures of Release



Depth to water determination



New Mexico Office of the State Engineer Water Column/Average Depth to Water

(A CLW##### in the
POD suffix indicates the
POD has been replaced
& no longer serves a
water right file.)

(R=POD has been
replaced,
O=orphaned,
C=the file is
closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q	Q	Q	Sec	Tws	Range	X	Y	Depth Well	Depth Water	Water Column
<u>SJ 00404</u>		SJAR	SJ	3	1	3	24	30N	12W	227165	4076515*	54	44	10
<u>SJ 00633</u>		SJAR	SJ		3	1	24	30N	12W	227279	4077017*	38	10	28
<u>SJ 00686</u>		SJAR	SJ	1	1	3	24	30N	12W	227165	4076715*	20	10	10
<u>SJ 00691</u>		SJAR	SJ		1	3	24	30N	12W	227266	4076616*	30	15	15
<u>SJ 01511</u>		SJAR	SJ		2	3	24	30N	12W	227667	4076601*	60	30	30
<u>SJ 01680</u>		SJAR	SJ		4	2	24	30N	12W	228485	4076972*	22	4	18
<u>SJ 01681</u>		SJAR	SJ		4	2	24	30N	12W	228485	4076972*	22	4	18
<u>SJ 01682</u>		SJAR	SJ		4	1	24	30N	12W	227680	4077002*	22	4	18
<u>SJ 02616</u>		SJAR	SJ		4	1	24	30N	12W	227680	4077002*	27	5	22

Average Depth to Water: 14 feet

Minimum Depth: 4 feet

Maximum Depth: 44 feet

Record Count: 9

FLSS Search:

Section(s): 24

Township: 30N

Range: 12W

*UTM location was derived from FLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

11/27/18 1:19 PM

WATER COLUMN/ AVERAGE DEPTH
TO WATER

Remediation Action

- Hilcorp Energy cleaned up the affected areas and confirmation sampling occurred on 10/2/18 where two composite samples were taken (Sample A & B 10/2). Sample A came back under NMOCD standards but Sample B did not.
- Additional clean up was done and confirmation sampling occurred on 10/31/18 where one composite sample was taken (Sample B 10/31). This sample came back under NMOCD standards

Data table of soil contaminant concentration data

SOIL ANALYTICAL RESULTS

JOSE JAQUEZ I

HIL CORP ENERGY - L48 WEST

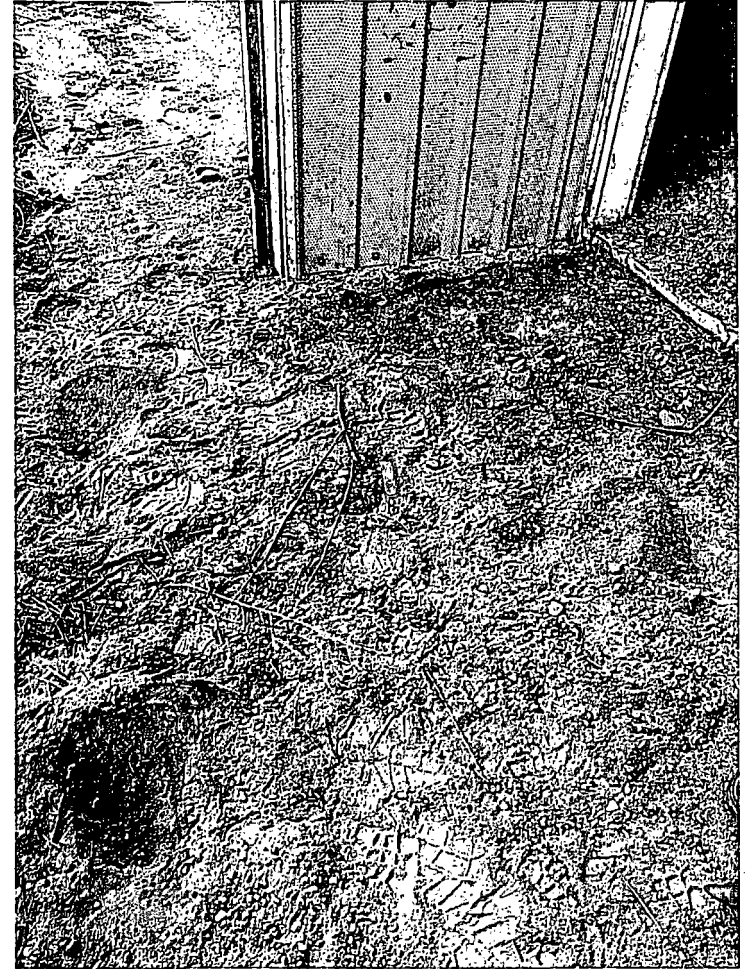
Soil Sample Identification	Sample Date	Field Headspace	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes	Total BTEX	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH (mg/kg)
Sample A - Landowner	10/2/2018		<0.0005	<0.005	<0.0005	<0.0015	<0.005	<0.10	10.90	55.90	66.80
Sample B - Well site	10/2/2018		<0.0005	<0.005	<0.0005	<0.0015	<0.005	<0.10	55.40	217.00	272.40
Sample B - Well site	10/31/2018		0.00057	<0.005	<0.0005	<0.0015	<0.005	<0.10	<4.00	7.92	7.92
NMOCD Standards		NE	10	NE	NE	NE	50	NE	NE	NE	100

Photographs – 10/2/18 Sampling Event

Sample A – Landowner Side

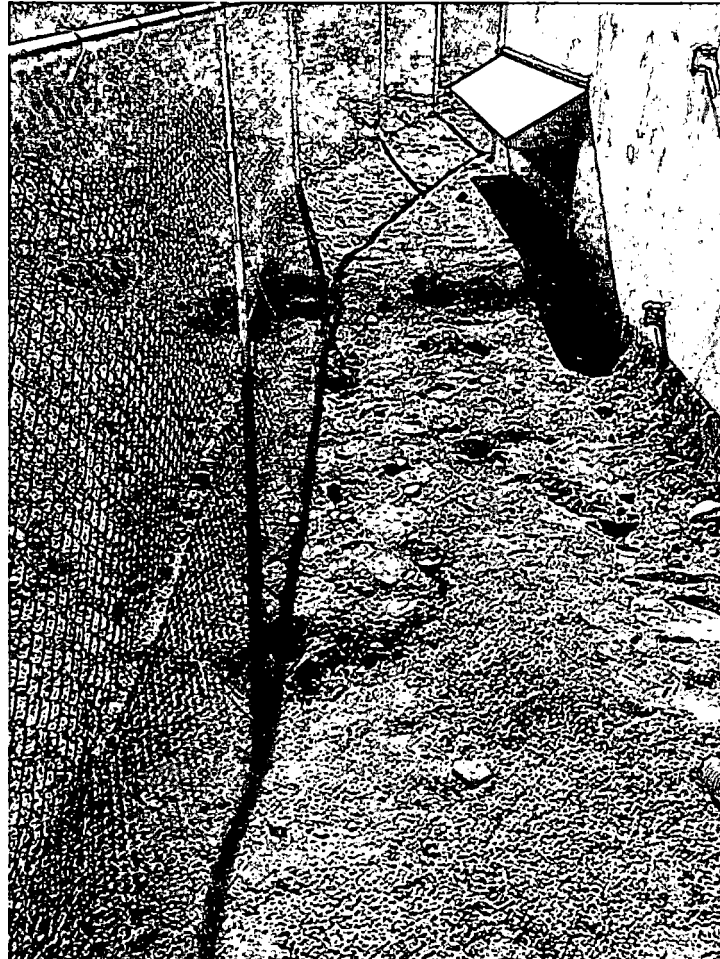


Sample B – East side of Compressor Building

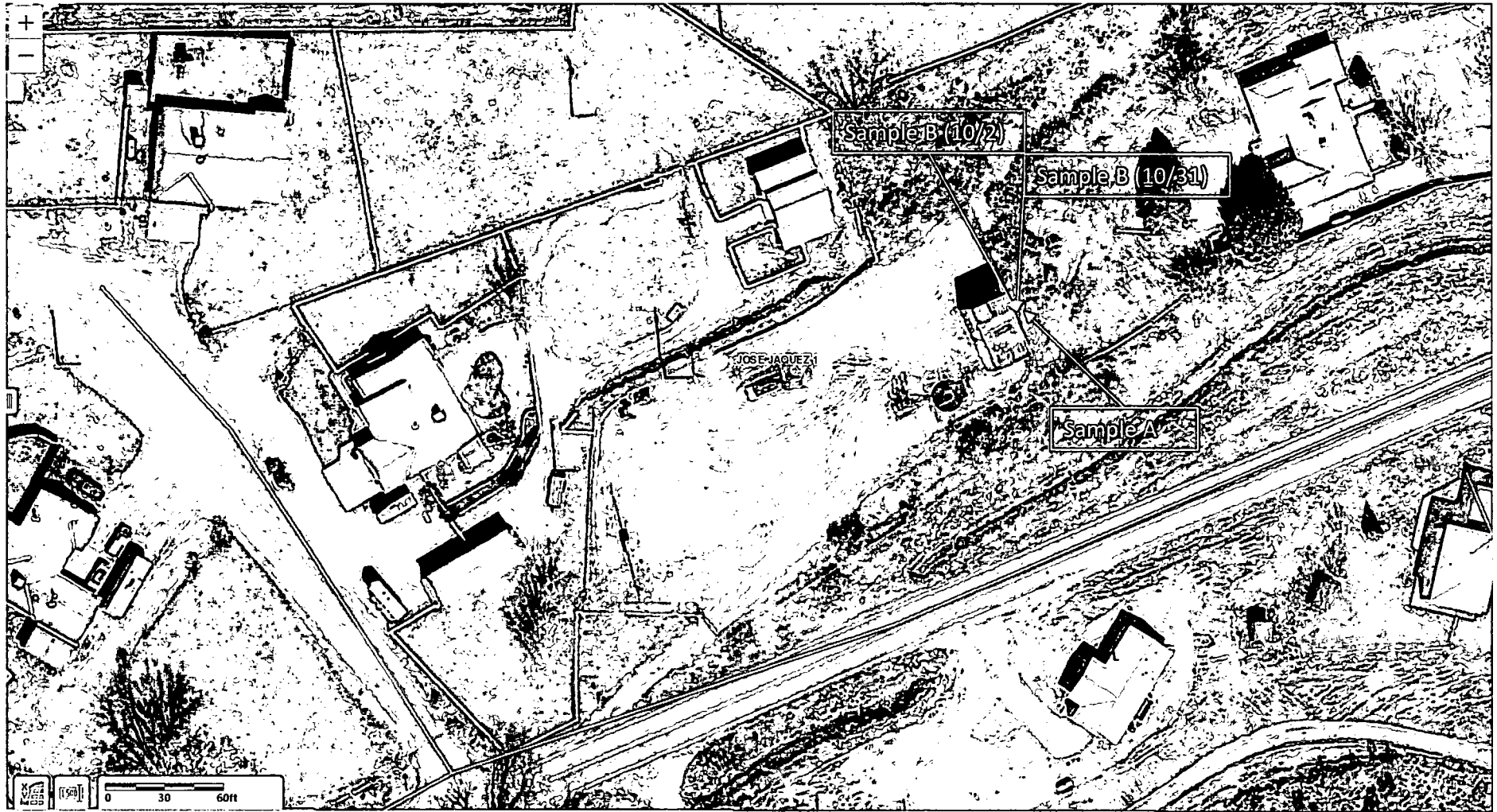


Photographs – 10/31/18 Sampling Event

Sample B - East Side of Compressor



Aerial Map of Sample Points



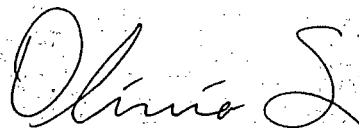
ANALYTICAL REPORT

October 09, 2018

HilCorp-Farmington, NM

Sample Delivery Group: L1031853
Samples Received: 10/04/2018
Project Number:
Description:
Site: JOSE JAQUEZ #1
Report To: Jennifer Deal
382 Road 3100
Aztec, NM 87401

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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

ONE LAB. NATIONWIDE.



Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
SAMPLE A L1031853-01	5
SAMPLE B L1031853-02	6
Qc: Quality Control Summary	7
Volatile Organic Compounds (GC) by Method 8015/8021	7
Semi-Volatile Organic Compounds (GC) by Method 8015	8
Gl: Glossary of Terms	9
Al: Accreditations & Locations	10
Sc: Sample Chain of Custody	11

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

SAMPLE SUMMARY

ONE LAB: NATIONWIDE.



SAMPLE A L1031853-01 Solid

			Collected by	Collected date/time	Received date/time
			Josh Jones	10/02/18 09:36	10/04/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015/8021	WG1176259	1	10/05/18 10:23	10/05/18 14:10	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1177890	1	10/08/18 21:26	10/09/18 09:13	AAT

¹ Cp

² Tc

SAMPLE B L1031853-02 Solid

			Collected by	Collected date/time	Received date/time
			Josh Jones	10/02/18 09:35	10/04/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015/8021	WG1176259	1	10/05/18 10:23	10/05/18 14:32	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1177890	1	10/08/18 21:26	10/09/18 09:38	AAT

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ 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

¹ Cp² Tc³ Ss⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.000500	1	10/05/2018 14:10	WG1176259
Toluene	ND		0.00500	1	10/05/2018 14:10	WG1176259
Ethylbenzene	ND		0.000500	1	10/05/2018 14:10	WG1176259
Total Xylene	ND		0.00150	1	10/05/2018 14:10	WG1176259
TPH (GC/FID) Low Fraction	ND		0.100	1	10/05/2018 14:10	WG1176259
(S) o,a,o-Trifluorotoluene(FID)	96.2		77.0-120		10/05/2018 14:10	WG1176259
(S) o,a,o-Trifluorotoluene(PID)	97.6		72.0-128		10/05/2018 14:10	WG1176259

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	10.9		4.00	1	10/09/2018 09:13	WG1177890
C28-C40 Oil Range	55.9		4.00	1	10/09/2018 09:13	WG1177890
(S) o-Terphenyl	99.5		18.0-148		10/09/2018 09:13	WG1177890

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.000500	1	10/05/2018 14:32	WG1176259
Toluene	ND		0.00500	1	10/05/2018 14:32	WG1176259
Ethylbenzene	ND		0.000500	1	10/05/2018 14:32	WG1176259
Total Xylene	ND		0.00150	1	10/05/2018 14:32	WG1176259
TPH (GC/FID) Low Fraction	ND		0.100	1	10/05/2018 14:32	WG1176259
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	96.8		77.0-120		10/05/2018 14:32	WG1176259
(S) <i>a,a,a</i> -Trifluorotoluene(PID)	98.2		72.0-128		10/05/2018 14:32	WG1176259

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	55.4		4.00	1	10/09/2018 09:38	WG1177890
C28-C40 Oil Range	217		4.00	1	10/09/2018 09:38	WG1177890
(S) <i>a</i> -Terphenyl	87.6		18.0-148		10/09/2018 09:38	WG1177890

Method Blank (MB)

(MB) R3348333-4 10/05/18 12:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	U		0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	0.0334	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	101			77.0-120
(S) a,a,a-Trifluorotoluene(PID)	102			72.0-128

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

(LCS) R3348333-1 10/05/18 10:13 • (LCSD) R3348333-2 10/05/18 10:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0472	0.0480	94.4	96.1	76.0-121			1.77	20
Toluene	0.0500	0.0482	0.0492	96.4	98.4	80.0-120			2.04	20
Ethylbenzene	0.0500	0.0472	0.0487	94.3	97.4	80.0-124			3.18	20
Total Xylene	0.150	0.147	0.151	97.8	101	37.0-160			2.96	20
(S) a,a,a-Trifluorotoluene(FID)				100	100	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				101	101	72.0-128				

Laboratory Control Sample (LCS)

(LCS) R3348333-3 10/05/18 11:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.07	92.2	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			103	77.0-120	
(S) a,a,a-Trifluorotoluene(PID)			109	72.0-128	

WG1177890

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

Semi-Volatile Organic Compounds (GC) by Method 8015

L1031853-01.02

Method Blank (MB)

(MB) R3348890-1 10/09/18 08:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	82.3			18.0-148

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

(LCS) R3348890-2 10/09/18 08:48 • (LCSD) R3348890-3 10/09/18 09:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	37.5	35.9	75.0	71.8	50.0-150			4.36	20
(S) o-Terphenyl				87.8	86.5	18.0-148				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

7 GI

8 AI

9 Sc

ACCOUNT:

PROJECT:

SDG:

DATE/TIME:

PAGE:



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.

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.
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.
---	---

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

8 Al

9 Sc



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

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

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA - ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA - ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

Our Locations

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



ANALYTICAL REPORT

November 08, 2018

HilCorp-Farmington, NM

Sample Delivery Group: L1039915
Samples Received: 11/01/2018
Project Number: JOSE JAQUEZ #1
Description:

Report To: Jennifer Deal
382 Road 3100
Aztec, NM 87401

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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

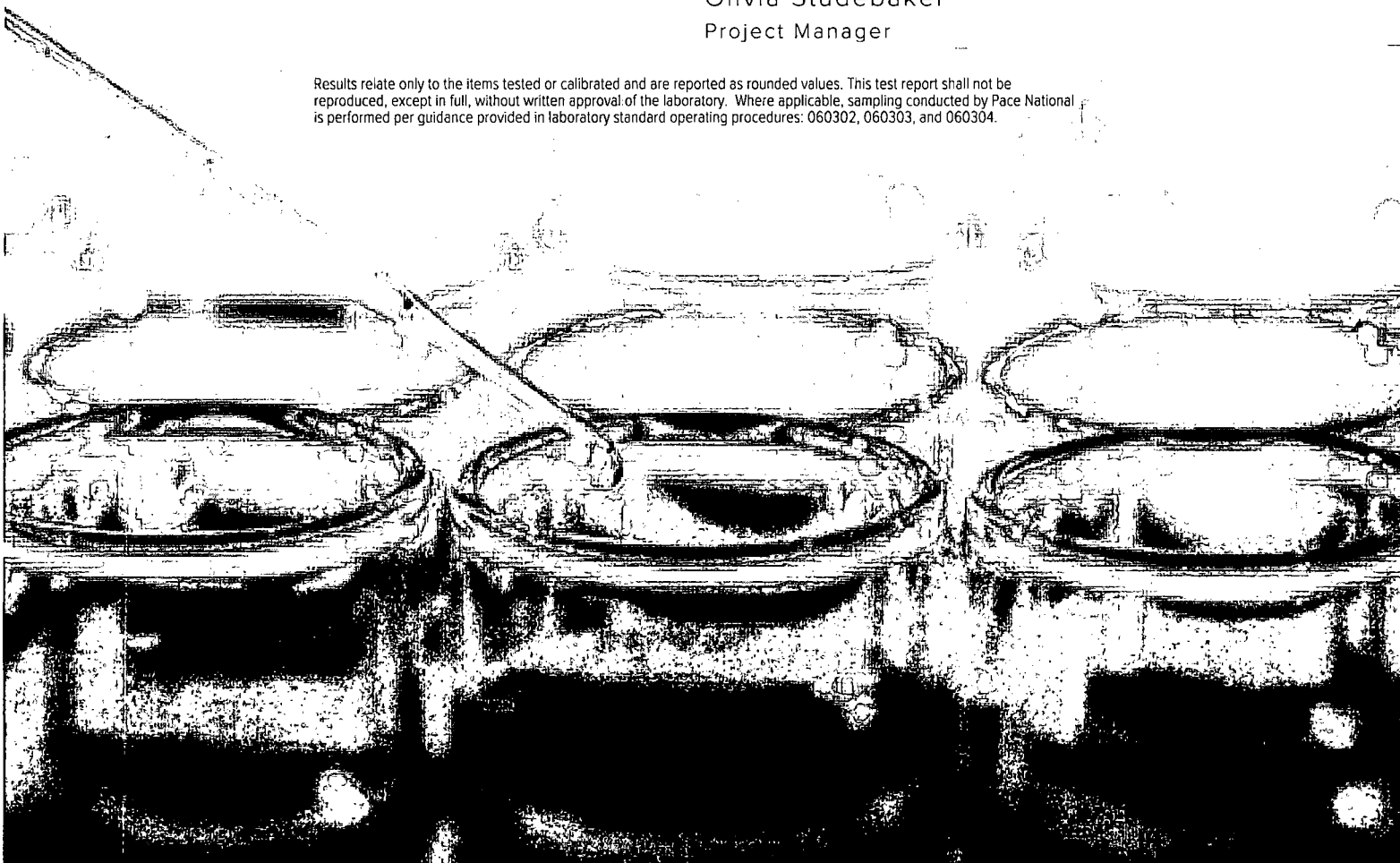


TABLE OF CONTENTS

ONE LAB. NATIONWIDE.



Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
SAMPLE B L1039915-01	5	⁴ Cn
Qc: Quality Control Summary	6	
Volatile Organic Compounds (GC) by Method 8015/8021	6	⁵ Sr
Semi-Volatile Organic Compounds (GC) by Method 8015	8	
Gl: Glossary of Terms	9	⁶ Qc
Al: Accreditations & Locations	10	⁷ Gl
Sc: Sample Chain of Custody	11	⁸ Al
		⁹ Sc

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



SAMPLE B L1039915-01 Solid

Collected by
KurtCollected date/time
10/31/18 09:10Received date/time
11/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015/8021	WG1191333	1	11/01/18 13:57	11/06/18 04:11	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1191819	1	11/05/18 20:55	11/06/18 16:49	KME

¹ Cp² Tc⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ 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

¹ Cp² Tc³ Ss⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Collected date/time: 10/31/18 09:10

L1039915

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000568	B	0.000500	1	11/06/2018 04:11	WG1191333
Toluene	ND		0.00500	1	11/06/2018 04:11	WG1191333
Ethylbenzene	ND		0.000500	1	11/06/2018 04:11	WG1191333
Total Xylene	ND		0.00150	1	11/06/2018 04:11	WG1191333
TPH (GC/FID) Low Fraction	ND		0.100	1	11/06/2018 04:11	WG1191333
(S) o,a,a-Trifluorotoluene(FID)	90.4		77.0-120		11/06/2018 04:11	WG1191333
(S) o,a,a-Trifluorotoluene(PID)	86.0		72.0-128		11/06/2018 04:11	WG1191333

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	11/06/2018 16:49	WG1191819
C28-C40 Oil Range	7.92		4.00	1	11/06/2018 16:49	WG1191819
(S) o-Terphenyl	67.5		18.0-148		11/06/2018 16:49	WG1191819

Method Blank (MB)

(MB) R3357300-5 11/06/18 01:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000449	J	0.000120	0.000500
Toluene	0.000505	J	0.000150	0.00500
Ethylbenzene	0.000182	J	0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	92.6			77.0-120
(S) a,a,a-Trifluorotoluene(PID)	87.4			72.0-128

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

(LCS) R3357300-1 11/05/18 23:56 • (LCSD) R3357300-2 11/06/18 00:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0427	0.0469	85.4	93.7	76.0-121			9.35	20
Toluene	0.0500	0.0435	0.0476	87.1	95.3	80.0-120			8.98	20
Ethylbenzene	0.0500	0.0425	0.0467	85.0	93.5	80.0-124			9.50	20
Total Xylene	0.150	0.132	0.145	87.7	96.3	37.0-160			9.42	20
(S) a,a,a-Trifluorotoluene(FID)				92.3	91.9	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				86.4	85.7	72.0-128				

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

(LCS) R3357300-3 11/06/18 00:39 • (LCSD) R3357300-4 11/06/18 01:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.45	5.53	99.1	101	72.0-127			1.57	20
(S) a,a,a-Trifluorotoluene(FID)				106	107	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				97.7	97.9	72.0-128				

L1040461-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1040461-02 11/06/18 10:10 • (MS) R3357300-6 11/06/18 10:32 • (MSD) R3357300-7 11/06/18 10:53

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	ND	2.98	3.01	59.1	59.5	100	10.0-155			0.740	32
Toluene	0.0500	ND	3.19	3.35	63.0	66.2	100	10.0-160			4.76	34
Ethylbenzene	0.0500	ND	3.63	4.11	72.5	82.3	100	10.0-160			12.6	32
Total Xylene	0.150	2.59	13.0	19.5	69.5	113	100	10.0-160	J6	J3	39.7	32
(S)					91.4	91.1		77.0-120				
a,a,a-Trifluorotoluene(FID)												
(S)					84.3	85.3		72.0-128				
a,a,a-Trifluorotoluene(PID)												

L1040461-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1040461-02 11/06/18 10:10 • (MS) R3357300-8 11/06/18 11:14 • (MSD) R3357300-9 11/06/18 11:35

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	135	295	274	29.1	25.3	100	10.0-151			7.33	28
(S)					90.1	90.9		77.0-120				
a,a,a-Trifluorotoluene(FID)												
(S)					88.6	88.8		72.0-128				
a,a,a-Trifluorotoluene(PID)												

WG1191819

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

Semi-Volatile Organic Compounds (GC) by Method 8015

L1039915-01

Method Blank (MB)

(MB) R3357494-1 11/06/18 15:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	83.2			18.0-148

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

(LCS) R3357494-2 11/06/18 15:22 • (LCSD) R3357494-3 11/06/18 15:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	32.1	34.6	64.2	69.2	50.0-150			7.50	20
(S) o-Terphenyl				80.6	91.0	18.0-148				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

7 Gl

8 Al

9 Sc

ACCOUNT:

PROJECT:

SDG:

DATE/TIME:

PAGE:



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.

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.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
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.
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

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

8 Al

9 Sc



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

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

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

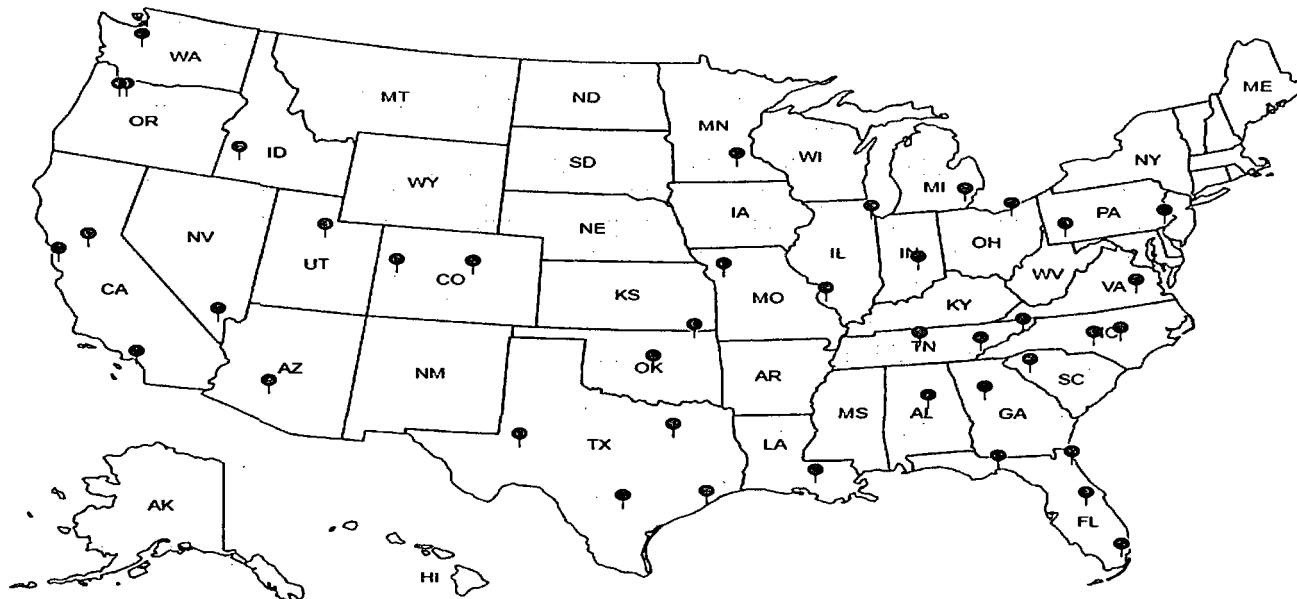
Third Party Federal Accreditations

A2LA - ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA - ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

Our Locations

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



—

$T_c = 1.402$