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	NVF1833333426
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Hilcorp Energy Company	OGRID 372171
Contact Name Jennifer Deal	Contact Telephone 505-801-6517
Contact email jdeal@hilcorp.com	Incident # NVF1833333426
Contact mailing address 382 Road 3100, Aztec NM 87410	

NMOCD
FEB 12 2019
DISTRICT III

Location of Release Source

Latitude 36.8791351 Longitude -107.7345581
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Seymour 2M	Site Type Gas Well
Date Release Discovered 11/19/2018 @ 11:00am	API# *30-045-31803*

Unit Letter	Section	Township	Range	County
N	24	31N	09W	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)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 3	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☒ Condensate	Volume Released (bbls) 119	Volume Recovered (bbls) 80
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
A release of 119bbls of oil/condensate and 3 bbls of produced water was released due to corrosion on the tank. MSO arrived on location and noticed oil in berm of oil tank containment. MSO inspected tank and found corrosion on the bottom of the tank and a hole where the oil was leaking. Hydrovac'd the pit and berm area and recovered ~ 80 bbls. Tank was taken out of service. Release remained inside the berm.

State of New Mexico
Oil Conservation Division

Incident ID	NVF1833333426
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.

What is the shallowest depth to groundwater beneath the area affected by the release?	<100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ 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)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ 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?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ 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.

State of New Mexico
Oil Conservation Division

Incident ID	NVF1833333426
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: Jennifer Deal Date: 2/8/2019

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

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	NVF1833333426
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: Jennifer Deal Date: 2/8/2019

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

OCD Only

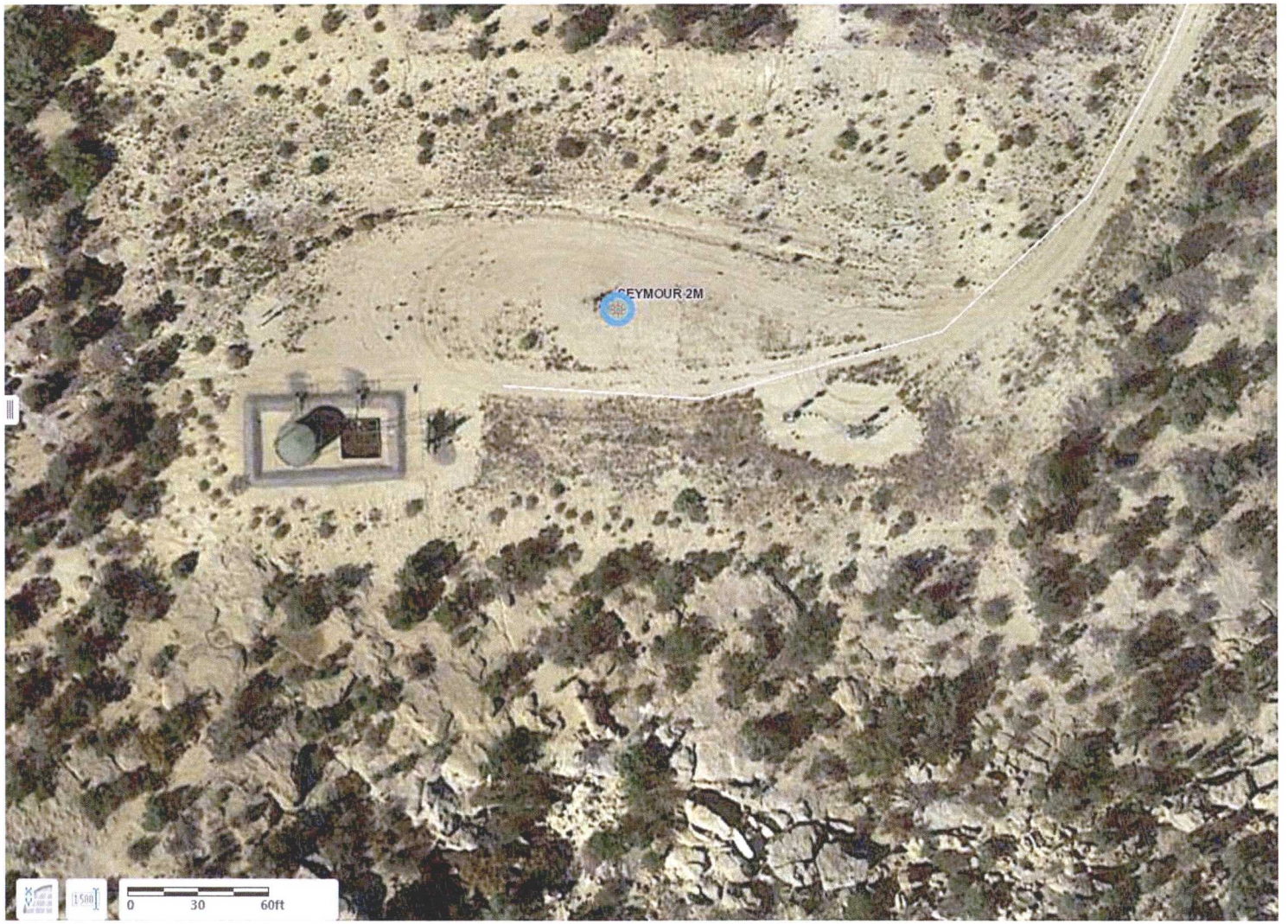
Received by: Vanessa Fields Date: 2/12/2019

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.

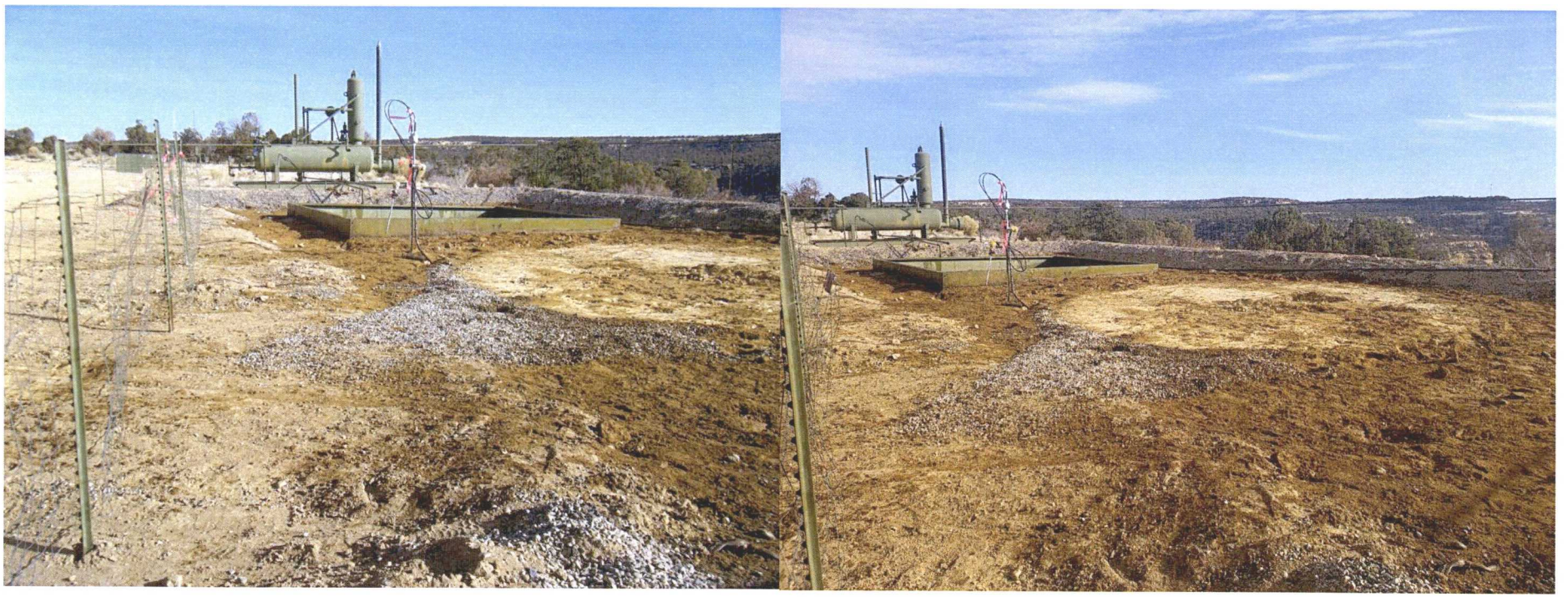
Closure Approved by: Vanessa Fields Date: 2/13/2019

Printed Name: Vanessa Fields Title: Environmental Specialist

Topographic/Aerial Maps



Photographs – Spill Area 11/19/2018



Photographs – Spill Area 11/19/2018

Data table of soil contaminant concentration data

SOIL ANALYTICAL RESULTS
SEYMOUR 2M
HILCORP 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)	MRO+DRO (mg/kg)	TPH (mg/kg)
East 1/2	11/30/2018		3.8	32	3.9	47	86.70	720.0	2300.00	810.00	3110	3830
West 1/2	11/30/2018		<0.092	1.3	0.9	14	16.20	180	1000.00	460.00	1460	1640
S.E. Wall Comp	12/18/2018		0.102	3.53	1.67	17.9	23.20	340	3130.00	672.00	3802	4142
S.W. Wall Comp	12/18/2018		<0.0005	<0.005	<0.0005	<0.0015	<0.005	1.64	511.00	158.00	669	671
W. Wall Comp	12/18/2018		<0.0005	<0.005	0.00102	0.0411	0.04	1	79.80	37.20	117	118
NW Corner Grab	12/18/2018		<0.0005	<0.005	<0.0005	0.00585	0.0059	1	1340.00	466.00	1806	1807
NE Wall Comp	12/18/2018		<0.0125	0.242	0.21	2.88	3.33	70	2700.00	950.00	3650	3720
E Wall Comp	12/18/2018		0.00184	0.005	0.00069	0.00486	0.0124	0.222	6.06	6.15	12	12
E Base Comp	12/18/2018		5.05	73.3	16.1	170	264.45	2790	20500.00	3570.00	24070	26860
E Base Grab	12/18/2018		6.31	76	14.9	155	252.21	2260.0	23300.00	3810.00	27110	29370
W Base Comp	12/18/2018		<0.05	<0.5	<0.05	<0.150	<0.5	99.8	1490.00	591.00	2081	2181
Middle Base Comp	12/18/2018		0.0513	1.01	0.358	5.15	6.57	111.0	1210.00	433.00	1643	1754
S. Bottom Grab	12/18/2018		<0.250	14.8	6.55	70.7	92.05	1230.0	6790.00	1370.00	8160	9390
SE Bottom of Wall Grab	12/18/2018		8.15	127	23.5	243	401.65	3320.0	19400.00	3090.00	22490	25810
West Base	1/14/2019		<0.0005	<0.005	<0.0005	<0.0015	<0.005	<0.100	56.50	12.30	69	69
Middle Base	1/14/2019		<0.0005	<0.005	0.000631	0.00704	0.01	1.0	230.00	45.70	276	277
S.E.Base	1/14/2019		<0.0005	<0.005	0.00802	0.148	0.16	5.7	239.00	44.60	284	289
N. E. Base	1/14/2019		<0.0005	<0.005	0.00234	0.0417	0.04	1.7	283.00	51.80	335	336
S.E. Wall	1/14/2019		0.000519	<0.005	<0.00050	0.0043	0.00	<0.100	10.40	<4.00	10	10
N. Wall	1/14/2019		<0.0005	<0.005	<0.00050	0.00267	0.00	0.1	75.60	13.00	76	89
NMOCD Standards		**NE**	**10**	**NE**	**NE**	**NE**	**50**	**NE**	**NE**	**NE**	**1,000**	**2,500**

Depth to water determination

-site sites on mesa, Seymour 2 is below at an elevation of 6063 putting the 2M 411ft above the blue line below

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

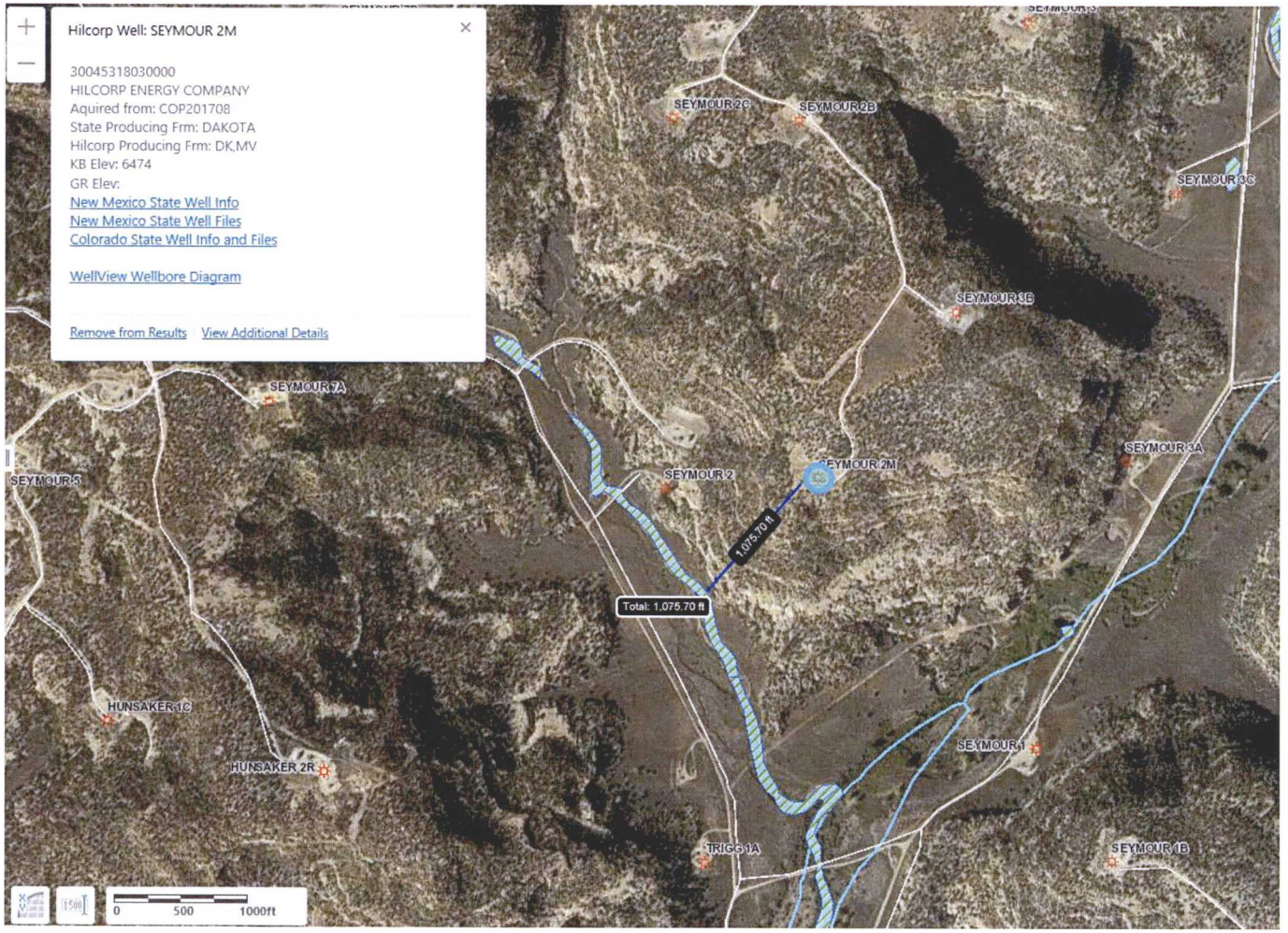
No records found.

PLSS Search:

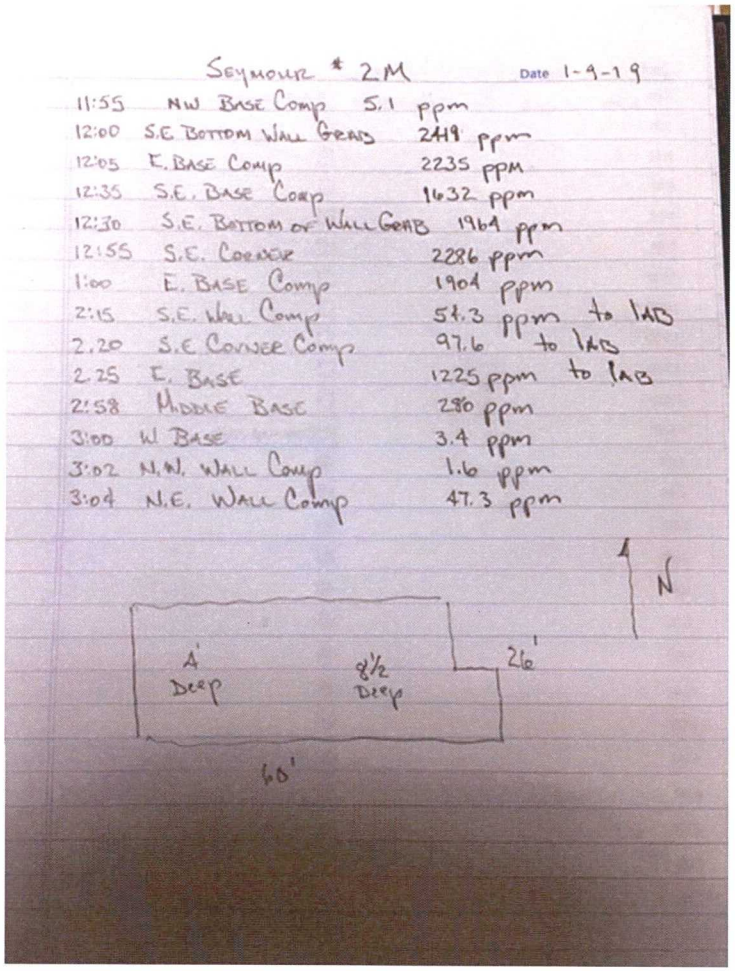
Section(s): 24 **Township:** 31N **Range:** 09W

Depth to water determination

Determination of water sources

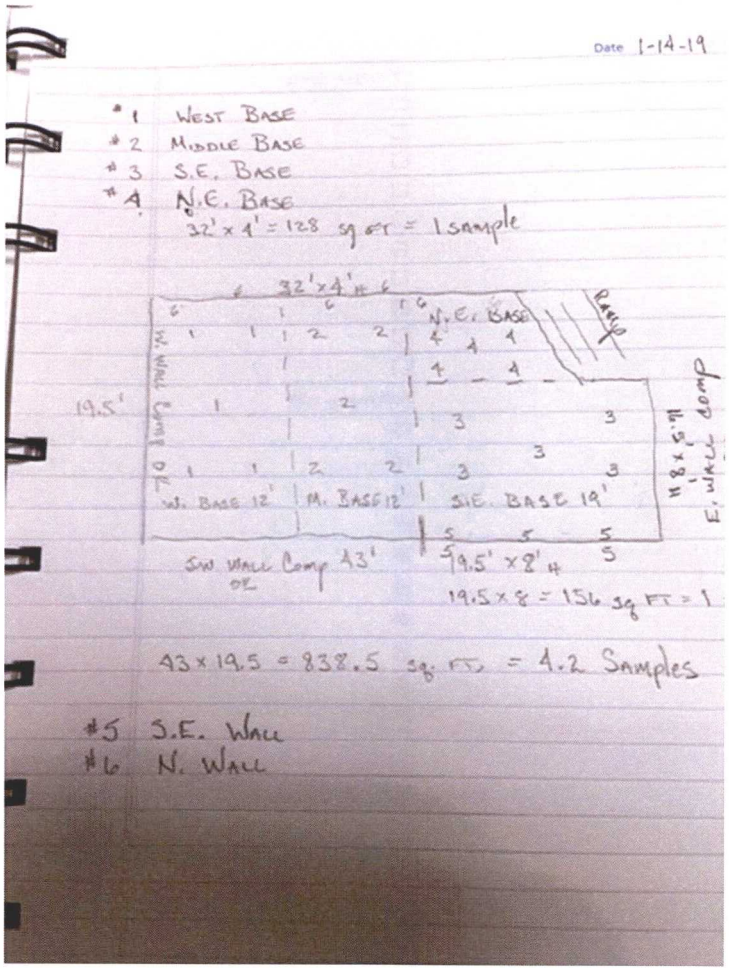


Field Data



Seymour * 2M Date 1-9-19

11:55	NW. Base Comp	5.1 ppm
12:00	S.E Bottom Wall Grab	2419 ppm
12:05	E. Base Comp	2235 ppm
12:35	S.E. Base Comp	1632 ppm
12:30	S.E. Bottom of Wall Grab	1964 ppm
12:55	S.E. Corner	2286 ppm
1:00	E. Base Comp	1904 ppm
2:15	S.E. Wall Comp	51.3 ppm to IAB
2.20	S.E Corner Comp	97.6 to IAB
2.25	E. Base	1225 ppm to IAB
2:58	Middle Base	280 ppm
3:00	W Base	3.4 ppm
3:02	N.W. Wall Comp	1.6 ppm
3:04	N.E. Wall Comp	47.3 ppm



Date 1-14-19

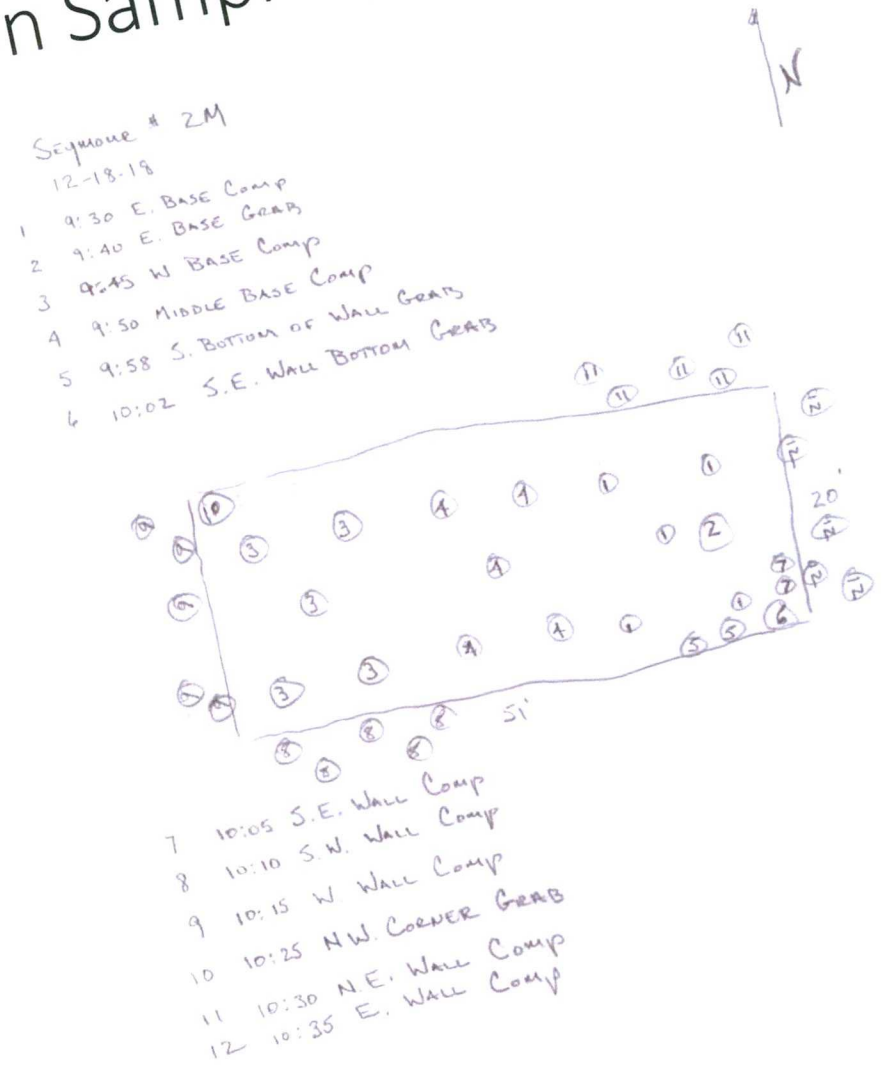
* 1 West Base
* 2 Middle Base
* 3 S.E. Base
* 4 N.E. Base

32' x 4' = 128 sq ft = 1 sample

43 x 19.5 = 838.5 sq ft = 4.2 Samples

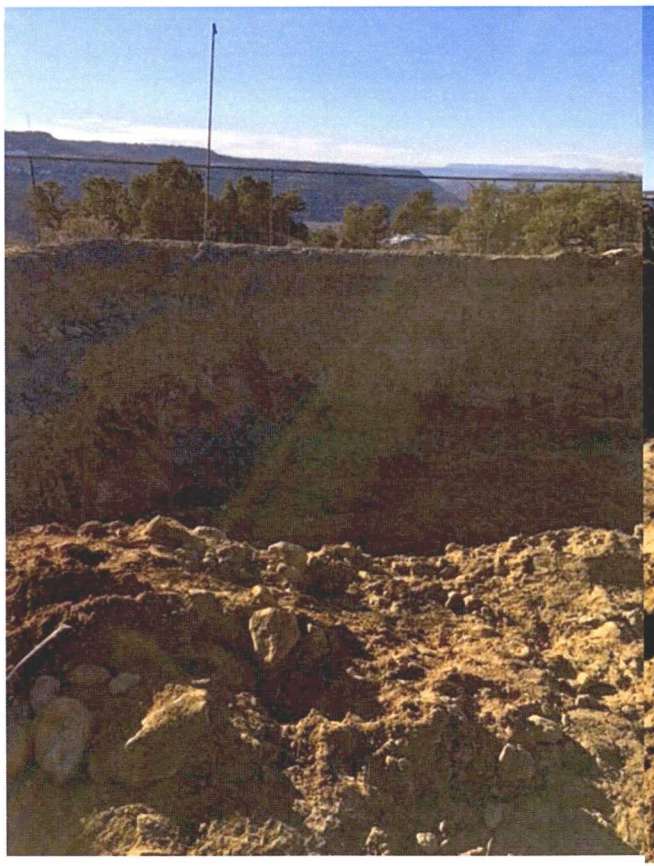
#5 S.E. Wall
#6 N. Wall

Confirmation Sampling Event – 12/18/18



Photographs – 12/18/18 Sampling Event

North Sample



South Sample

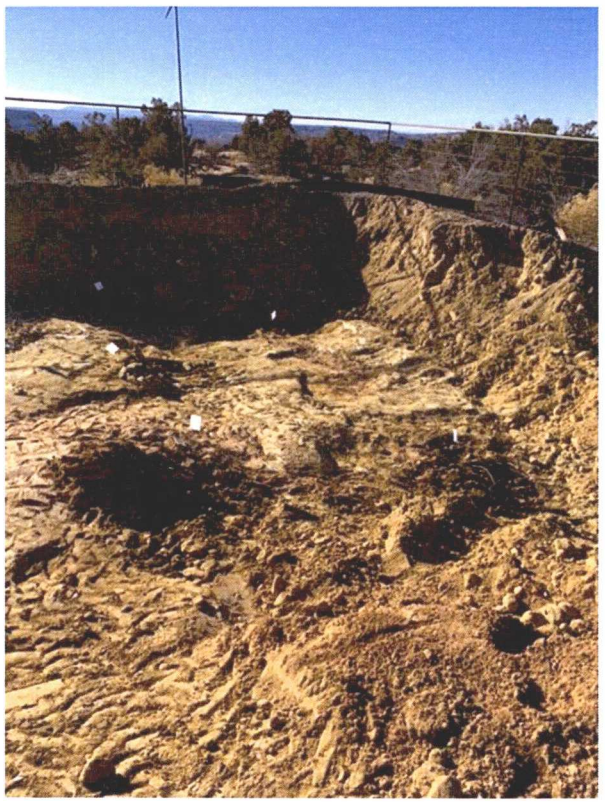
Photographs – 12/18/18 Sampling Event

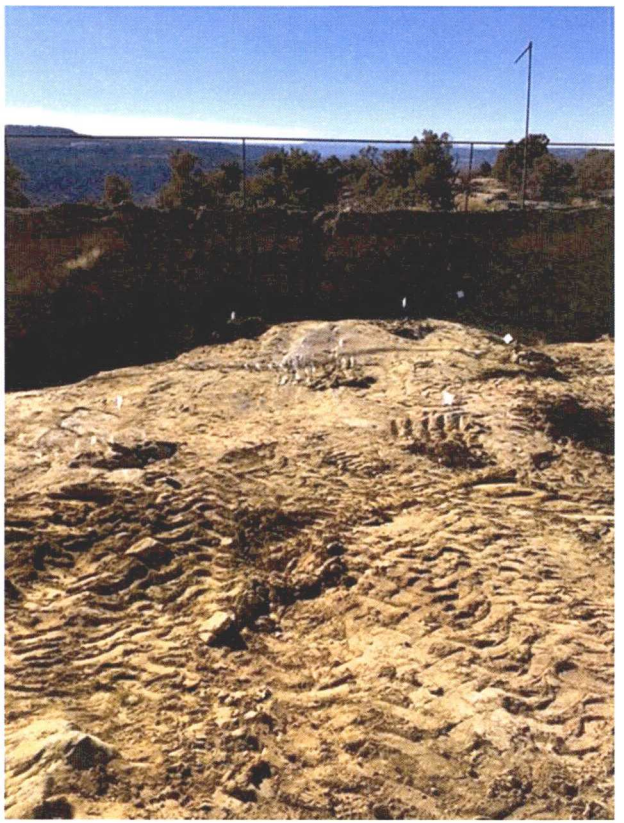
North Sample

South Sample

Photographs – 12/18/18 Sampling Event

North Sample





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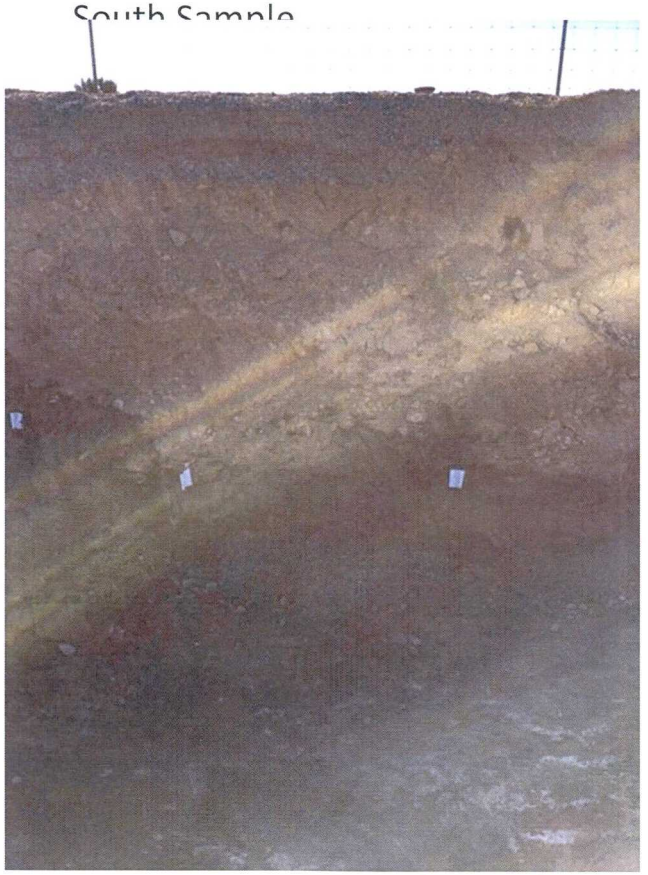
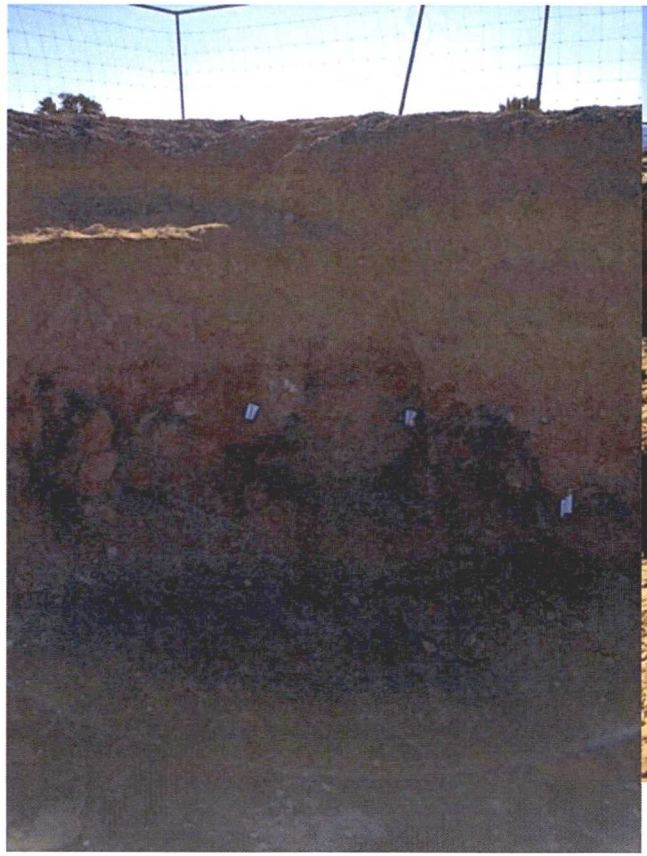


Photographs – 12/18/18 Sampling Event

North Sample



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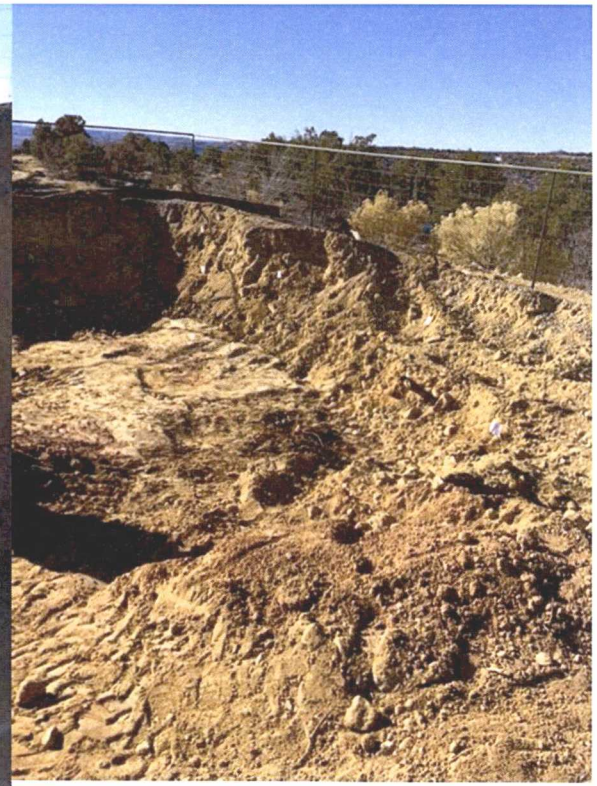
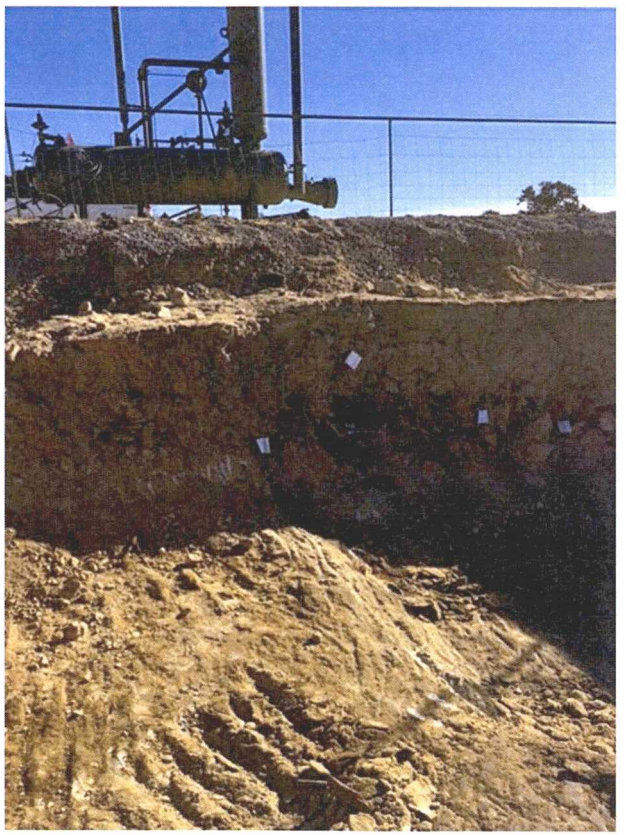


Photographs – 12/18/18 Sampling Event

North Sample

South Sample

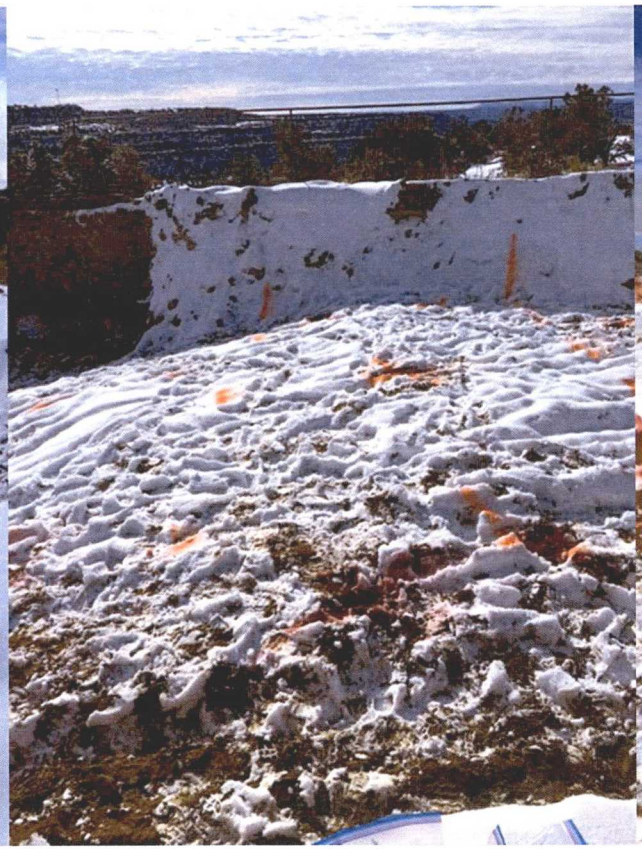


Photographs – 1/14/19 Sampling Event

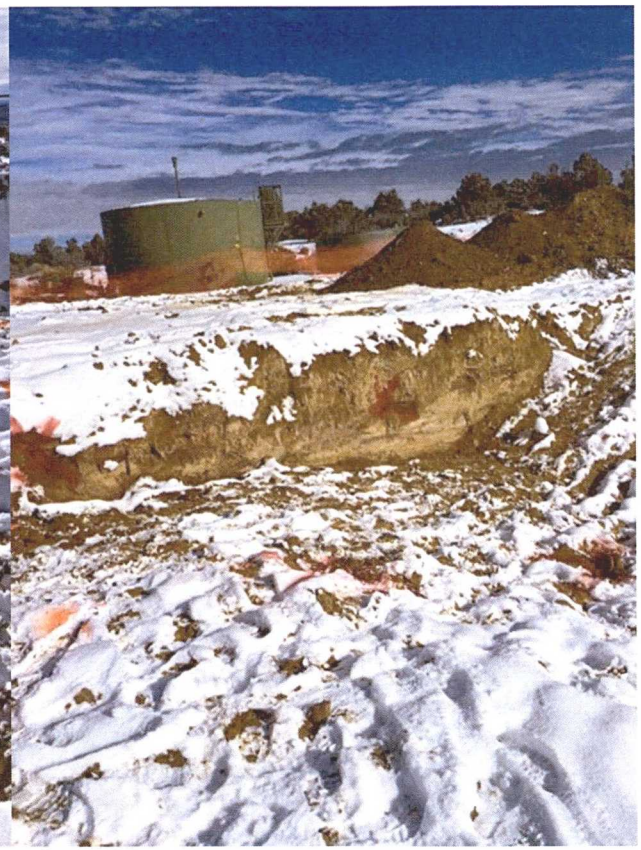
Photographs – 1/14/19 Sampling Event

Middle & West Base

Middle Base

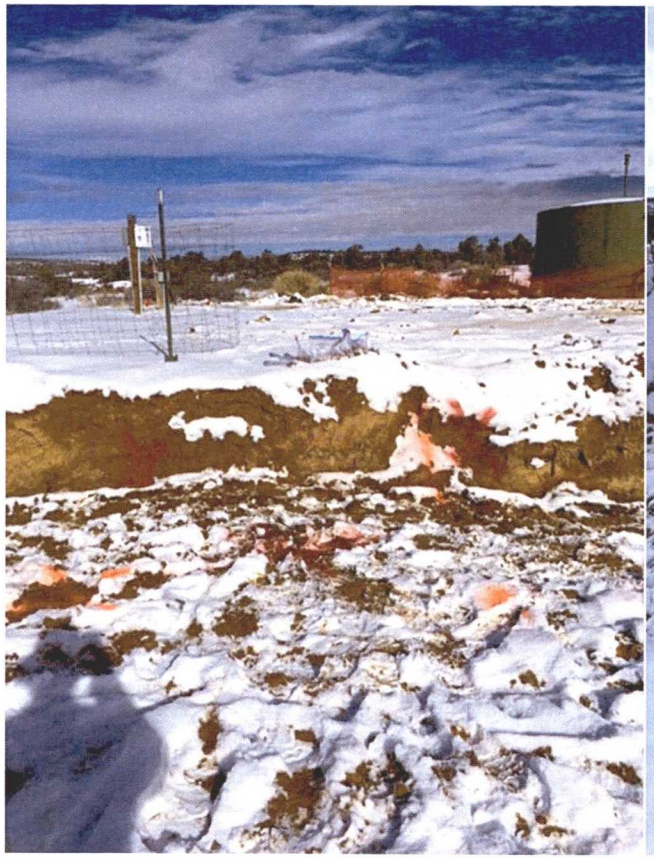


North Wall – East Side

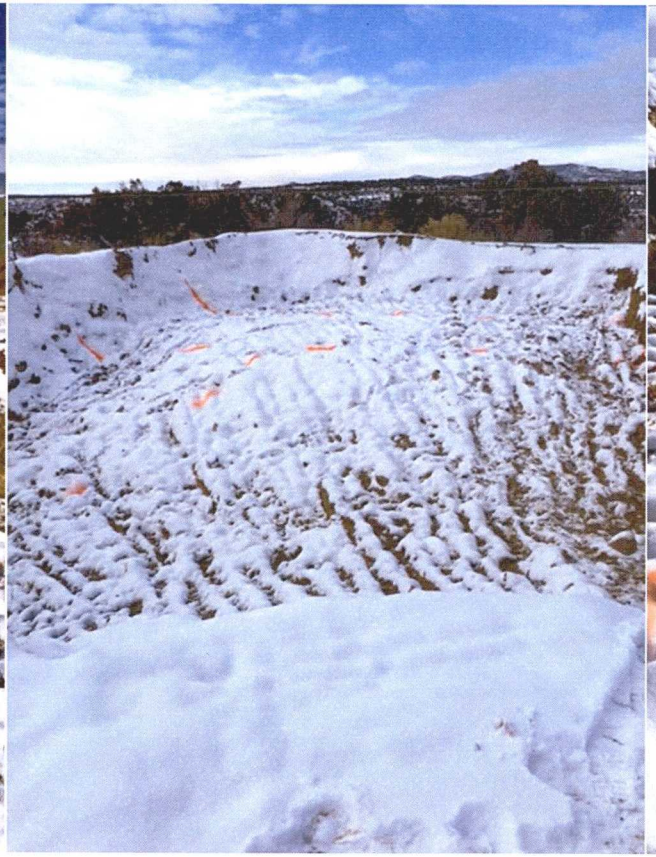


Photographs – 1/14/19 Sampling Event

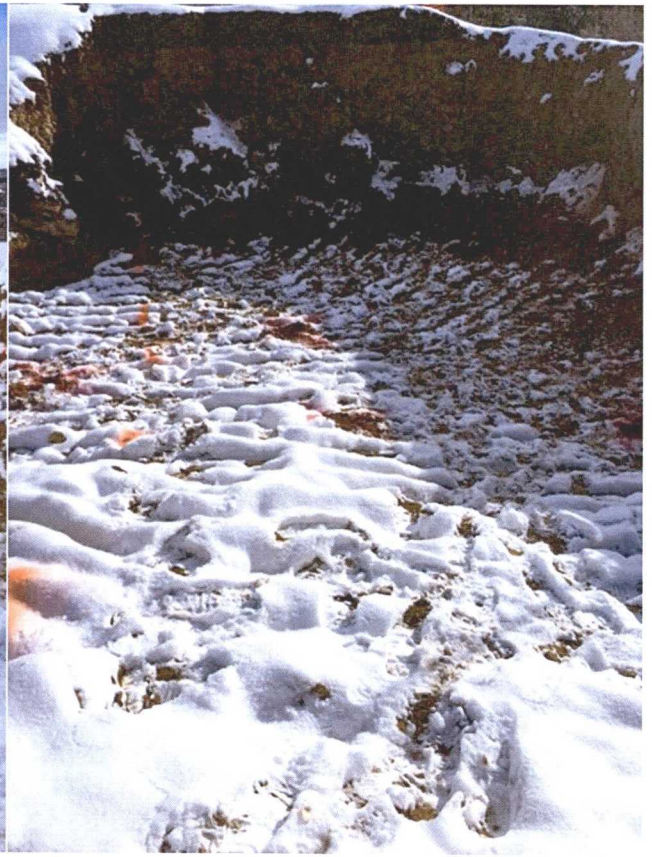
North Wall – West Side



Northeast Base

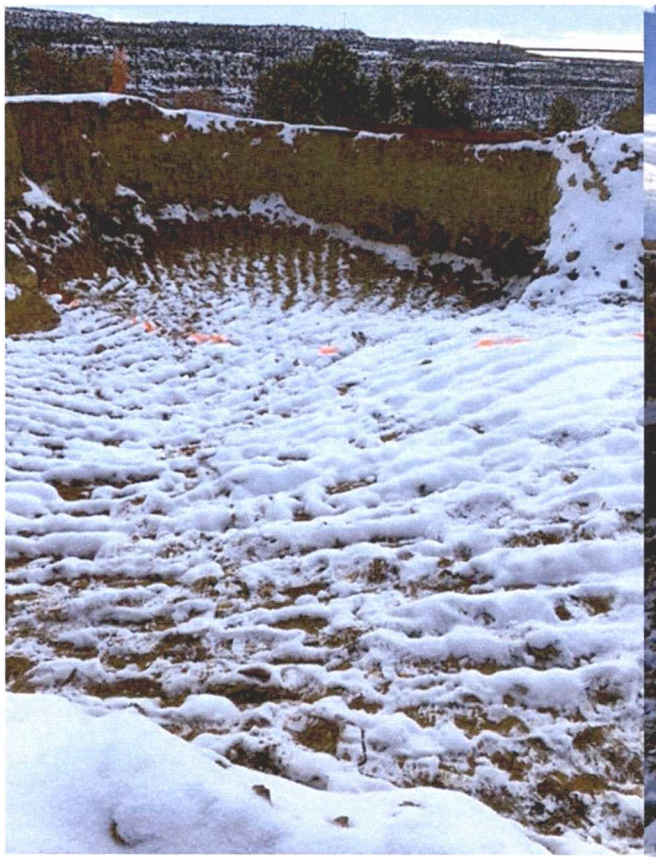


Southeast Base

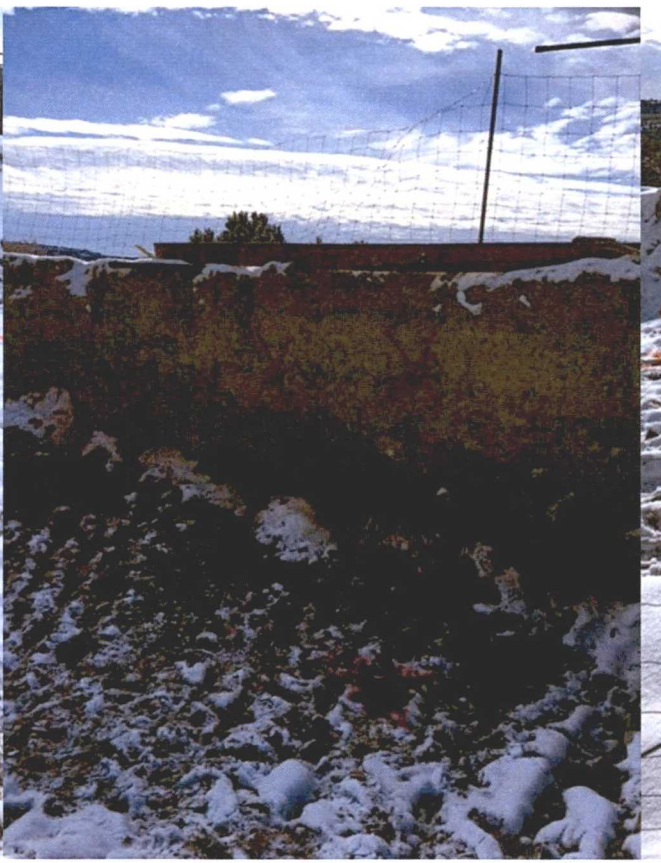


Photographs – 1/14/19 Sampling Event

Southeast Base



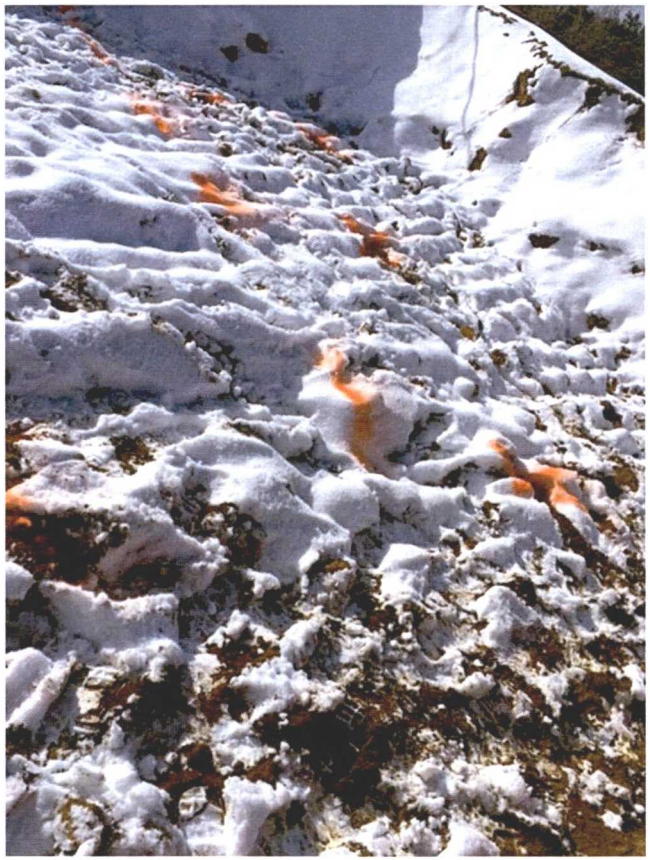
Southeast Wall



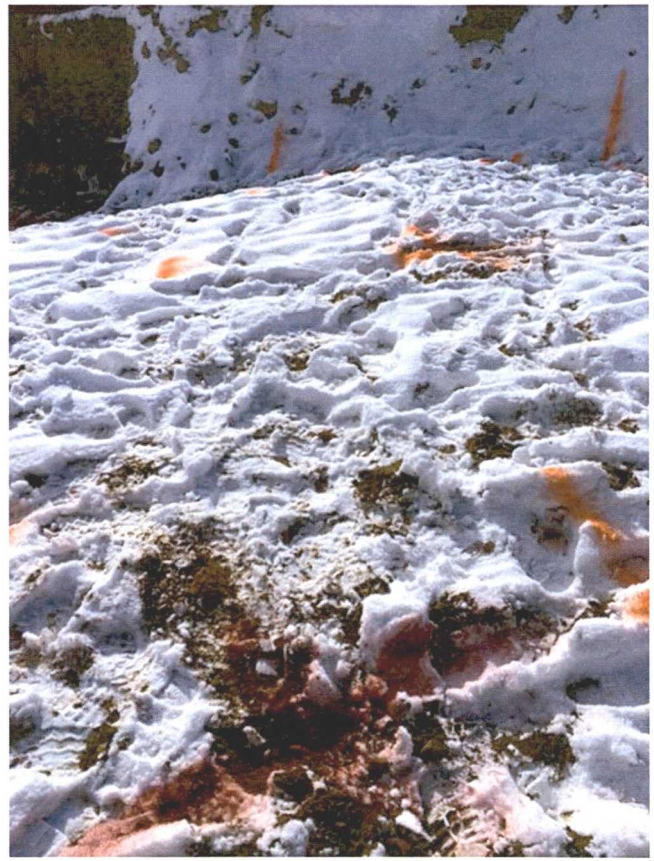
West Base

Photographs – 1/14/19 Sampling Event

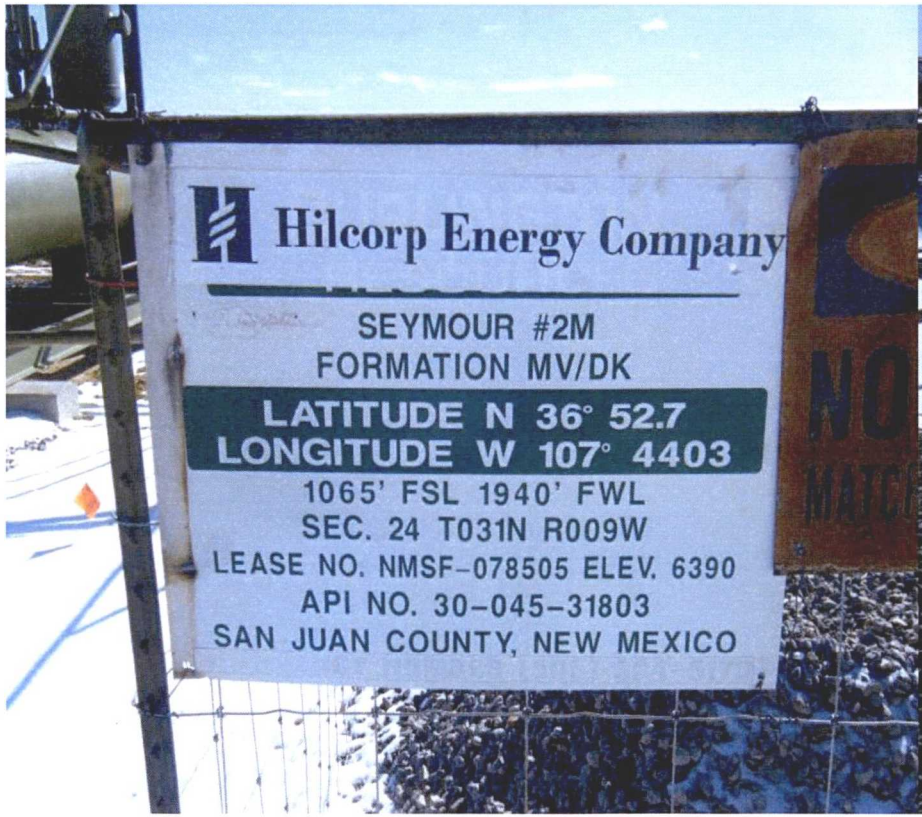
West Base

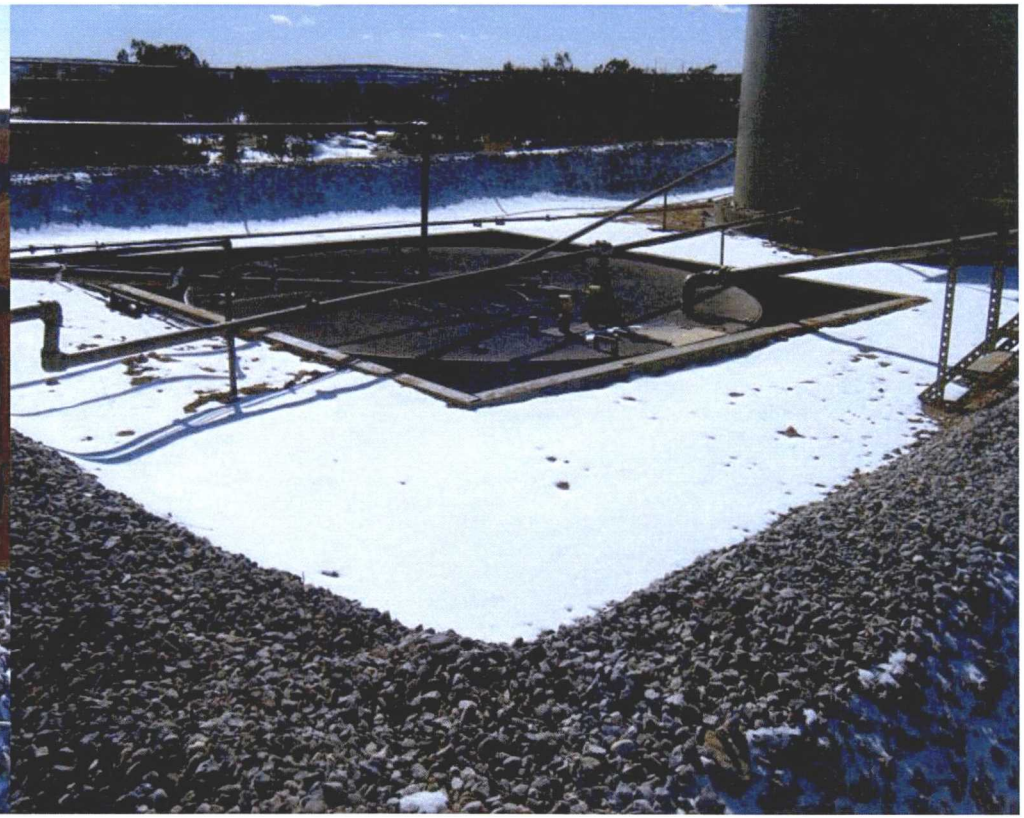


West Base

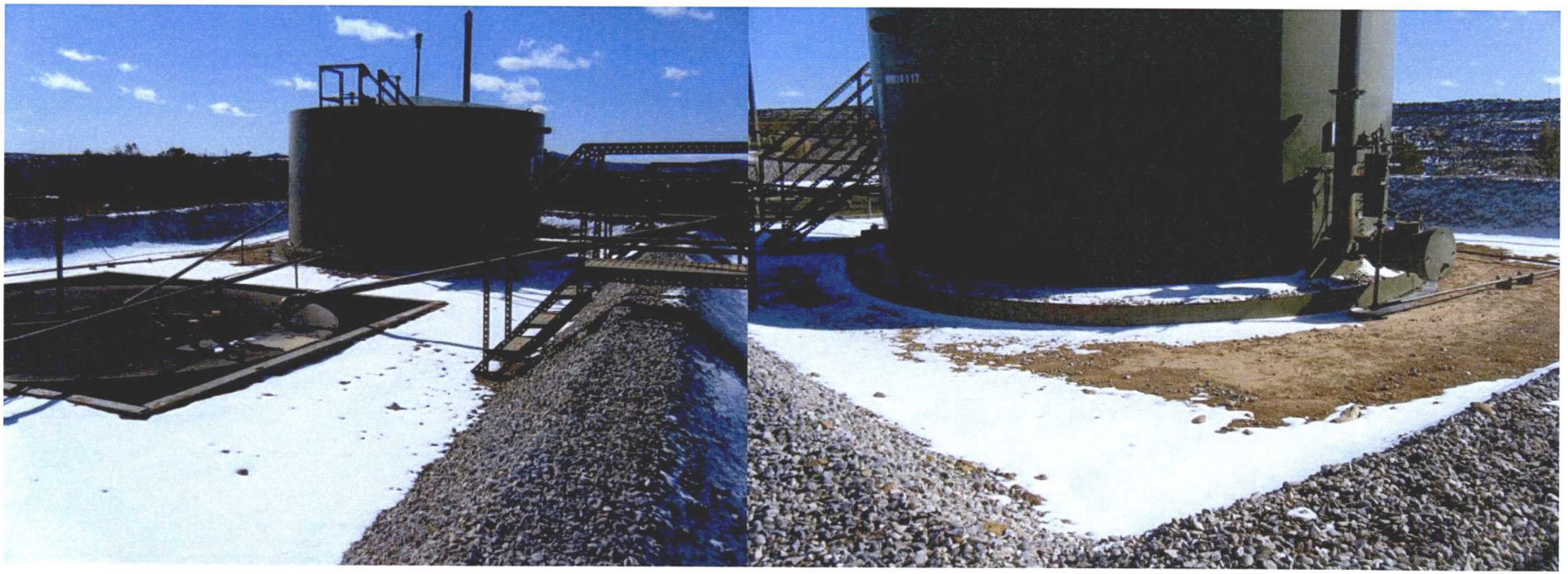


Photographs – After Cleanup





Photographs – After Cleanup



Photographs – After Cleanup

Photographs – After Cleanup

Seymour 2M Notes

- Excavation ended being approximately 60'x26' and 4' deep on West side and 8 ½' deep on East side
- Approximately 520 yd3 of contaminated soil was delivered to IEI and 460 yd3 of clean soil was brought in from Mesa Sand and Gravel

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

December 28, 2018

HilCorp-Farmington, NM

Sample Delivery Group:	L1055041
Samples Received:	12/20/2018
Project Number:	
Description:	
Site:	SEYMOUR #2M
Report To:	Kurt Hoekstra and Jennifer Deal 382 Road 3100 Aztec, NM 87401

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

TABLE OF CONTENTS

S.E. WALL COMP L1055041-01 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 10:05 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 04:32	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1214515	200	12/20/18 22:26	12/21/18 17:14	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	25	12/26/18 17:26	12/27/18 13:36	KME
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	5	12/26/18 17:26	12/27/18 02:47	KME

S.W. WALL COMP L1055041-02 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 10:10 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 04:46	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1214515	1	12/20/18 22:26	12/21/18 17:36	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	1	12/26/18 17:26	12/27/18 01:47	KME
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	10	12/26/18 17:26	12/27/18 12:36	KME

W. WALL COMP L1055041-03 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 10:15 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 05:00	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1214515	1	12/20/18 22:26	12/21/18 17:57	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	1	12/26/18 17:26	12/27/18 02:03	KME

NW CORNER GRAB L1055041-04 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 10:25 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 05:14	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1214515	1	12/20/18 22:26	12/21/18 18:18	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	5	12/26/18 17:26	12/27/18 12:22	KME

NE WALL COMP L1055041-05 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 10:30 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 05:28	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1214515	25	12/20/18 22:26	12/21/18 18:39	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	10	12/26/18 17:26	12/27/18 12:52	KME

E WALL COMP L1055041-06 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 10:35 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 05:42	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1214515	1	12/20/18 22:26	12/21/18 19:00	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	1	12/26/18 17:26	12/27/18 00:33	KME

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 R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	50.8		10.0	1	12/24/2018 04:32	WG1214722

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.102	B	0.100	200	12/21/2018 17:14	WG1214515
Toluene	3.53		1.00	200	12/21/2018 17:14	WG1214515
Ethylbenzene	1.67		0.100	200	12/21/2018 17:14	WG1214515
Total Xylene	17.9		0.300	200	12/21/2018 17:14	WG1214515
TPH (GC/FID) Low Fraction	340		20.0	200	12/21/2018 17:14	WG1214515
(S) a,a,a-Trifluorotoluene(FID)	*91.4*		*77.0-120*		*12/21/2018 17:14*	WG1214515
(S) a,a,a-Trifluorotoluene(PID)	*101*		*72.0-128*		*12/21/2018 17:14*	WG1214515

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	3130		100	25	12/27/2018 13:36	WG1215650
C28-C40 Oil Range	672		20.0	5	12/27/2018 02:47	WG1215650
(S) o-Terphenyl	*506*	J7	*18.0-148*		*12/27/2018 13:36*	WG1215650
(S) o-Terphenyl	*516*	J1	*18.0-148*		*12/27/2018 02:47*	WG1215650

Sample Narrative:

L1055041-01 WG1215650: Surrogate failure due to matrix interference

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	50.4		10.0	1	12/24/2018 04:46	WG1214722

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	12/21/2018 17:36	WG1214515
Toluene	ND		0.00500	1	12/21/2018 17:36	WG1214515
Ethylbenzene	ND		0.000500	1	12/21/2018 17:36	WG1214515
Total Xylene	0.0194	B	0.00150	1	12/21/2018 17:36	WG1214515
TPH (GC/FID) Low Fraction	1.64		0.100	1	12/21/2018 17:36	WG1214515
(S) a,a,a-Trifluorotoluene(FID)	*87.1*		*77.0-120*		*12/21/2018 17:36*	WG1214515
(S) a,a,a-Trifluorotoluene(PID)	*98.0*		*72.0-128*		*12/21/2018 17:36*	WG1214515

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	511		40.0	10	12/27/2018 12:36	WG1215650
C28-C40 Oil Range	158		4.00	1	12/27/2018 01:47	WG1215650
(S) o-Terphenyl	*128*		*18.0-148*		*12/27/2018 12:36*	WG1215650
(S) o-Terphenyl	*158*	J1	*18.0-148*		*12/27/2018 01:47*	WG1215650

Sample Narrative:

L1055041-02 WG1215650: Surrogate failure due to matrix interference

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	48.9		10.0	1	12/24/2018 05:00	WG1214722

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	12/21/2018 17:57	WG1214515
Toluene	ND		0.00500	1	12/21/2018 17:57	WG1214515
Ethylbenzene	0.00102	B	0.000500	1	12/21/2018 17:57	WG1214515
Total Xylene	0.0411		0.00150	1	12/21/2018 17:57	WG1214515
TPH (GC/FID) Low Fraction	1.09		0.100	1	12/21/2018 17:57	WG1214515
(S) a,a,a-Trifluorotoluene(FID)	*87.0*		*77.0-120*		*12/21/2018 17:57*	WG1214515
(S) a,a,a-Trifluorotoluene(PID)	*98.2*		*72.0-128*		*12/21/2018 17:57*	WG1214515

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	79.8		4.00	1	12/27/2018 02:03	WG1215650
C28-C40 Oil Range	37.2		4.00	1	12/27/2018 02:03	WG1215650
(S) o-Terphenyl	*83.7*		*18.0-148*		*12/27/2018 02:03*	WG1215650

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	52.9		10.0	1	12/24/2018 05:14	WG1214722

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	12/21/2018 18:18	WG1214515
Toluene	ND		0.00500	1	12/21/2018 18:18	WG1214515
Ethylbenzene	ND		0.000500	1	12/21/2018 18:18	WG1214515
Total Xylene	0.00585	B	0.00150	1	12/21/2018 18:18	WG1214515
TPH (GC/FID) Low Fraction	1.39		0.100	1	12/21/2018 18:18	WG1214515
(S) a,a,a-Trifluorotoluene(FID)	*87.8*		*77.0-120*		*12/21/2018 18:18*	WG1214515
(S) a,a,a-Trifluorotoluene(PID)	*97.9*		*72.0-128*		*12/21/2018 18:18*	WG1214515

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	1340		20.0	5	12/27/2018 12:22	WG1215650
C28-C40 Oil Range	466		20.0	5	12/27/2018 12:22	WG1215650
(S) o-Terphenyl	*294*	J1	*18.0-148*		*12/27/2018 12:22*	WG1215650

Sample Narrative:

L1055041-04 WG1215650: High surrogate due to matrix

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	53.0		10.0	1	12/24/2018 05:28	WG1214722

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.0125	25	12/21/2018 18:39	WG1214515
Toluene	0.242		0.125	25	12/21/2018 18:39	WG1214515
Ethylbenzene	0.210		0.0125	25	12/21/2018 18:39	WG1214515
Total Xylene	2.88		0.0375	25	12/21/2018 18:39	WG1214515
TPH (GC/FID) Low Fraction	70.0		2.50	25	12/21/2018 18:39	WG1214515
(S) a,a,a-Trifluorotoluene(FID)	*89.7*		*77.0-120*		*12/21/2018 18:39*	WG1214515
(S) a,a,a-Trifluorotoluene(PID)	*102*		*72.0-128*		*12/21/2018 18:39*	WG1214515

Sample Narrative:

L1055041-05 WG1214515: Non-target compounds too high to run at a lower dilution.

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	2700		40.0	10	12/27/2018 12:52	WG1215650
C28-C40 Oil Range	950		40.0	10	12/27/2018 12:52	WG1215650
(S) o-Terphenyl	*429*	J1	*18.0-148*		*12/27/2018 12:52*	WG1215650

Sample Narrative:

L1055041-05 WG1215650: High surrogate due to matrix

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	44.5		10.0	1	12/24/2018 05:42	WG1214722

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00184	B	0.000500	1	12/21/2018 19:00	WG1214515
Toluene	0.00500		0.00500	1	12/21/2018 19:00	WG1214515
Ethylbenzene	0.000690	B	0.000500	1	12/21/2018 19:00	WG1214515
Total Xylene	0.00486	B	0.00150	1	12/21/2018 19:00	WG1214515
TPH (GC/FID) Low Fraction	0.222		0.100	1	12/21/2018 19:00	WG1214515
(S) a,a,a-Trifluorotoluene(FID)	*89.7*		*77.0-120*		*12/21/2018 19:00*	WG1214515
(S) a,a,a-Trifluorotoluene(PID)	*98.8*		*72.0-128*		*12/21/2018 19:00*	WG1214515

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	6.06	J3	4.00	1	12/27/2018 00:33	WG1215650
C28-C40 Oil Range	6.15		4.00	1	12/27/2018 00:33	WG1215650
(S) o-Terphenyl	*64.8*		*18.0-148*		*12/27/2018 00:33*	WG1215650

Method Blank (MB)

(MB) R3370840-1 12/23/18 21:39

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

L1054776-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1054776-02 12/23/18 22:49 • (DUP) R3370840-3 12/23/18 23:03

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	540	628	1	15.2	J3	15

L1055037-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1055037-06 12/24/18 02:46 • (DUP) R3370840-6 12/24/18 03:00

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	86.0	77.3	1	10.6		15

Laboratory Control Sample (LCS)

(LCS) R3370840-2 12/23/18 21:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	212	106	80.0-120	

L1055037-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055037-05 12/24/18 02:05 • (MS) R3370840-4 12/24/18 02:18 • (MSD) R3370840-5 12/24/18 02:32

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	74.3	570	573	99.2	99.7	1	80.0-120			0.429	15

Method Blank (MB)

(MB) R3370544-5 12/21/18 12:15

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000214	J	0.000120	0.000500
Toluene	0.000410	J	0.000150	0.00500
Ethylbenzene	0.000277	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)	*92.2*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*105*			*72.0-128*

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

(LCS) R3370544-1 12/21/18 10:29 • (LCSD) R3370544-2 12/21/18 10:50

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	0.0448	0.0447	89.5	89.3	76.0-121			0.241	20
Toluene	0.0500	0.0465	0.0457	93.0	91.4	80.0-120			1.68	20
Ethylbenzene	0.0500	0.0480	0.0475	96.1	95.1	80.0-124			1.03	20
Total Xylene	0.150	0.144	0.142	95.7	94.3	37.0-160			1.47	20
(S) a,a,a-Trifluorotoluene(FID)				*91.3*	*92.1*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*101*	*101*	*72.0-128*				

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

(LCS) R3370544-3 12/21/18 11:11 • (LCSD) R3370544-4 12/21/18 11:32

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	5.17	5.59	94.0	102	72.0-127			7.86	20
(S) a,a,a-Trifluorotoluene(FID)				*104*	*106*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*116*	*117*	*72.0-128*				

L1055037-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055037-01 12/21/18 14:24 • (MS) R3370544-6 12/21/18 19:21 • (MSD) R3370544-7 12/21/18 19:43

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	5.05	26.9	26.5	87.3	86.0	500	10.0-155			1.28	32
Toluene	0.0500	73.3	96.6	93.9	93.1	82.5	500	10.0-160			2.79	34
Ethylbenzene	0.0500	16.1	39.5	38.8	93.7	90.9	500	10.0-160			1.80	32
Total Xylene	0.150	170	231	226	81.9	74.4	500	10.0-160			2.45	32
(S) a,a,a-Trifluorotoluene(FID)					*88.0*	*87.1*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*100*	*100*		*72.0-128*				

L1055037-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055037-01 12/21/18 14:24 • (MS) R3370544-8 12/21/18 20:04 • (MSD) R3370544-9 12/21/18 20:25

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	2790	3800	3660	36.6	31.5	500	10.0-151			3.70	28
(S) a,a,a-Trifluorotoluene(FID)					*90.8*	*90.9*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*106*	*106*		*72.0-128*				

Method Blank (MB)

(MB) R3371408-1 12/26/18 21:31

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	*80.0*			*18.0-148*

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

(LCS) R3371408-2 12/26/18 21:46 • (LCSD) R3371408-3 12/26/18 22:00

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 %
Extractable Petroleum Hydrocarbon	50.0	40.9	41.7	81.8	83.4	50.0-150			1.94	20
C10-C28 Diesel Range	50.0	44.1	44.8	88.2	89.6	50.0-150			1.57	20
(S) o-Terphenyl				*98.2*	*100*	*18.0-148*				

L1055041-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055041-06 12/27/18 00:33 • (MS) R3371408-4 12/27/18 00:47 • (MSD) R3371408-5 12/27/18 01:02

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 %
Extractable Petroleum Hydrocarbon	47.6	15.9	70.9	41.9	116	52.3	1	50.0-150		J3	51.4	20
C10-C28 Diesel Range	47.6	6.06	49.5	30.9	91.3	50.0	1	50.0-150		J3	46.3	20
(S) o-Terphenyl					*69.2*	*54.8*		*18.0-148*				

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
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

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

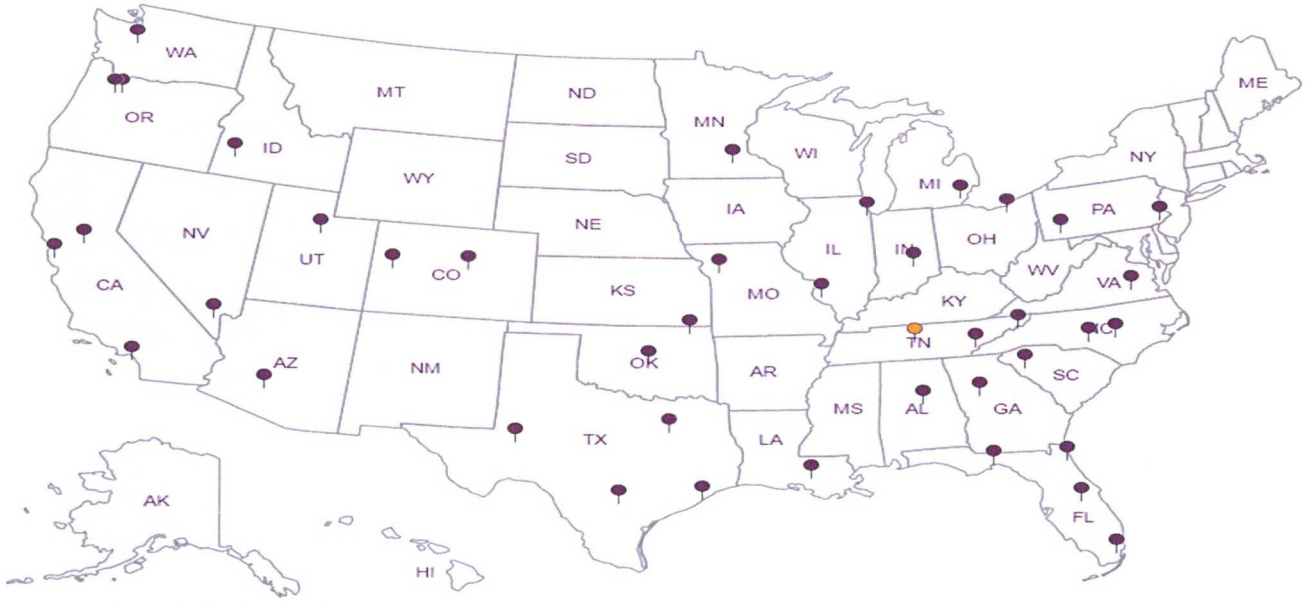
Third Party Federal Accreditations

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.



Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

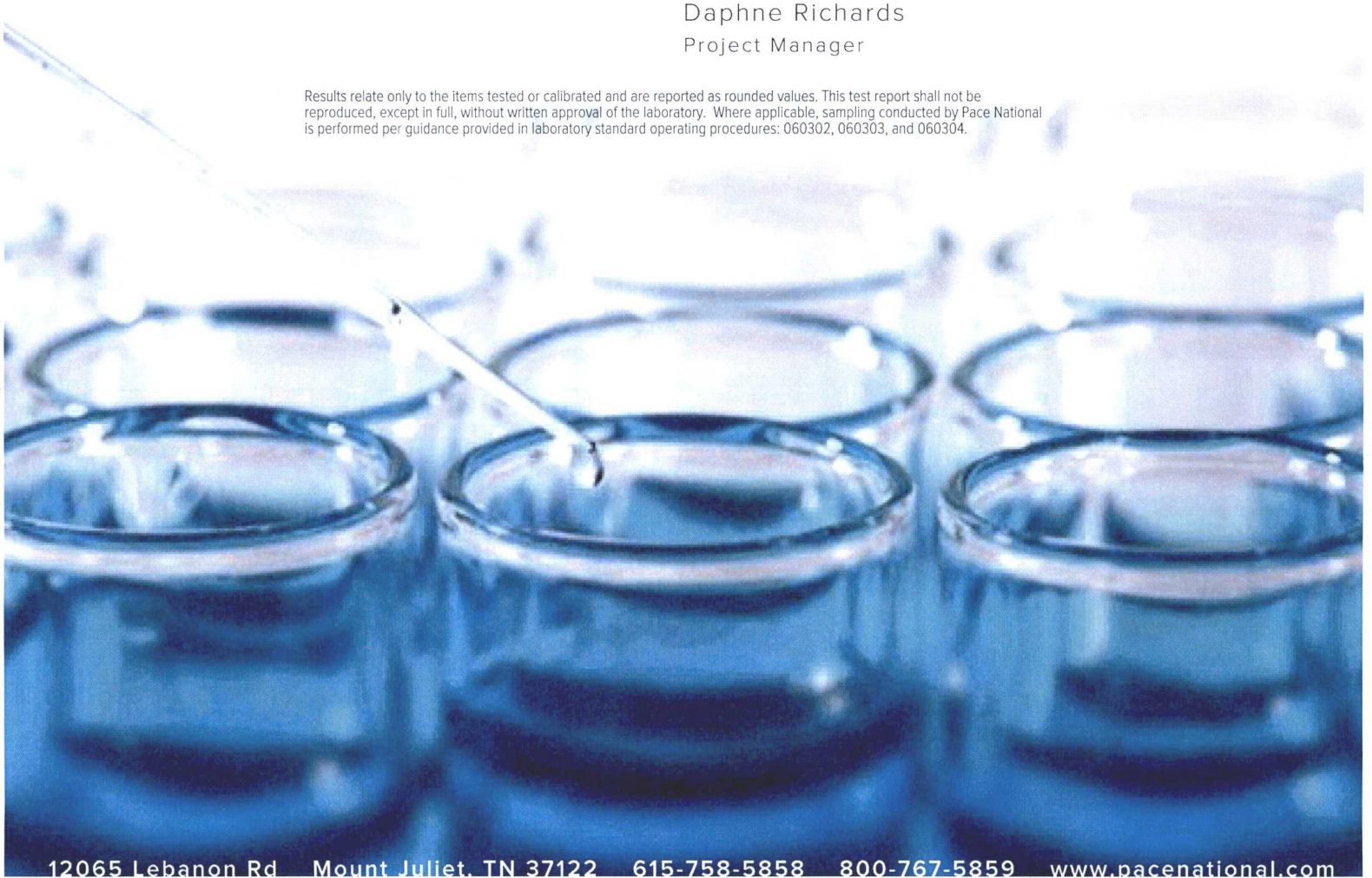
December 28, 2018

HilCorp-Farmington, NM

Sample Delivery Group:	L1055037
Samples Received:	12/20/2018
Project Number:	
Description:	
Site:	SEYMOUR #2M
Report To:	Kurt Hoekstra and Jennifer Deal 382 Road 3100 Aztec, NM 87401

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager



CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

L1055041

ALL SHADED AREAS are for LAB USE ONLY

Company: **HilCorp-Farmington, NM**	Billing Information:
Address: **382 Road 3100** **Aztec, NM 87401**	**PO Box 61529** **Houston, TX 77208**
Report To: JENNIFER DEAL	Email To: jdeale@hilcorp.com khoekstra@hilcorp.com
Copy To: KURT HOEKSTRA	Site Collection Info/Address:
Customer Project Name/Number:	State: / County/City: Time Zone Collected: PT MT CT ET
Phone: **505-486-9543** Email:	Site/Facility ID #: SEYMOUR # 2M
Collected by (print): KURT	Purchase Order #: Quote #:
Collected by (signature): Kurt Hoekstra	Turnaround Date Required:
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [X] 5 Day (Expedite Charges Apply)
	Compliance Monitoring? [ ] Yes [ ] No
	DW PWS ID #: DW Location Code:
	Immediately Packed on Ice: [X] Yes [ ] No
	Field Filtered (if applicable): [ ] Yes [ ] No Analysis: _____

Container Preservative Type **

Lab Project Manager: **288 - Daphne Richards**

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses: TPH 8015 - DRO, GRO, MRO	BTEX 8021	CHLORIDES	Lab Profile/Line
S.E. WALL COMP	SS	COMP	12-18	10:05				1	X	X	X	-01
S.W WALL COMP		COMP		10:10								-02
W WALL COMP		COMP		10:15								-03
NW CORNER GRAB		GRAB		10:25								-04
NE WALL COMP		COMP		10:30								-05
E WALL COMP		COMP		10:35								-06

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips: _____			
Sample pH Acceptable	Y	N	NA
pH Strips: _____			
Sulfide Present	Y	N	NA
Lead Acetate Strips: _____			

LAB USE ONLY:
Lab Sample # / Comments

Customer Remarks / Special Conditions / Possible Hazards:
#Error
#Error

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

LAB Tracking #: 4430 3422 8401

Samples received via: FEDEX UPS Client Courier Pace Courier

LAB Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: IR#3
Cooler 1 Temp Upon Receipt 1.3 oC
Cooler 1 Therm Corr. Factor -0.1 oC
Cooler 1 Corrected Temp 1.4 oC
Comments:
Trip Blank Received: Y N NA
HCL MeOH TSP Other

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Kurt Hoekstra	8:05 12-19-18		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
			12/20/18 9:30

C038

Acctnum: HILCORANM
Template:
Prelogin:
PM: 288 - Daphne Richards
PB:

NonConformance(s) YES / NO

Page ____ of ____

TABLE OF CONTENTS

E. BASE COMP L1055037-01 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 09:30 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 01:09	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1214515	500	12/20/18 20:31	12/21/18 14:24	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	20	12/26/18 17:26	12/27/18 03:31	KME
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	200	12/26/18 17:26	12/27/18 14:20	KME

E. BASE GRAB L1055037-02 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 09:40 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 01:23	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1214515	500	12/20/18 20:31	12/21/18 14:46	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	20	12/26/18 17:26	12/27/18 03:46	KME
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	200	12/26/18 17:26	12/27/18 14:35	KME

W. BASE COMP L1055037-03 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 09:45 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 01:37	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1214515	100	12/20/18 20:31	12/21/18 15:07	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	20	12/26/18 17:26	12/27/18 13:20	KME

MIDDLE BASE COMP L1055037-04 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 09:50 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 01:51	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1216698	25	12/20/18 20:31	12/27/18 19:27	JHH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	10	12/26/18 17:26	12/27/18 13:06	KME

S. BOTTOM GRAB L1055037-05 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 09:58 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 02:05	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1214515	500	12/20/18 20:31	12/21/18 16:32	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	10	12/26/18 17:26	12/27/18 03:02	KME
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	50	12/26/18 17:26	12/27/18 13:51	KME

SE BOTTOM OF WALL GRAB L1055037-06 Solid

Collected by: Kurt Hoekstra | Collected date/time: 12/18/18 10:02 | Received date/time: 12/20/18 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1214722	1	12/21/18 17:18	12/24/18 02:46	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1214515	1000	12/20/18 20:31	12/21/18 16:53	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	20	12/26/18 17:26	12/27/18 03:16	KME
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1215650	200	12/26/18 17:26	12/27/18 14:06	KME

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 R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	55.0		10.0	1	12/24/2018 01:09	WG1214722

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	5.05		0.250	500	12/21/2018 14:24	WG1214515
Toluene	73.3		2.50	500	12/21/2018 14:24	WG1214515
Ethylbenzene	16.1		0.250	500	12/21/2018 14:24	WG1214515
Total Xylene	170		0.750	500	12/21/2018 14:24	WG1214515
TPH (GC/FID) Low Fraction	2790		50.0	500	12/21/2018 14:24	WG1214515
(S) a,a,a-Trifluorotoluene(FID)	*86.8*		*77.0-120*		*12/21/2018 14:24*	WG1214515
(S) a,a,a-Trifluorotoluene(PID)	*102*		*72.0-128*		*12/21/2018 14:24*	WG1214515

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	20500		800	200	12/27/2018 14:20	WG1215650
C28-C40 Oil Range	3570		80.0	20	12/27/2018 03:31	WG1215650
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*12/27/2018 03:31*	WG1215650
(S) o-Terphenyl	*3100*	J7	*18.0-148*		*12/27/2018 14:20*	WG1215650

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	53.6		10.0	1	12/24/2018 01:23	WG1214722

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	6.31		0.250	500	12/21/2018 14:46	WG1214515
Toluene	76.0		2.50	500	12/21/2018 14:46	WG1214515
Ethylbenzene	14.9		0.250	500	12/21/2018 14:46	WG1214515
Total Xylene	155		0.750	500	12/21/2018 14:46	WG1214515
TPH (GC/FID) Low Fraction	2260		50.0	500	12/21/2018 14:46	WG1214515
(S) a,a,a-Trifluorotoluene(FID)	*87.7*		*77.0-120*		*12/21/2018 14:46*	WG1214515
(S) a,a,a-Trifluorotoluene(PID)	*102*		*72.0-128*		*12/21/2018 14:46*	WG1214515

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	23300		800	200	12/27/2018 14:35	WG1215650
C28-C40 Oil Range	3810		80.0	20	12/27/2018 03:46	WG1215650
(S) o-Terphenyl	*3930*	J7	*18.0-148*		*12/27/2018 14:35*	WG1215650
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*12/27/2018 03:46*	WG1215650

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	47.1		10.0	1	12/24/2018 01:37	WG1214722

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	100	12/21/2018 15:07	WG1214515
Toluene	ND		0.500	100	12/21/2018 15:07	WG1214515
Ethylbenzene	ND		0.0500	100	12/21/2018 15:07	WG1214515
Total Xylene	2.63		0.150	100	12/21/2018 15:07	WG1214515
TPH (GC/FID) Low Fraction	99.8		10.0	100	12/21/2018 15:07	WG1214515
(S) a,a,a-Trifluorotoluene(FID)	*91.6*		*77.0-120*		*12/21/2018 15:07*	WG1214515
(S) a,a,a-Trifluorotoluene(PID)	*99.8*		*72.0-128*		*12/21/2018 15:07*	WG1214515

Sample Narrative:

L1055037-03 WG1214515: Non-target compounds too high to run at a lower dilution.

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	1490		80.0	20	12/27/2018 13:20	WG1215650
C28-C40 Oil Range	591		80.0	20	12/27/2018 13:20	WG1215650
(S) o-Terphenyl	*266*	J7	*18.0-148*		*12/27/2018 13:20*	WG1215650

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	50.1		10.0	1	12/24/2018 01:51	WG1214722

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0513		0.0125	25	12/27/2018 19:27	WG1216698
Toluene	1.01		0.125	25	12/27/2018 19:27	WG1216698
Ethylbenzene	0.358		0.0125	25	12/27/2018 19:27	WG1216698
Total Xylene	5.15		0.0375	25	12/27/2018 19:27	WG1216698
TPH (GC/FID) Low Fraction	111		2.50	25	12/27/2018 19:27	WG1216698
(S) a,a,a-Trifluorotoluene(FID)	*103*		*77.0-120*		*12/27/2018 19:27*	WG1216698
(S) a,a,a-Trifluorotoluene(PID)	*92.7*		*72.0-128*		*12/27/2018 19:27*	WG1216698

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	1210		40.0	10	12/27/2018 13:06	WG1215650
C28-C40 Oil Range	433		40.0	10	12/27/2018 13:06	WG1215650
(S) o-Terphenyl	*246*	J1	*18.0-148*		*12/27/2018 13:06*	WG1215650

Sample Narrative:

L1055037-04 WG1215650: High surrogate due to matrix

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	74.3		10.0	1	12/24/2018 02:05	WG1214722

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.250	500	12/21/2018 16:32	WG1214515
Toluene	14.8		2.50	500	12/21/2018 16:32	WG1214515
Ethylbenzene	6.55		0.250	500	12/21/2018 16:32	WG1214515
Total Xylene	70.7		0.750	500	12/21/2018 16:32	WG1214515
TPH (GC/FID) Low Fraction	1230		50.0	500	12/21/2018 16:32	WG1214515
(S) a,a,a-Trifluorotoluene(FID)	*90.7*		*77.0-120*		*12/21/2018 16:32*	WG1214515
(S) a,a,a-Trifluorotoluene(PID)	*99.3*		*72.0-128*		*12/21/2018 16:32*	WG1214515

Sample Narrative:

L1055037-05 WG1214515: Non-target compounds too high to run at a lower dilution.

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	6790		200	50	12/27/2018 13:51	WG1215650
C28-C40 Oil Range	1370		40.0	10	12/27/2018 03:02	WG1215650
(S) o-Terphenyl	*1050*	J7	*18.0-148*		*12/27/2018 13:51*	WG1215650
(S) o-Terphenyl	*954*	J1	*18.0-148*		*12/27/2018 03:02*	WG1215650

Sample Narrative:

L1055037-05 WG1215650: Surrogate failure due to matrix interference

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	86.0		10.0	1	12/24/2018 02:46	WG1214722

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	8.15		0.500	1000	12/21/2018 16:53	WG1214515
Toluene	127		5.00	1000	12/21/2018 16:53	WG1214515
Ethylbenzene	23.5		0.500	1000	12/21/2018 16:53	WG1214515
Total Xylene	243		1.50	1000	12/21/2018 16:53	WG1214515
TPH (GC/FID) Low Fraction	3320		100	1000	12/21/2018 16:53	WG1214515
(S) a,a,a-Trifluorotoluene(FID)	*81.2*		*77.0-120*		*12/21/2018 16:53*	WG1214515
(S) a,a,a-Trifluorotoluene(PID)	*101*		*72.0-128*		*12/21/2018 16:53*	WG1214515

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	19400		800	200	12/27/2018 14:06	WG1215650
C28-C40 Oil Range	3090		80.0	20	12/27/2018 03:16	WG1215650
(S) o-Terphenyl	*2810*	J7	*18.0-148*		*12/27/2018 14:06*	WG1215650
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*12/27/2018 03:16*	WG1215650

Method Blank (MB)

(MB) R3370840-1 12/23/18 21:39

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

L1054776-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1054776-02 12/23/18 22:49 • (DUP) R3370840-3 12/23/18 23:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Chloride	540	628	1	15.2	J3	15

L1055037-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1055037-06 12/24/18 02:46 • (DUP) R3370840-6 12/24/18 03:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Chloride	86.0	77.3	1	10.6		15

Laboratory Control Sample (LCS)

(LCS) R3370840-2 12/23/18 21:53

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
Chloride	200	212	106	80.0-120	

L1055037-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055037-05 12/24/18 02:05 • (MS) R3370840-4 12/24/18 02:18 • (MSD) R3370840-5 12/24/18 02:32

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chloride	500	74.3	570	573	99.2	99.7	1	80.0-120			0.429	15

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

Method Blank (MB)

(MB) R3370544-5 12/21/18 12:15

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000214	J	0.000120	0.000500
Toluene	0.000410	J	0.000150	0.00500
Ethylbenzene	0.000277	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)	*92.2*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*105*			*72.0-128*

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

(LCS) R3370544-1 12/21/18 10:29 • (LCSD) R3370544-2 12/21/18 10:50

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	0.0448	0.0447	89.5	89.3	76.0-121			0.241	20
Toluene	0.0500	0.0465	0.0457	93.0	91.4	80.0-120			1.68	20
Ethylbenzene	0.0500	0.0480	0.0475	96.1	95.1	80.0-124			1.03	20
Total Xylene	0.150	0.144	0.142	95.7	94.3	37.0-160			1.47	20
(S) a,a,a-Trifluorotoluene(FID)				*91.3*	*92.1*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*101*	*101*	*72.0-128*				

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

(LCS) R3370544-3 12/21/18 11:11 • (LCSD) R3370544-4 12/21/18 11:32

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	5.17	5.59	94.0	102	72.0-127			7.86	20
(S) a,a,a-Trifluorotoluene(FID)				*104*	*106*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*116*	*117*	*72.0-128*				

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

L1055037-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055037-01 12/21/18 14:24 • (MS) R3370544-6 12/21/18 19:21 • (MSD) R3370544-7 12/21/18 19:43

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	5.05	26.9	26.5	87.3	86.0	500	10.0-155			1.28	32
Toluene	0.0500	73.3	96.6	93.9	93.1	82.5	500	10.0-160			2.79	34
Ethylbenzene	0.0500	16.1	39.5	38.8	93.7	90.9	500	10.0-160			1.80	32
Total Xylene	0.150	170	231	226	81.9	74.4	500	10.0-160			2.45	32
(S) a,a,a-Trifluorotoluene(FID)					*88.0*	*87.1*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*100*	*100*		*72.0-128*				

L1055037-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055037-01 12/21/18 14:24 • (MS) R3370544-8 12/21/18 20:04 • (MSD) R3370544-9 12/21/18 20:25

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	2790	3800	3660	36.6	31.5	500	10.0-151			3.70	28
(S) a,a,a-Trifluorotoluene(FID)					*90.8*	*90.9*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*106*	*106*		*72.0-128*				

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

Method Blank (MB)

(MB) R3371791-5 12/27/18 18:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000691	J	0.000150	0.00500
Ethylbenzene	0.000147	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)	*104*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*97.2*			*72.0-128*

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

(LCS) R3371791-1 12/27/18 16:44 • (LCSD) R3371791-2 12/27/18 17:05

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	0.0460	0.0463	92.0	92.7	76.0-121			0.809	20
Toluene	0.0500	0.0480	0.0475	95.9	95.0	80.0-120			0.914	20
Ethylbenzene	0.0500	0.0476	0.0475	95.3	94.9	80.0-124			0.365	20
Total Xylene	0.150	0.145	0.144	96.9	95.9	37.0-160			0.968	20
(S) a,a,a-Trifluorotoluene(FID)				*101*	*99.6*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*96.3*	*97.3*	*72.0-128*				

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

(LCS) R3371791-3 12/27/18 17:26 • (LCSD) R3371791-4 12/27/18 17:47

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	5.38	6.00	97.8	109	72.0-127			10.9	20
(S) a,a,a-Trifluorotoluene(FID)				*95.2*	*98.1*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*102*	*105*	*72.0-128*				

Method Blank (MB)

(MB) R3371408-1 12/26/18 21:31

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	*80.0*			*18.0-148*

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

(LCS) R3371408-2 12/26/18 21:46 • (LCSD) R3371408-3 12/26/18 22:00

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 %
Extractable Petroleum Hydrocarbon	50.0	40.9	41.7	81.8	83.4	50.0-150			1.94	20
C10-C28 Diesel Range	50.0	44.1	44.8	88.2	89.6	50.0-150			1.57	20
(S) o-Terphenyl				*98.2*	*100*	*18.0-148*				

L1055041-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055041-06 12/27/18 00:33 • (MS) R3371408-4 12/27/18 00:47 • (MSD) R3371408-5 12/27/18 01:02

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 %
Extractable Petroleum Hydrocarbon	47.6	15.9	70.9	41.9	116	52.3	1	50.0-150		J3	51.4	20
C10-C28 Diesel Range	47.6	6.06	49.5	30.9	91.3	50.0	1	50.0-150		J3	46.3	20
(S) o-Terphenyl					*69.2*	*54.8*		*18.0-148*				

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
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

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	LAO00356
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.

CHA -OF-CUSTODY Analytical Request Docu nt

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here Or
MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: HilCorp-Farmington, NM	Billing Information: PO Box 61529 Houston, TX 77208
Address: 382 Road 3100 Aztec, NM 87401	
Report To: JENNIFER DEAL	Email To: jdeal@hilcorp.com KHoekstra@hilcorp.com
Copy To: KURT HOEKSTRA	Site Collection Info/Address:
Customer Project Name/Number:	State: / County/City: Time Zone Collected: PT MT CT ET
Phone: 505-486-9543 Email:	Site/Facility ID #: SEYMOUR # 2M
Collected by (print): KURT	Purchase Order #: Quote #:
Collected by (signature): Kurt Hoekstra	Turnaround Date Required:
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive [ ] Hold	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [X] 5 Day (Expedite Charges Apply)

Compliance Monitoring? [ ] Yes [ ] No
DW PWS ID #:
DW Location Code:
Immediately Packed on Ice: [X] Yes [ ] No
Field Filtered (if applicable): [ ] Yes [ ] No
Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Container Preservative Type **

Lab Project Manager: 288 - Daphne Richards

Analyses: TPH 8015 - DRO, GRO, MRO | BTEX 8021 | CHLORIDE

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips:	
Sample pH Acceptable	Y N NA
pH Strips:	
Sulfide Present	Y N NA
Lead Acetate Strips:	

LAB USE ONLY:
Lab Sample # / Comments

L1055037

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns				
E. BASE COMP	SS	COMP	12-18	9:30				1	X	X	X	-01
E. BASE GRAB		GRAB		9:40								-02
W. BASE COMP		COMP		9:45								-03
MIDDLE BASE COMP		COMP		9:50								-04
S. BOTTOM OF WALL	GRAB	GRAB		9:58								-05
SE BOTTOM OF WALL	GRAB	GRAB		10:02								-06

Customer Remarks / Special Conditions / Possible Hazards:
#Error
#Error

Type of Ice Used: Wet Blue Dry None
Packing Material Used:
Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A
LAB Tracking #: 4430 3422 3401
Samples received via: FEDEX UPS Client Courier Pace Courier

LAB Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: ID03
Cooler 1 Temp Upon Receipt 1.5 oC
Cooler 1 Therm Corr. Factor 0.1 oC
Cooler 1 Corrected Temp 1.4 oC

C037

Relinquished by/Company: (Signature) Kurt Hoekstra	Date/Time: 8:05 12-19-18	Received by/Company: (Signature)	Date/Time:	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time: 12/20/18: 9:3	

Acct.: HILCORANM
Template:
Prelogin:
PM: 288 - Daphne Richards
PB:

Comments:
Trip Blank Received: Y (N) NA
HCL MeOH TSP Other
NonConformance(s) YES / NO
Page ____ of ____

AB

6 containers

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 21, 2019

HilCorp-Farmington, NM

Sample Delivery Group:	L1060942
Samples Received:	01/15/2019
Project Number:	Seymour #2M
Description:	Seymour #2M
Site:	SEYMOUR #214
Report To:	Jennifer Deal 382 Road 3100 Aztec, NM 87401

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

TABLE OF CONTENTS

WEST BASE L1060942-01 Solid

Collected by	Collected date/time	Received date/time
Kurt	01/14/19 10:09	01/15/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015/8021	WG1223990	1	01/15/19 13:22	01/16/19 06:53	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1223796	1	01/16/19 06:09	01/16/19 17:29	TJD

MIDDLE BASE L1060942-02 Solid

Collected by	Collected date/time	Received date/time
Kurt	01/14/19 10:15	01/15/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015/8021	WG1223990	1	01/15/19 13:22	01/16/19 07:15	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1223796	1	01/16/19 06:09	01/16/19 17:42	TJD

S.E BASE L1060942-03 Solid

Collected by	Collected date/time	Received date/time
Kurt	01/14/19 10:18	01/15/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015/8021	WG1223990	1	01/15/19 13:22	01/16/19 07:43	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1223796	1	01/16/19 06:09	01/16/19 17:15	TJD

N.E. BASE L1060942-04 Solid

Collected by	Collected date/time	Received date/time
Kurt	01/14/19 10:22	01/15/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015/8021	WG1223990	1	01/15/19 13:22	01/16/19 08:09	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1223796	1	01/16/19 06:09	01/16/19 17:01	TJD

S.E. WALL L1060942-05 Solid

Collected by	Collected date/time	Received date/time
Kurt	01/14/19 10:25	01/15/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015/8021	WG1223990	1	01/15/19 13:22	01/16/19 08:31	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1223796	1	01/16/19 06:09	01/16/19 17:56	TJD

N. WALL L1060942-06 Solid

Collected by	Collected date/time	Received date/time
Kurt	01/14/19 10:30	01/15/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015/8021	WG1223990	1	01/15/19 13:22	01/16/19 08:53	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1223796	1	01/16/19 06:09	01/16/19 16:47	TJD

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 R Richards

Daphne Richards
Project Manager

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	01/16/2019 06:53	WG1223990
Toluene	ND		0.00500	1	01/16/2019 06:53	WG1223990
Ethylbenzene	ND		0.000500	1	01/16/2019 06:53	WG1223990
Total Xylene	ND		0.00150	1	01/16/2019 06:53	WG1223990
TPH (GC/FID) Low Fraction	ND		0.100	1	01/16/2019 06:53	WG1223990
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*01/16/2019 06:53*	WG1223990
(S) a,a,a-Trifluorotoluene(PID)	*93.9*		*72.0-128*		*01/16/2019 06:53*	WG1223990

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	56.5		4.00	1	01/16/2019 17:29	WG1223796
C28-C40 Oil Range	12.3		4.00	1	01/16/2019 17:29	WG1223796
(S) o-Terphenyl	*92.2*		*18.0-148*		*01/16/2019 17:29*	WG1223796

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	01/16/2019 07:15	WG1223990
Toluene	ND		0.00500	1	01/16/2019 07:15	WG1223990
Ethylbenzene	0.000631	B	0.000500	1	01/16/2019 07:15	WG1223990
Total Xylene	0.00704		0.00150	1	01/16/2019 07:15	WG1223990
TPH (GC/FID) Low Fraction	0.974		0.100	1	01/16/2019 07:15	WG1223990
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*01/16/2019 07:15*	WG1223990
(S) a,a,a-Trifluorotoluene(PID)	*93.3*		*72.0-128*		*01/16/2019 07:15*	WG1223990

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	230		4.00	1	01/16/2019 17:42	WG1223796
C28-C40 Oil Range	45.7		4.00	1	01/16/2019 17:42	WG1223796
(S) o-Terphenyl	*78.5*		*18.0-148*		*01/16/2019 17:42*	WG1223796

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	01/16/2019 07:43	WG1223990
Toluene	ND		0.00500	1	01/16/2019 07:43	WG1223990
Ethylbenzene	0.00802		0.000500	1	01/16/2019 07:43	WG1223990
Total Xylene	0.148		0.00150	1	01/16/2019 07:43	WG1223990
TPH (GC/FID) Low Fraction	5.65		0.100	1	01/16/2019 07:43	WG1223990
(S) a,a,a-Trifluorotoluene(FID)	*99.5*		*77.0-120*		*01/16/2019 07:43*	WG1223990
(S) a,a,a-Trifluorotoluene(PID)	*94.0*		*72.0-128*		*01/16/2019 07:43*	WG1223990

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	239		4.00	1	01/16/2019 17:15	WG1223796
C28-C40 Oil Range	44.6		4.00	1	01/16/2019 17:15	WG1223796
(S) o-Terphenyl	*84.2*		*18.0-148*		*01/16/2019 17:15*	WG1223796

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	01/16/2019 08:09	WG1223990
Toluene	ND		0.00500	1	01/16/2019 08:09	WG1223990
Ethylbenzene	0.00234		0.000500	1	01/16/2019 08:09	WG1223990
Total Xylene	0.0417		0.00150	1	01/16/2019 08:09	WG1223990
TPH (GC/FID) Low Fraction	1.67		0.100	1	01/16/2019 08:09	WG1223990
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*01/16/2019 08:09*	WG1223990
(S) a,a,a-Trifluorotoluene(PID)	*92.4*		*72.0-128*		*01/16/2019 08:09*	WG1223990

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	283		4.00	1	01/16/2019 17:01	WG1223796
C28-C40 Oil Range	51.8		4.00	1	01/16/2019 17:01	WG1223796
(S) o-Terphenyl	*88.5*		*18.0-148*		*01/16/2019 17:01*	WG1223796

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000519		0.000500	1	01/16/2019 08:31	WG1223990
Toluene	ND		0.00500	1	01/16/2019 08:31	WG1223990
Ethylbenzene	ND		0.000500	1	01/16/2019 08:31	WG1223990
Total Xylene	0.00430	B	0.00150	1	01/16/2019 08:31	WG1223990
TPH (GC/FID) Low Fraction	ND		0.100	1	01/16/2019 08:31	WG1223990
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*01/16/2019 08:31*	WG1223990
(S) a,a,a-Trifluorotoluene(PID)	*94.7*		*72.0-128*		*01/16/2019 08:31*	WG1223990

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	10.4		4.00	1	01/16/2019 17:56	WG1223796
C28-C40 Oil Range	ND		4.00	1	01/16/2019 17:56	WG1223796
(S) o-Terphenyl	*115*		*18.0-148*		*01/16/2019 17:56*	WG1223796

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	01/16/2019 08:53	WG1223990
Toluene	ND		0.00500	1	01/16/2019 08:53	WG1223990
Ethylbenzene	ND		0.000500	1	01/16/2019 08:53	WG1223990
Total Xylene	0.00267	B	0.00150	1	01/16/2019 08:53	WG1223990
TPH (GC/FID) Low Fraction	0.122		0.100	1	01/16/2019 08:53	WG1223990
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*01/16/2019 08:53*	WG1223990
(S) a,a,a-Trifluorotoluene(PID)	*94.1*		*72.0-128*		*01/16/2019 08:53*	WG1223990

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	75.6		4.00	1	01/16/2019 16:47	WG1223796
C28-C40 Oil Range	13.0		4.00	1	01/16/2019 16:47	WG1223796
(S) o-Terphenyl	*81.7*		*18.0-148*		*01/16/2019 16:47*	WG1223796

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

Method Blank (MB)

(MB) R3376162-5 01/16/19 03:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000540	J	0.000150	0.00500
Ethylbenzene	0.000128	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)	*102*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*96.2*			*72.0-128*

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

(LCS) R3376162-1 01/16/19 01:22 • (LCSD) R3376162-2 01/16/19 01:43

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	0.0458	0.0436	91.6	87.2	76.0-121			4.96	20
Toluene	0.0500	0.0462	0.0440	92.3	88.0	80.0-120			4.80	20
Ethylbenzene	0.0500	0.0466	0.0447	93.3	89.4	80.0-124			4.25	20
Total Xylene	0.150	0.139	0.133	92.5	88.9	37.0-160			3.97	20
(S) a,a,a-Trifluorotoluene(FID)				*102*	*102*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*99.2*	*97.0*	*72.0-128*				

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

(LCS) R3376162-3 01/16/19 02:05 • (LCSD) R3376162-4 01/16/19 02:26

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	5.83	6.00	106	109	72.0-127			2.90	20
(S) a,a,a-Trifluorotoluene(FID)				*100*	*100*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*110*	*110*	*72.0-128*				

L1060574-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1060574-01 01/16/19 09:14 • (MS) R3376162-6 01/16/19 09:35 • (MSD) R3376162-7 01/16/19 09:56

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	0.0433	0.522	0.515	38.3	37.7	25	10.0-155			1.35	32
Toluene	0.0500	ND	0.530	0.514	42.4	41.1	25	10.0-160			3.18	34
Ethylbenzene	0.0500	0.0444	0.751	0.732	56.5	55.0	25	10.0-160			2.58	32
Total Xylene	0.150	1.34	3.34	3.27	53.3	51.3	25	10.0-160	J6	J6	2.21	32
(S) a,a,a-Trifluorotoluene(FID)					*104*	*104*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*99.5*	*99.5*		*72.0-128*				

Sample Narrative:

OS: Non-target compounds too high to run at a lower dilution.

L1060574-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1060574-01 01/16/19 09:14 • (MS) R3376162-8 01/16/19 10:19 • (MSD) R3376162-9 01/16/19 10:41

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	156	245	235	64.9	57.9	25	10.0-151			3.97	28
(S) a,a,a-Trifluorotoluene(FID)					*98.8*	*105*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*99.4*	*99.6*		*72.0-128*				

Sample Narrative:

OS: Non-target compounds too high to run at a lower dilution.

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

Method Blank (MB)

(MB) R3376403-1 01/16/19 15:39

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	*97.7*			*18.0-148*

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

(LCS) R3376403-2 01/16/19 15:53 • (LCSD) R3376403-3 01/16/19 16:06

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	46.5	48.6	93.0	97.2	50.0-150			4.42	20
C10-C28 Diesel Range	50.0	47.6	52.2	95.2	104	50.0-150			9.22	20
(S) o-Terphenyl				*95.6*	*110*	*18.0-148*				

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
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

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	LAO00356
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.

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number Here
MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: HilCorp-Farmington, NM	Billing Information:
Address: 382 Road 3100 Aztec, NM 87401	PO Box 61529 Houston, TX 77208
Report To: JENNIFER DEAL	Email To: jdeal@hilcorp.com khoekstra@hilcorp.com
Copy To: KURT HOEKSTRA	Site Collection Info/Address:
Customer Project Name/Number:	State: / County/City: Time Zone Collected: PT MT CT ET
Phone: 505-486-9543 Email:	Site/Facility ID #: SEYMOUR # 2M
Collected by (print): KURT	Purchase Order #: Quote #:
Collected by (signature): Kurt Hoekstra	Turnaround Date Required:
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [X] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)
	Compliance Monitoring? [ ] Yes [ ] No
	DW PWS ID #: DW Location Code:
	Immediately Packed on Ice: [X] Yes [ ] No
	Field Filtered (if applicable): [ ] Yes [ ] No Analysis: _____

Container Preservative Type **

Lab Project Manager:
288 - Daphne Richards

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses: TPH 8015 - DRO, GRO, MRO	Analyses: BTEX 8021	Lab Sample # / Comments
											1060942
WEST BASE	Soil	Comp	1-14			10:09		1	X	X	-01
MIDDLE BASE	"	"	"			10:15		1	X	X	02
S.E. BASE	"	"	"			10:18		1	X	X	03
N.E. BASE	"	"	"			10:22		1	X	X	04
S.E. WALL	"	"	"			10:25		1	X	X	05
N. WALL	"	"	"			10:30		1	X	X	06

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips: _____	
Sample pH Acceptable	Y N NA
pH Strips: _____	
Sulfide Present	Y N NA
Lead Acetate Strips: _____	

LAB USE ONLY:
Lab Sample # / Comments

Customer Remarks / Special Conditions / Possible Hazards:
#Error
#Error

Type of Ice Used: Wet Blue Dry None
Packing Material Used:
Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A
LAB Tracking #: 4624 3005 1736
Samples received via: FEDEX UPS Client Courier Pace Courier

LAB Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: BS AR
Cooler 1 Temp Upon Receipt: 1.2 oC
Cooler 1 Therm Corr. Factor: -0.3 oC
Cooler 1 Corrected Temp: 0.9 oC
Comments:
Trip Blank Received: Y (N) NA
HCL MeOH TSP Other
NonConformance(s): YES / (NO)
Page ____ of ____

Relinquished by/Company: (Signature) Kurt Hoekstra	Date/Time: 2:00 1-14-19	Received by/Company: (Signature)	Date/Time:	H035
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Acctnum: HILCORANM Template: Prelogin:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time: 1/15/19 0830	PM: 288 - Daphne Richards PB: