

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	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Hilcorp Energy	OGRID 372171
Contact Name Clara Cardoza	Contact Telephone 505.564.0733
Contact email ccardoza@hilcorp.com	Incident # (assigned by OCD)NCS1909331514
Contact mailing address 382 CR 3100, Aztec NM 87410	

Location of Release Source

NMOCD

MAY 23 2019

Latitude 36.7374039 Longitude -107.9133835
(NAD 83 in decimal degrees to 5 decimal places)

DISTRICT III

Site Name San Juan Nye Federal 1	Site Type Gas Well
Date Release Discovered 4/2/2019	API# (if applicable) 30-045-11994

Unit Letter	Section	Township	Range	County
L	08	29N	10W	San Juan

DENIED

see Email

BY: Cory Smith
DATE: 6/20/19 (505) 334-6178 Ext. 115

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 checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 85	Volume Recovered (bbls) 0
	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 type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
Release due to corrosion at the bottom of the BGT

22

Smith, Cory, EMNRD

From: Smith, Cory, EMNRD
Sent: Thursday, June 20, 2019 3:17 PM
To: 'Clara Cardoza'
Subject: RE: Release: Nye Federal 1 API 30-045-11994

Clara,

OCD has reviewed the Closure report for the Nye Federal #1 and has denied it for the following

- Depth To water determination is insufficient (Operator may not reference another permit for water information. Operator Can use that data however it needs to be included in the closure packet)
- No site Diagram per 19.15.29.12 NMAC
- No details of remedial activity (Executive summary)
- Estimated sample size does not meet the requirements of 19.15.29.12 NMAC Was HEC given approval for alternative sampling size? If so when and by whom?

Some notes on this site per 19.15.29 remember the top 4' of soils must be below 600 mg/kg or background whichever is higher for chlorides regardless of the closure standard. I also reviewed the BGT permit which is not approved just scanned into the system. The permit says its estimated depth to water based on iwaters and cathodic wells I don't see any cathodic data in the packet. Looking at the aerial vegetation and size of the arroyo I suspect ground water is 50/100' I would recommend looking for better ground water data.

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Smith, Cory, EMNRD
Sent: Wednesday, April 3, 2019 9:17 AM
To: 'Clara Cardoza' <ccardoza@hilcorp.com>; Abiodun Adeloje <aadeloje@blm.gov>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>
Cc: Powell, Brandon, EMNRD <Brandon.Powell@state.nm.us>
Subject: RE: Release: Nye Federal 1 API 30-045-11994

Clara,

OCD has assigned this the below highlighted incident# to the release. Please include it on any future communications/submitalls

NCS1909331514 NYE FEDERAL #001 @ 30-045-11994

General Incident Information

Site Name: NYE FEDERAL #001
Well: [30-045-11994] NYE FEDERAL #001
Facility:
Operator: [372171] HILCORP ENERGY COMPANY
Status: Closure Not Approved
Type: Produced Water Release
District: Aztec

Incident Location: L-08-29N-10W Lot: 0 FNL 0 FEL
Lat/Long: 36.737401,-107.91338 NAD83

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Clara Cardoza <ccardoza@hilcorp.com>
Sent: Wednesday, April 3, 2019 9:11 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Abiodun Adeloje <aadeloje@blm.gov>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>
Cc: Powell, Brandon, EMNRD <Brandon.Powell@state.nm.us>
Subject: [EXT] Release: Nye Federal 1 API 30-045-11994

Please let this serve as a follow-up email for the Hilcorp Energy Nye Federal #1

What: 85 bbls Produced Water
Discovered: 4/2/2019 11:15 a.m.
Cause: corrosion on bottom of BGT
Lat/Long: 36.73740, -107.91338
S 8 T29N R 10W Unit L
Contents remained on site within the containment – no liquid was recovered.

Please let me know if you have any questions.

Thank you,

Clara M Cardoza
Environmental Specialist
505-564-0733 (O)
505-793-2784 (C)

 Please consider the environment before printing this e-mail

Incident ID	
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Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? An unauthorized release of a volume, excluding gases, of 25 barrels or more
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? 4/3/19 to Cory Smith at 8:45 a.m. and 4/3/2019 to Emmanuel Adeloye at 8:40 a.m. by Clara Cardoza via phone to both. Email follow-up to Cory Smith, Emmanuel Adeloye and Jim Griswold 4/3/2019 @ 9:11 a.m.	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
If all the actions described above have <u>not</u> been undertaken, explain why:
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
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: <u>Clara Cardoza</u> Title: <u>Environmental Specialist</u> Signature: <u></u> Date: <u>5/20/2019</u> email: <u>ccardoza@hilcorp.com</u> Telephone: <u>505.564.0733</u>
<u>OCD Only</u> Received by: _____ Date: _____

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Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>>100 ft</u> (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 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 type="checkbox"/> Yes <input checked="" 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.*

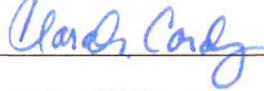
- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within ½-mile of the 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.

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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: Clara Cardoza Title: Environmental Specialist

Signature:  Date: 5/20/2019

email: ccardoza@hilcorp.com Telephone: 505.564.0733

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

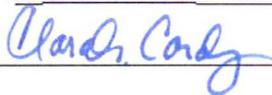
Closure

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: Clara Cardoza Title: Environmental Specialist
 Signature:  Date: 5/20/2019
 email: ccardoza@hilcorp.com Telephone: 505.564.0733

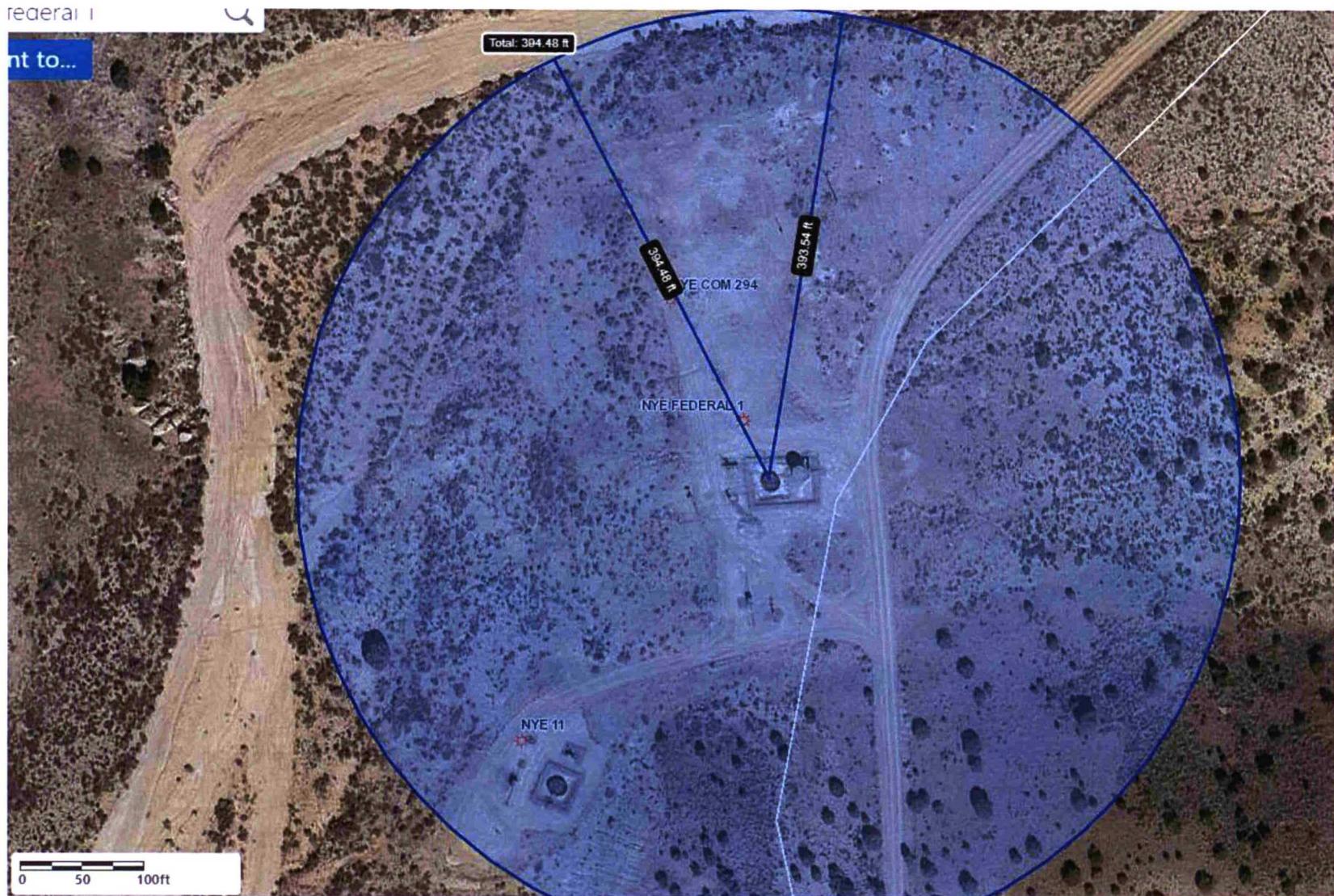
OCD Only

Received by: 6/23/19 ODC Date: _____

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: _____
 Printed Name: _____ Title: _____

Distance to watercourse



Depth to groundwater

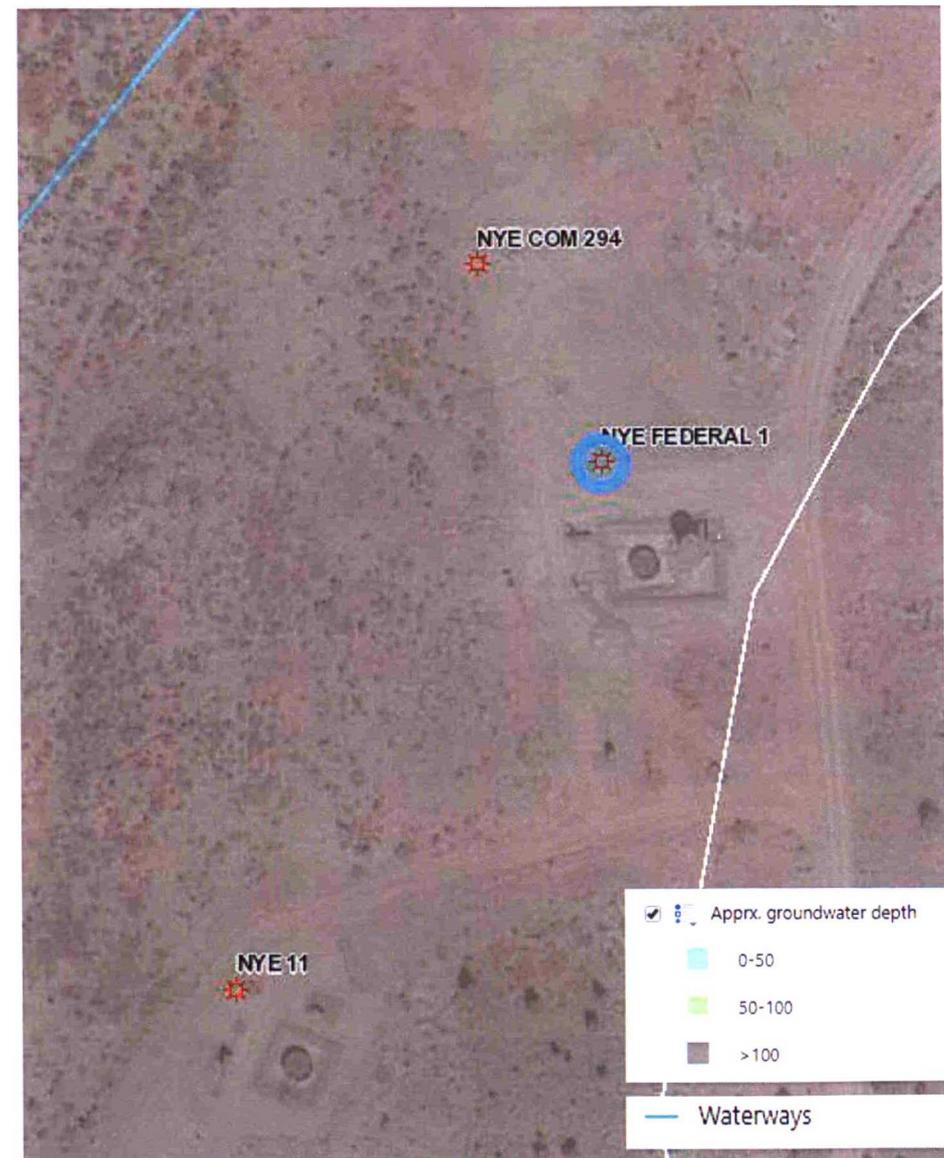
From BGT Permit Application

NYE FEDERAL 1

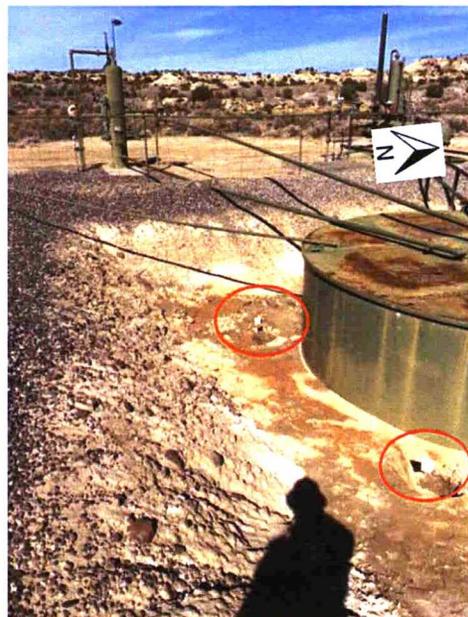
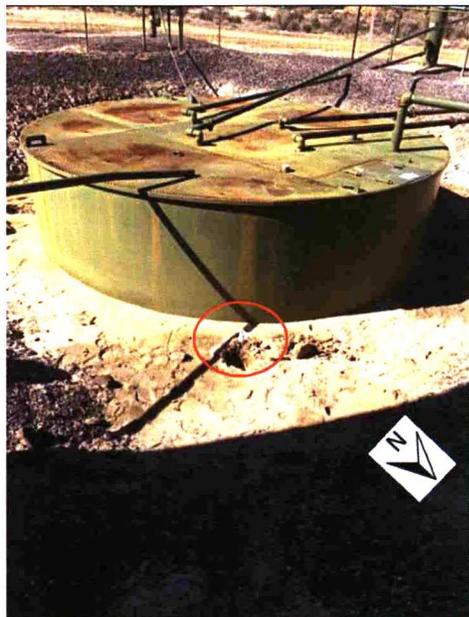
Site Specific Hydrogeology

A visual site inspection confirming the information contained herein was performed on the well 'NYE FEDERAL 1', which is located at 36.73721 degree, North latitude and 107.91292 degree, West longitude. This location is located on the Bloomfield 7.5' USGS topographic quadrangle. This location is in section 8 of Township 29 North Range 10 West of the Public Land Survey System (New Mexico Principal Meridian). This location is located in San Juan County, New Mexico. The nearest town is Bloomfield, located 4.5 miles to the southwest. The nearest large town (population greater than 10,000) is Farmington, located 16.2 miles to the west (National Atlas). The nearest highway is US Highway 64, located 1.6 miles to the south. The location is on BLM land and is 2,032 feet from the edge of the parcel as noted in the BLM land status layer updated January 2008. This location is in the Upper San Juan, Colorado, New Mexico, Sub-basin. This location is located 1741 meters or 5710 feet above sea level and receives 10 inches of rain each year. The vegetation at this location is classified as Inter-Mountain Basins Mixed Salt Desert Scrub as per the Southwest Regional Gap Analysis Program.

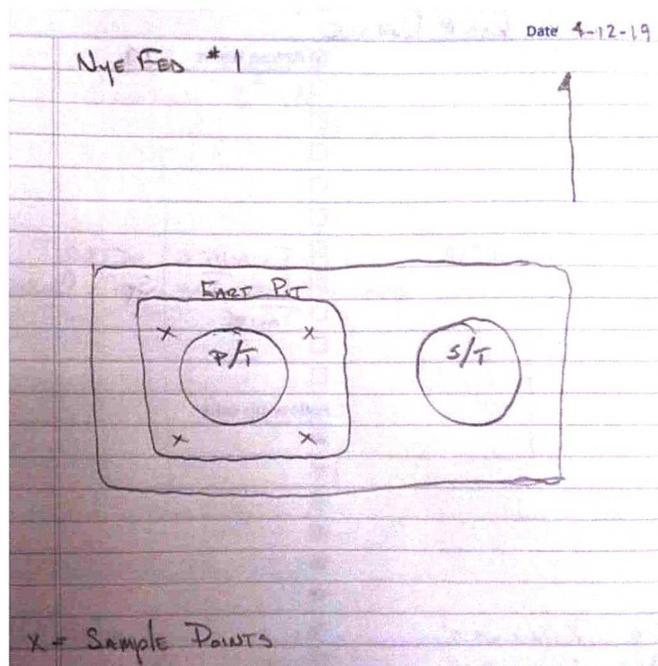
The estimated depth to ground water at this point is 214 feet. This estimation is based on the data published on the New Mexico Engineer's iWaters Database website and water depth data from ConocoPhillips' Cathodic wells. Groundwater data available from the NM State Engineer's iWaters Database for wells near the proposed site are attached. The nearest stream is 460 feet to the north and is classified by the USGS as an intermittent stream. The nearest perennial stream is 4,862 feet to the north. The nearest water body is 4,842 feet to the north. It is classified by the USGS as an intermittent lake and is 0.3 acres in size. The nearest spring is 3,414 feet to the southwest. All stream, river, water body and spring information was determined as per the USGS Hydrographic Dataset (High Resolution), downloaded 3/2008. The nearest water well is 5,496 feet to the southwest. The nearest wetland is a 0.4 acre Freshwater Emergent Wetland located 6,393 feet to the south. The slope at this location is 4 degree, to the northwest as calculated from USGS 30M National Elevation Dataset. This information is also discerned from the aerial and topographic map included. The surface geology at this location is NACIMIENTO FORMATION—Shale and sandstone with a Shale dominated formations of all ages substrate. The soil at this location is 'Haplargids-Blackston-Torriorthents complex, very steep' and is well drained and not hydric with severe erosion potential as taken from the NRCS SSURGO map unit, downloaded January 2008. The nearest underground mine is 15.6 miles to the north as indicated on the Mines, Mills and Quarries Map of New Mexico provided.



Sample locations/field notes



Due to the contents of the BGT no soil was removed as a result of this release. The soil around the tank was sampled and found to be below clean-up standard and was therefore resampled in accordance with NMAC 19.15.29.12.D



Clara Cardoza

From: Clara Cardoza
Sent: Wednesday, April 10, 2019 9:59 AM
To: cory.smith@state.nm.us; Abiodun Adeloje
Cc: Kurt Hoekstra; Patrick Hudman; whitney thomas (l1thomas@blm.gov)
Subject: NCS1909331514 Nye Federal 1 - Confirmation Sampling

Cory/Emmanuel – please let this serve as 48 hour notification for confirmation sampling at the Nye Federal 1 for Friday April 12th at 10:00 a.m. Let me know if you have any questions or concerns.

Thank you,

Clara M Cardoza
Environmental Specialist
505-564-0733 (O)
505-793-2784 (C)

 Please consider the environment before printing this e-mail

Sample Name	Date	Sample Location	Field VOCs by PID (ppm)	Chloride (mg/kg)	Laboratory Results									
					TPH as DRO (mg/kg)	TPH as GRO (mg/kg)	TPH as MRO (mg/kg)	Total TPH (mg/kg)	GRO + DRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylene (mg/kg)	Total BTEX (mg/kg)
NMOCD Action Level				20,000	-	-	-	2,500	1,000	10	-	-	-	50
BGT PIT	4/12/19	Nye Fed 1	n/a	748	8.38	ND	7.71	16.1	8.38	0.000839	ND	ND	0.00469	0.005529

ANALYTICAL REPORT

April 18, 2019

HilCorp-Farmington, NM

Sample Delivery Group: L1088864
Samples Received: 04/13/2019
Project Number:
Description: NYE FEDERAL #1
Site: NYE FEDERAL #1
Report To: Clara Cardoza
382 Road 3100
Aztec, NM 87401

Entire Report Reviewed By:



Daphne Richards
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.

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¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



BGT PIT L1088864-01 Solid

Collected by
Kurt Hoekstra

Collected date/time
04/12/19 10:11

Received date/time
04/13/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1266108	1	04/17/19 09:45	04/17/19 14:24	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1265882	1	04/14/19 08:39	04/14/19 13:16	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1266271	1	04/15/19 07:53	04/15/19 14:58	TJD	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

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.

Daphne Richards
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	748		10.0	1	04/17/2019 14:24	WG1266108

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000839		0.000500	1	04/14/2019 13:16	WG1265882
Toluene	ND		0.00500	1	04/14/2019 13:16	WG1265882
Ethylbenzene	ND		0.000500	1	04/14/2019 13:16	WG1265882
Total Xylene	0.00469		0.00150	1	04/14/2019 13:16	WG1265882
TPH (GC/FID) Low Fraction	ND		0.100	1	04/14/2019 13:16	WG1265882
<i>(S) a,a,a-Trifluorotoluene(FID)</i>	98.8		77.0-120		04/14/2019 13:16	WG1265882
<i>(S) a,a,a-Trifluorotoluene(PID)</i>	92.7		72.0-128		04/14/2019 13:16	WG1265882

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	8.38		4.00	1	04/15/2019 14:58	WG1266271
C28-C40 Oil Range	7.71		4.00	1	04/15/2019 14:58	WG1266271
<i>(S) o-Terphenyl</i>	58.9		18.0-148		04/15/2019 14:58	WG1266271

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



Method Blank (MB)

(MB) R3402649-1 04/17/19 13:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	3.60	J	0.795	10.0

L1088805-83 Original Sample (OS) • Duplicate (DUP)

(OS) L1088805-83 04/17/19 16:05 • (DUP) R3402649-6 04/17/19 16:14

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Chloride	14.6	13.4	1	8.88		15

L1088879-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1088879-09 04/17/19 17:48 • (DUP) R3402649-7 04/17/19 17:56

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Chloride	638	637	1	0.246		15

Laboratory Control Sample (LCS)

(LCS) R3402649-3 04/17/19 14:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits	LCS Qualifier
Chloride	200	196	98.0	80.0-120	

L1088864-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1088864-01 04/17/19 14:24 • (MS) R3402649-4 04/17/19 14:32 • (MSD) R3402649-5 04/17/19 14:40

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
Chloride	500	748	1310	1240	112	98.9	1	80.0-120	E	E	5.00	15





Method Blank (MB)

(MB) R3401729-5 04/14/19 12:15

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	0.0219	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	106			77.0-120
(S) a,a,a-Trifluorotoluene(PID)	99.8			72.0-128

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

(LCS) R3401729-1 04/14/19 10:33 • (LCSD) R3401729-2 04/14/19 10:53

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	0.0500	0.0517	99.9	103	76.0-121			3.44	20
Toluene	0.0500	0.0482	0.0501	96.5	100	80.0-120			3.78	20
Ethylbenzene	0.0500	0.0535	0.0558	107	112	80.0-124			4.14	20
Total Xylene	0.150	0.157	0.163	105	109	37.0-160			3.50	20
(S) a,a,a-Trifluorotoluene(FID)				105	105	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				99.5	98.9	72.0-128				

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

(LCS) R3401729-3 04/14/19 11:13 • (LCSD) R3401729-4 04/14/19 11:34

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	4.90	5.08	89.1	92.3	72.0-127			3.59	20
(S) a,a,a-Trifluorotoluene(FID)				93.6	93.8	77.0-120				
(S) a,a,a-Trifluorotoluene(PID)				100	101	72.0-128				

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



Volatile Organic Compounds (GC) by Method 8015/8021

L1088864-01

L1088390-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1088390-07 04/14/19 18:23 • (MS) R3401729-6 04/14/19 19:24 • (MSD) R3401729-7 04/14/19 19:45

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	4.16	29.6	27.7	102	94.1	500	10.0-155			6.79	32
Toluene	0.0500	21.5	44.2	41.5	90.7	79.7	500	10.0-160			6.41	34
Ethylbenzene	0.0500	ND	54.8	51.2	219	205	500	10.0-160	<u>J5</u>	<u>J5</u>	6.78	32
Total Xylene	0.150	33.6	125	119	122	113	500	10.0-160	<u>J5</u>	<u>J5 J6</u>	5.41	32
(S) a,a,a-Trifluorotoluene(FID)					104	103		77.0-120				
(S) a,a,a-Trifluorotoluene(PID)					103	102		72.0-128				

L1088390-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1088390-07 04/14/19 18:23 • (MS) R3401729-8 04/14/19 20:05 • (MSD) R3401729-9 04/14/19 20:26

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	3150	4490	4760	48.8	58.5	500	10.0-151			5.78	28
(S) a,a,a-Trifluorotoluene(FID)					105	106		77.0-120				
(S) a,a,a-Trifluorotoluene(PID)					106	107		72.0-128				

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



Method Blank (MB)

(MB) R3401835-1 04/15/19 12:49

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	71.6			18.0-148

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

(LCS) R3401835-2 04/15/19 13:05 • (LCSD) R3401835-3 04/15/19 13:21

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 %
Extractable Petroleum Hydrocarbon	50.0	33.2	29.4	66.4	58.8	50.0-150			12.1	20
C10-C28 Diesel Range	50.0	35.9	31.9	71.8	63.8	50.0-150			11.8	20
(S) o-Terphenyl				82.4	70.7	18.0-148				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



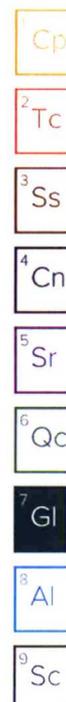
Guide to Reading and Understanding Your Laboratory Report

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.

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.
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.

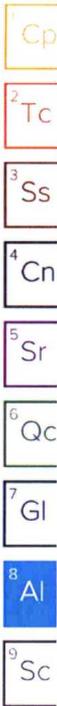
Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.





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	T104704245-18-15
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.



