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	**NFV1831248591**
District RP	
Facility ID	
Application ID	

Release Notification

NMOCD
JAN 14 2019
DISTRICT III

Responsible Party

Responsible Party Hilcorp Energy Company	OGRID 372171
Contact Name Jennifer Deal	Contact Telephone (505-801-6517
Contact email jdeal@hilcorp.com	Incident # **NFV1831248591**
Contact mailing address 382 Road 3100, Aztec NM 87410	

Location of Release Source

Latitude 36.8427582 Longitude -108.2629547
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Salty Dog 4 SWD	Site Type Salt Water Disposal
Date Release Discovered 11/5/2018 @ 10:00am	API# *30-045-32334*

Unit Letter	Section	Township	Range	County
K	01	30N	14W	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) 180	Volume Recovered (bbls) 177
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ 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 180 bbls of produced water was discovered by operator during a routine checkup. Operator found the south inlet water leg tank leaking due to a corrosion spot ~ 13' up on the tank. Operator isolated the tanks and began to pump down the tank and called for water truck and hydrovac truck to start cleanup. 177 bbls were recovered. The spill remained on location inside the lined berm area. The tank with the leak was removed from service.

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State of New Mexico
Oil Conservation Division

Incident ID	**NFV1831248591**
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?	281 (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	**NFV1831248591**
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: 1/10/2019

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

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	NFV1831248591
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: 1/10/2019

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

OCD Only

Received by: Vanessa Fields Date: 1/11/2019

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: Date: 1/11/2019

Printed Name: Vanessa Fields Title: Environmental Specialist

Scaled Map

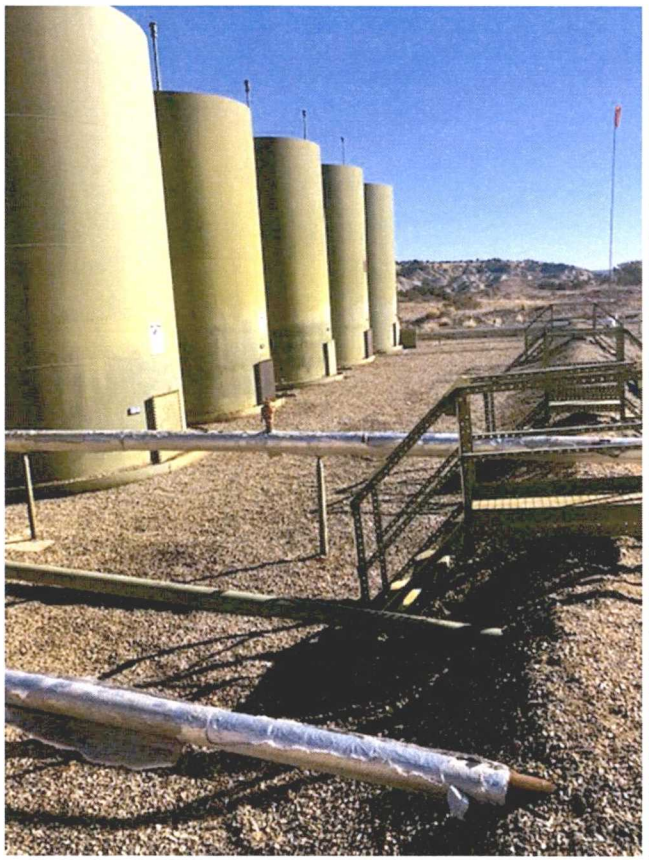
N

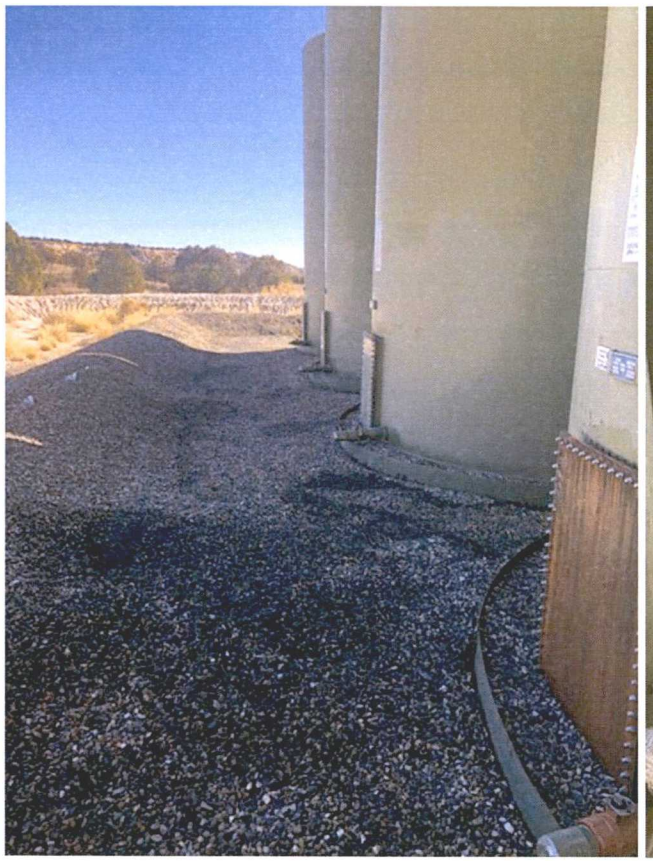
Photographs – Impacted Area

Including date and GIS information

Photographs – Impacted Area after cleanup

Including date and GIS information





Data table of soil contaminant concentration data

TABLE 1

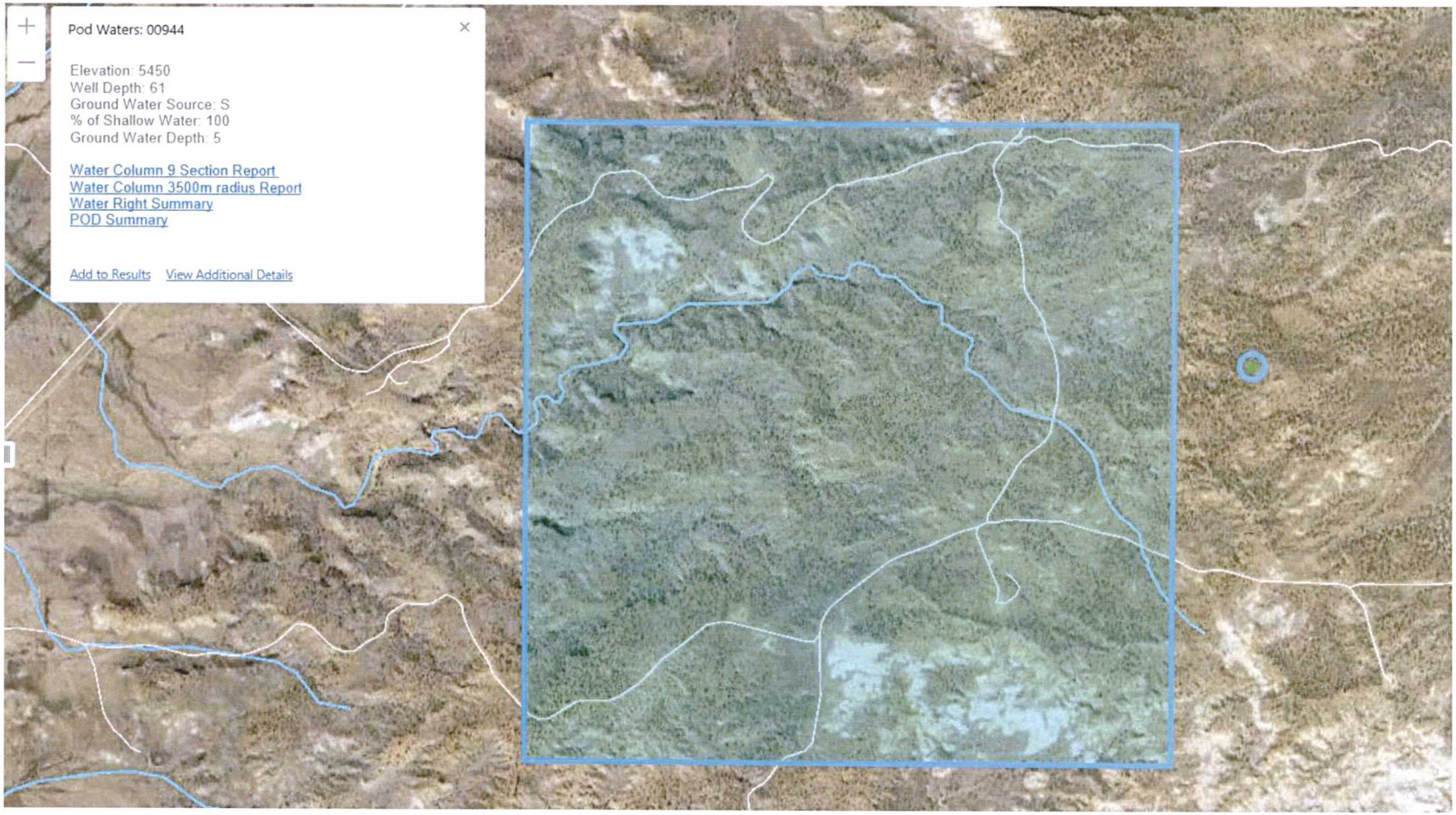
SOIL ANALYTICAL RESULTS
SALTY DOG SWD 4
HILCORP ENERGY - L48 WEST

oil Sample Identification	Sample Date	Field Headspace	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes	Total BTEX	Chlorides (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH (mg/k
Liner Tear Grab	12/11/2018		<0.0005	<0.005	<0.0005	<0.00150	<0.005	568	<0.100	<4.00	<4.00	<4.00
Liner Tear Comp	12/11/2018		<0.0005	<0.005	<0.0005	<0.00150	<0.005	522	<0.100	<4.00	5.36	5.36
Background	12/11/2018		<0.0005	<0.005	<0.0005	<0.00150	<0.005	93.2	<0.100	<4.00	5.36	<4.00
NMOCD Standards		NE	10	NE	NE	NE	50	600	NE	NE	NE	100

Depth to Groundwater Determination

POD 944 Elevation = 5450 Salty Dog SWD 4 = 5726

GW Depth 5726-5450=276 + 5’ = 281



Depth to water determination

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
SJ 00944		SJ	SJ		3	1	03	30N	14W	205449	4082758*	61	5	56

Average Depth to Water: **5 feet**

Minimum Depth: **5 feet**

Maximum Depth: **5 feet**

Record Count: 1

Basin/County Search:

Basin: San Juan Subbasin: San Juan

PLSS Search:

Township: 30N Range: 14W

***UTM location was derived from PLSS - see Help**

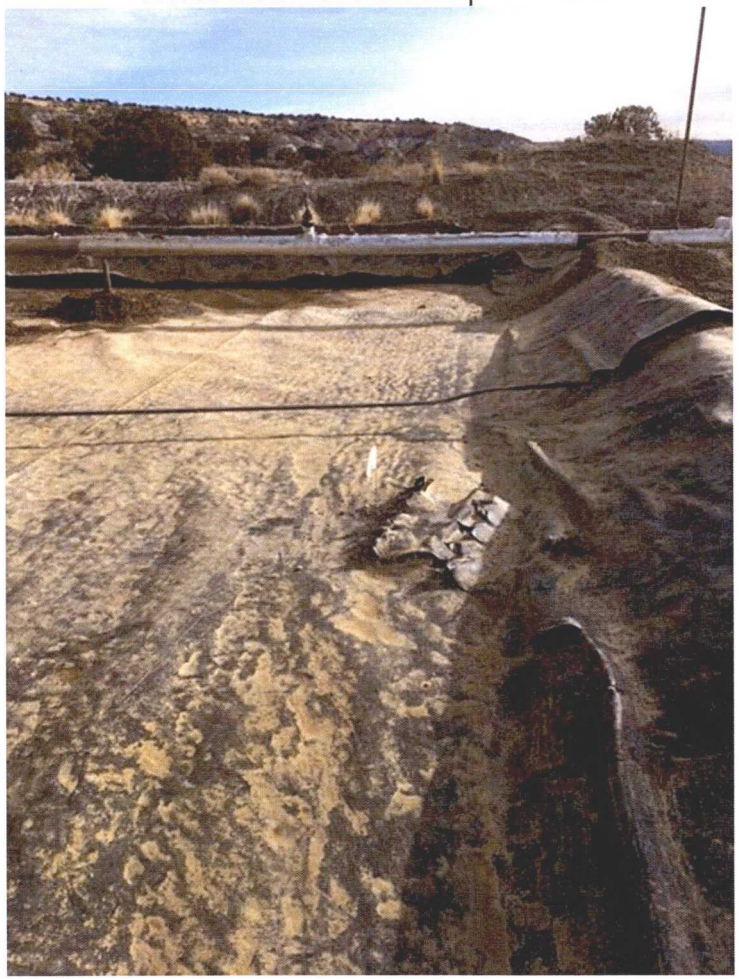
Determination of water sources and significant watercourses within ½ mile of the lateral extent of the release

Map of sampling points

Photographs – 12/11/18 Sampling Event

ıcluding date and GIS information

Liner Tear Grab Sample Point



Background Sample Point

Photographs – 12/11/18 Sampling Event

Including date and GIS information

#1 Composite Sample

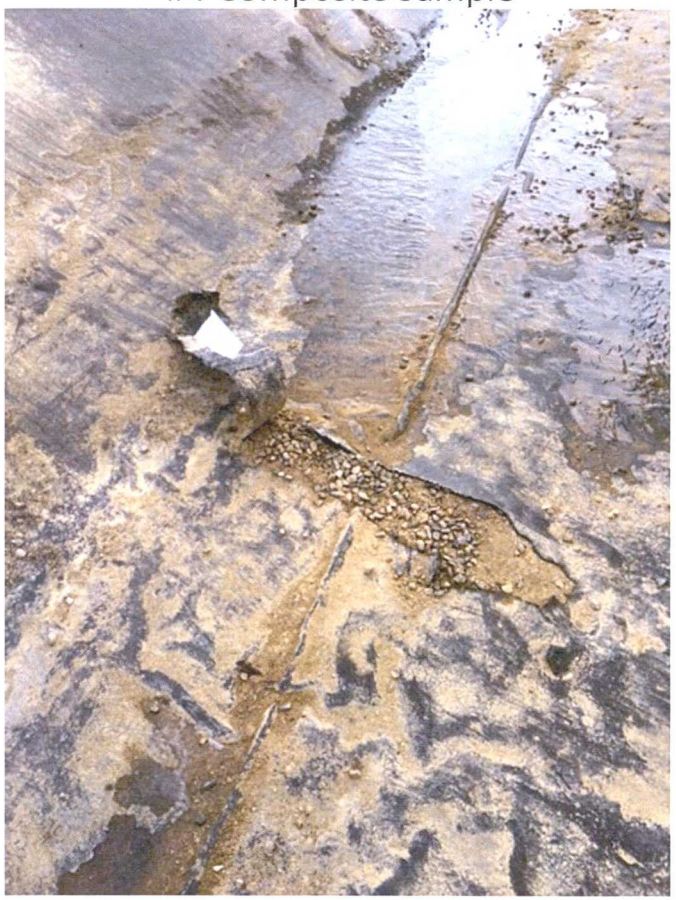
#2 Composite Sample

#3 Composite Sample

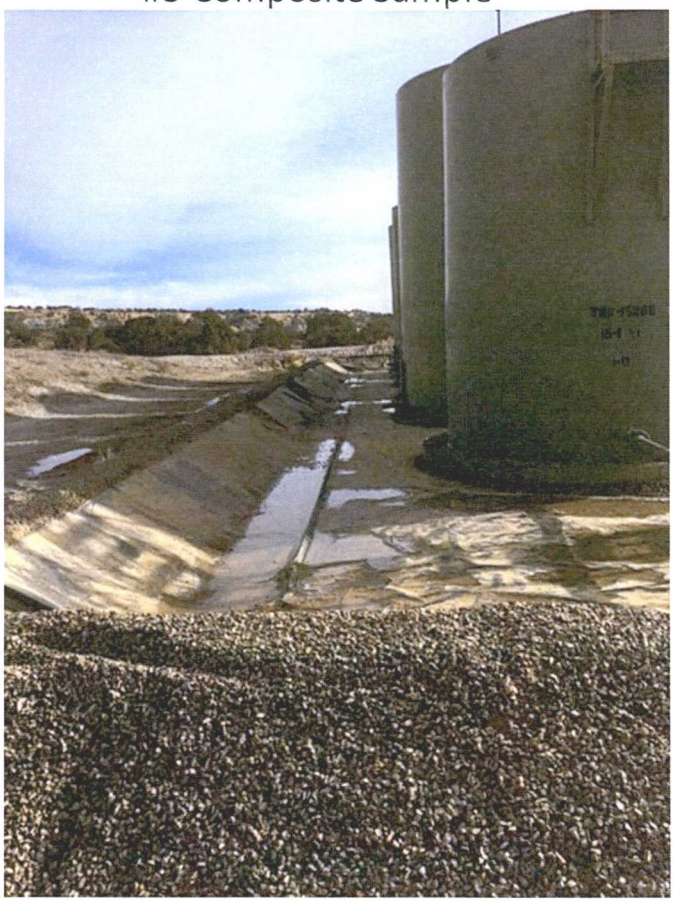
Photographs – 12/11/18 Sampling Event

including date and GIS information

#4 Composite Sample



#5 Composite Sample



Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

December 19, 2018

HilCorp-Farmington, NM

Sample Delivery Group:	L1052669
Samples Received:	12/13/2018
Project Number:	
Description:	
Site:	SALTY DOG SWD #4
Report To:	Jennifer Deal 382 Road 3100 Aztec, NM 87401

Entire Report Reviewed By:

Jason Romer
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

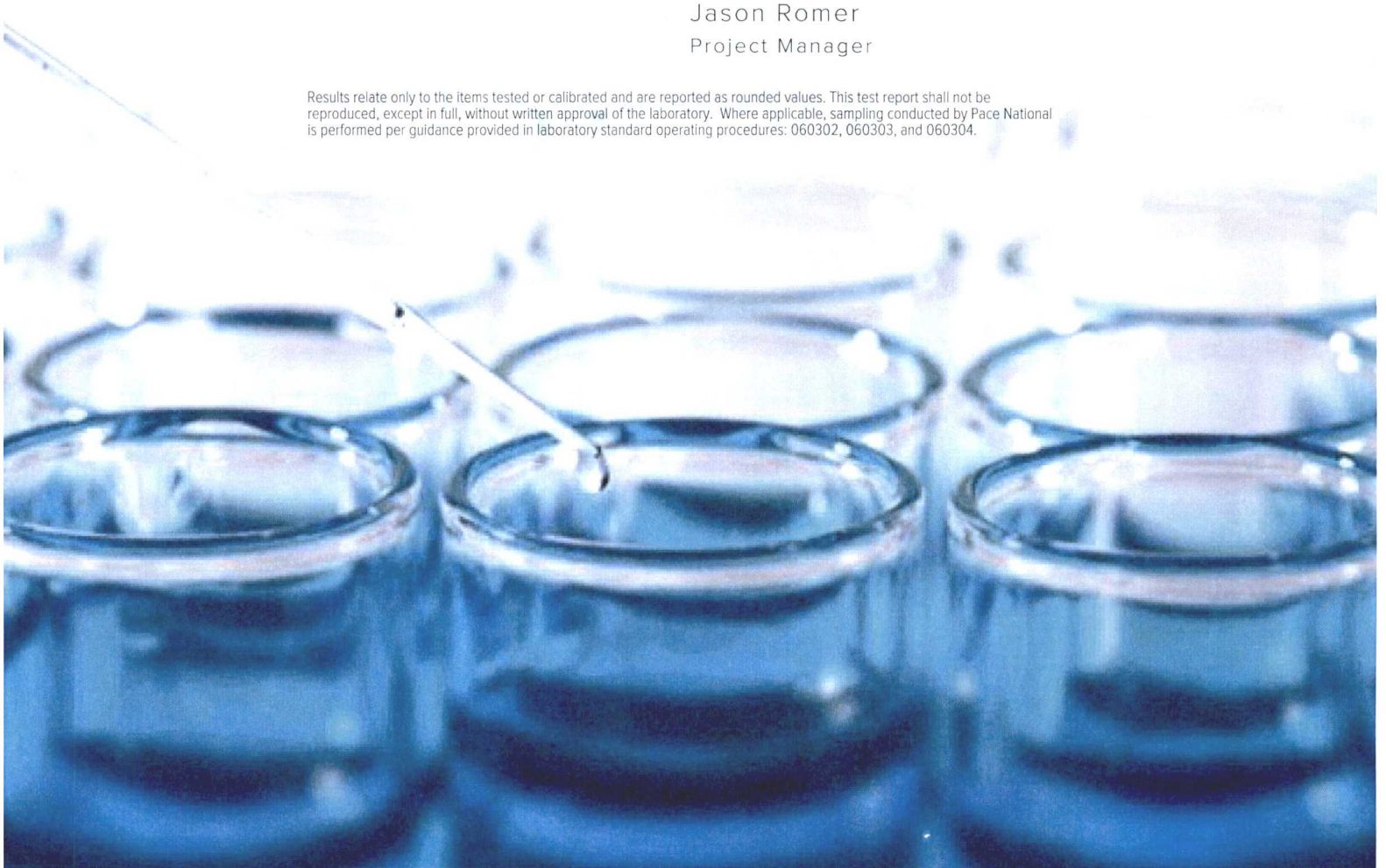


TABLE OF CONTENTS

LINER TEAR GRAB L1052669-01 Solid

Collected by	Collected date/time	Received date/time
Kurt	12/11/18 09:45	12/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1210805	1	12/14/18 20:59	12/18/18 02:36	ELN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1211970	1	12/13/18 17:30	12/17/18 16:22	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1212830	1	12/18/18 09:56	12/18/18 23:08	KME

LINER TEAR COMP L1052669-02 Solid

Collected by	Collected date/time	Received date/time
Kurt	12/11/18 10:00	12/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1210805	1	12/14/18 20:59	12/18/18 03:25	ELN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1211970	1	12/13/18 17:30	12/17/18 16:45	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1212830	1	12/18/18 09:56	12/18/18 23:23	KME

BACKGROUND L1052669-03 Solid

Collected by	Collected date/time	Received date/time
Kurt	12/11/18 10:10	12/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1210805	1	12/14/18 20:59	12/18/18 03:42	ELN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1211970	1	12/13/18 17:30	12/17/18 17:07	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1212830	1	12/18/18 09:56	12/18/18 23:37	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.

Jason Romer
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	522		10.0	1	12/18/2018 03:25	WG1210805

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	12/17/2018 16:45	WG1211970
Toluene	ND		0.00500	1	12/17/2018 16:45	WG1211970
Ethylbenzene	ND		0.000500	1	12/17/2018 16:45	WG1211970
Total Xylene	ND		0.00150	1	12/17/2018 16:45	WG1211970
TPH (GC/FID) Low Fraction	ND		0.100	1	12/17/2018 16:45	WG1211970
(S) a,a,a-Trifluorotoluene(FID)	*102*		*77.0-120*		*12/17/2018 16:45*	WG1211970
(S) a,a,a-Trifluorotoluene(PID)	*104*		*72.0-128*		*12/17/2018 16:45*	WG1211970

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	12/18/2018 23:23	WG1212830
C28-C40 Oil Range	5.36		4.00	1	12/18/2018 23:23	WG1212830
(S) o-Terphenyl	*63.9*		*18.0-148*		*12/18/2018 23:23*	WG1212830

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	93.2		10.0	1	12/18/2018 03:42	WG1210805

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	12/17/2018 17:07	WG1211970
Toluene	ND		0.00500	1	12/17/2018 17:07	WG1211970
Ethylbenzene	ND		0.000500	1	12/17/2018 17:07	WG1211970
Total Xylene	ND		0.00150	1	12/17/2018 17:07	WG1211970
TPH (GC/FID) Low Fraction	ND		0.100	1	12/17/2018 17:07	WG1211970
(S) a,a,a-Trifluorotoluene(FID)	*103*		*77.0-120*		*12/17/2018 17:07*	WG1211970
(S) a,a,a-Trifluorotoluene(PID)	*103*		*72.0-128*		*12/17/2018 17:07*	WG1211970

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	12/18/2018 23:37	WG1212830
C28-C40 Oil Range	ND		4.00	1	12/18/2018 23:37	WG1212830
(S) o-Terphenyl	*62.5*		*18.0-148*		*12/18/2018 23:37*	WG1212830

Method Blank (MB)

(MB) R3369035-1 12/17/18 23:03

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

L1050004-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1050004-08 12/18/18 00:57 • (DUP) R3369035-3 12/18/18 01:14

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	3140	3060	5	2.52		15

L1052759-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1052759-03 12/18/18 05:53 • (DUP) R3369035-6 12/18/18 06:09

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	13500	13000	20	3.16		15

Laboratory Control Sample (LCS)

(LCS) R3369035-2 12/17/18 23:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	198	99.1	80.0-120	

L1052669-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1052669-01 12/18/18 02:36 • (MS) R3369035-4 12/18/18 02:52 • (MSD) R3369035-5 12/18/18 03:09

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	568	1080	1080	102	103	1	80.0-120	E	E	0.284	15

Method Blank (MB)

(MB) R3369050-5 12/17/18 13:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	U		0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	0.0369	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*106*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*108*			*72.0-128*

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

(LCS) R3369050-2 12/17/18 12:04 • (LCSD) R3369050-1 12/17/18 11:16

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	0.0521	0.0512	104	102	76.0-121			1.88	20
Toluene	0.0500	0.0532	0.0523	106	105	80.0-120			1.58	20
Ethylbenzene	0.0500	0.0520	0.0525	104	105	80.0-124			0.911	20
Total Xylene	0.150	0.157	0.157	105	105	37.0-160			0.0636	20
(S) a,a,a-Trifluorotoluene(FID)				*107*	*109*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*107*	*108*	*72.0-128*				

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

(LCS) R3369050-3 12/17/18 12:48 • (LCSD) R3369050-4 12/17/18 13:10

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	6.45	6.62	117	120	72.0-127			2.54	20
(S) a,a,a-Trifluorotoluene(FID)				*113*	*113*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*120*	*121*	*72.0-128*				

L1052700-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1052700-08 12/17/18 23:03 • (MS) R3369050-6 12/17/18 23:25 • (MSD) R3369050-7 12/17/18 23:47

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	0.0214	0.914	0.953	71.4	74.5	25	10.0-155			4.14	32
Toluene	0.0500	ND	0.985	1.01	75.7	77.7	25	10.0-160			2.54	34
Ethylbenzene	0.0500	ND	0.984	1.03	78.7	82.3	25	10.0-160			4.51	32
Total Xylene	0.150	ND	3.05	3.16	81.2	84.3	25	10.0-160			3.71	32
(S) a,a,a-Trifluorotoluene(FID)					*112*	*112*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*113*	*111*		*72.0-128*				

L1052700-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1052700-08 12/17/18 23:03 • (MS) R3369050-8 12/18/18 00:10 • (MSD) R3369050-9 12/18/18 00:32

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 %
TPH (GC/FID) Low Fraction	5.50	ND	111	124	79.3	88.8	25	10.0-151			11.1	28
(S) a,a,a-Trifluorotoluene(FID)					*115*	*118*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*121*	*123*		*72.0-128*				

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

Method Blank (MB)

(MB) R3369423-1 12/18/18 21:37

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	*75.5*			*18.0-148*

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

(LCS) R3369423-2 12/18/18 21:53 • (LCSD) R3369423-3 12/18/18 22:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	35.0	32.9	70.0	65.8	50.0-150			6.19	20
(S) o-Terphenyl				*77.2*	*68.8*	*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

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.

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

MTJL Log-in Number

ALL SHADED AREAS are for LAB USE ONLY

Company: **HilCorp-Farmington, NM**	Billing Information: khoekstra@hilcorp.com jbrooks@hilcorp.com sjaquez@hilcorp.com
Address: **382 Road 3100 Aztec, NM 87401**	**PO Box 61529 Houston, TX 77208**
Report To: Jennifer Deal	Email To: jdeal@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 #: Salty Dog SWD #4 — Compliance Monitoring? [ ] Yes [ ] No
Collected by (print): Kurt	Purchase Order #: Quote #: — DW PWS ID #: DW Location Code:
Collected by (signature): Kurt Hoekstra	Turnaround Date Required: — Immediately Packed on Ice: [X] Yes [ ] No
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) — 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)

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	TPH 8015 - DRO, GRO, MRO	BTEX 8021	CHLORIDE	Lab Sample # / Comments
Liner Tear Grab	SS	Grab	12-11	9:45				1	X	X	X	L1652669-01
Liner Tear Comp	SS	Comp	12-11	10:00				1	X	X	X	02
Background	SS	Grab	12-11	10:10				1	X	X	X	03

RAD SCREEN: <0.5 mR/hr

** 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

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	SHORT HOLDS PRESENT (<72 hours): Y N N/A
	Packing Material Used:	LAB Tracking #: 4430 3422 8397
	Radchem sample(s) screened (<500 cpm): Y N NA	Samples received via: FEDEX UPS Client Courier Pace Courier

Relinquished by/Company: (Signature) Kurt Hoekstra	Date/Time: 8:05 12-12-18	Received by/Company: (Signature)	Date/Time:	E154
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Acctnum: HILCORANM Template: Prelogin: PM: 288 - Daphne Richards PB:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature) asm 12/13/18	Date/Time: 845	

LAB Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: am a1
Cooler 1 Temp Upon Receipt 5.0 oC
Cooler 1 Therm Corr. Factor +.1 oC
Cooler 1 Corrected Temp 5.1 oC
Comments:
Trip Blank Received: Y N NA
HCL MeOH TSP Other
NonConformance(s): YES / (NO)
Page ____ of ____