District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office to accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company **Hilcorp Energy Company**	Contact **Lindsay Dumas**
Address **1111 Travis St. Houston, TX 77002**	Telephone No. **(281)794-9159**
Facility Name: **Chacon Federal 2**	Facility Type: Gas

Surface Owner Private	Mineral Owner Federal	API No.**3003921580**

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	**33**	**24N**	**03W**	**1650'**	**North**	**800**	**West**	**Rio Arriba**

Latitude 36.2696075 Longitude -107.1682205

NATURE OF RELEASE

Type of Release **Oil & Produced Water**	Volume of Release **10 bbls/ 10 bbls**	Volume Recovered **0 bbls**
Source of Release Production Tank	Date and Hour of Occurrence **1/18/18 1:30PM**	Date and Hour of Discovery **1/18/18 1:30PM**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. **N/A**	

NMOCD

JAN 0 3 2019

DISTRICT III

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
The release as a result of corrosion on the bottom of the production tank. There was no standing product to recover.

Describe Area Affected and Cleanup Action Taken.*
Based on the remediation plan submitted 4/27/18, Hilcorp remediated the soil on site using biopiles. The soil piles and vadose zones were sampled, see attached sampling map. All walls and base of the excavation were sampled and were below NMOCD action level, please see attached soil analytical results summary page. No further action.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature:	OIL CONSERVATION DIVISION
Printed Name: **Lindsay Dumas**	Approved by E
Title: **Environmental Specialist**	Approval Date
E-mail Address: **Ldumas@hilcorp.com**	Conditions of A
Date: 12/31/2018 Phone: **(281)794-9159**	Attached ☐

DENIED

BY: Cory Smith *Incomplete See Attachment Email.

DATE: 1/9/19 (505) 334-6178 Ext. 115

* Attach Additional Sheets If Necessary

(111)

Smith, Cory, EMNRD

From: Smith, Cory, EMNRD
Sent: Wednesday, January 9, 2019 7:54 AM
To: 'Lindsay Dumas'
Cc: 'Matt Henderson'; Fields, Vanessa, EMNRD
Subject: RE: [EXTERNAL] RE: Chacon Federal 2 incident# ncs1803748358

Lindsay,

OCD received a Final C-141 on the Chacon Federal #2 incident# ncs1803748358 on 1/3/19 after review the C-141 has been denied for the following reasons.

- C-141 submitted on old outdated C-141 please submit on the updated C-141.
- Closure report is incomplete, please include sampling map of excavation, biopiles, and vadose zone sampling.
- If possible include pictures of sampling prior to backfill.
- Closure report must have all the required documents per 19.15.29.12 NMAC

Please remember the transitional clauses for release for the spill rule did not include the requirements for the closure report (Unless a closure report was defined in an approved work plan which is rare) So even those these release were prior to the new rule they were closed out after the rule had passed and the closure report is required to follow all the requirements of 19.15.29.12 NMAC. During the first few months the OCD understood that some of these requirements were physically impossible to get example pictures prior to back fill etc. If there are none that is fine HEC needs to state that in the closure report however, I was onsite and I am pretty sure Kurt took pictures during the sampling events.

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

From: Lindsay Dumas <ldumas@hilcorp.com>
Sent: Monday, December 31, 2018 10:53 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: [EXT] RE: [EXTERNAL] RE: Chacon Federal 2

Cory – Please find attached the Final C-141 for the Chacon Federal #2. A hard copy has been placed in the mail.

Kind regards,

Lindsay Dumas
Environmental Specialist
Hilcorp Energy – L48 West

Office: 832-839-4585
Mobile: 281-794-9159

From: Smith, Cory, EMNRD [mailto:Cory.Smith@state.nm.us]
t: Tuesday, October 30, 2018 4:33 PM
To: Kurt Hoekstra <khoekstra@hilcorp.com>; Lindsay Dumas <ldumas@hilcorp.com>
Subject: RE: [EXTERNAL] RE: Chacon Federal 2

Kurt,

OCD Agrees to your sampling with following condition

- HEC will collect 3x 5pt composite samples from the Northern soil pile area.
- If there any areas that wet/stained or otherwise show signs of HC impacts those area to either be include in the composite or a separate grab sample.
- Please include pictures of vadose zone sampling in your Closure report per 19.15.29.12

HEC needs to include this approval email in your final report.

OCD approval of this sampling plan does not relieve HEC of any other requirements imposed by other regulatory agencies.

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

From: Kurt Hoekstra <khoekstra@hilcorp.com>
Sent: Tuesday, October 30, 2018 8:28 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Lindsay Dumas <ldumas@hilcorp.com>
Subject: [EXT] RE: [EXTERNAL] RE: Chacon Federal 2

HI Cory attached is the diagram I used when sampling the soil piles. I propose to take an East and West 5 point composite sample of the North soil pile Vadose zone about 6" to 1' deep, basically dividing the North soil pile area in half. The West and East soil pile areas 1 composite sample of each area about 6" to 1' deep, for a total of 4 vadose zone samples.

From: Smith, Cory, EMNRD [mailto:Cory.Smith@state.nm.us]
Sent: Tuesday, October 30, 2018 7:08 AM
To: Kurt Hoekstra <khoekstra@hilcorp.com>; Lindsay Dumas <ldumas@hilcorp.com>
Subject: [EXTERNAL] RE: Chacon Federal 2

Kurt,

At this time that time should work for me however there may be a possibility I may not beable to make it as I am the only one in the office this week.. If HEC doesn't want to do a 200sf sampling area You can put together a simple sampling map showing were the piles were area etc. and proposed a sampling plan.

Let me know.

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

From: Kurt Hoekstra <khoekstra@hilcorp.com>
Sent: Tuesday, October 30, 2018 6:42 AM
To: Lindsay Dumas <ldumas@hilcorp.com>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: [EXT] RE: Chacon Federal 2

Hi Cory, would you be available to witness sampling the vadose zone at the Chacon Federal # 2 on Thursday, November 1st about 10:00 – 10:30 am. Let me know.

Thanks

From: Lindsay Dumas
Sent: Monday, October 29, 2018 9:22 AM
To: Kurt Hoekstra <khoekstra@hilcorp.com>
Subject: Chacon Federal 2

Kurt – If you are available, could you get with Cory to schedule vadose zone sampling on the Chacon Federal 2? We landfarmed on this location and need to grab surface soil samples to close it out. Can you cc me in emails so I can keep track of the dates? Thank you!

Kind regards,

Lindsay Dumas
Environmental Specialist
Hilcorp Energy – L48 West
Office: 832-839-4585
Mobile: 281-794-9159

Hilcorp Energy Company's address is 1111 Travis St, Houston, TX 77002

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☐ Initial Report ☒ Final Report

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Address **1111 Travis St. Houston, TX 77002**	Telephone No. **(281)794-9159**
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Describe Area Affected and Cleanup Action Taken.*
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Signature: Lindsay Dumas	OIL CONSERVATION DIVISION	
Printed Name: **Lindsay Dumas**	Approved by Environmental Specialist:	
Title: **Environmental Specialist**	Approval Date:	Expiration Date:
E-mail Address: **Ldumas@hilcorp.com**	Conditions of Approval:	Attached ☐
Date: 12/31/2018 Phone: **(281)794-9159**		

* Attach Additional Sheets If Necessary

TABLE 1

SOIL ANALYTICAL RESULTS
CHACON FEDERAL 2
HILCORP ENERGY - L48 WEST

Soil Sample Identification	Sample Date	Field Headspace (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH (mg/kg)
BOTTOM	5/2/2018		0	0.26	0.94	16	17.20	300.00	430.00	120.00	850
SOUTH WALL	5/2/2018		0	0	0	0	0.00	0.00	0.00	0.00	0
SOUTHWEST WALL	5/2/2018		0	0	0	0	0.00	0.00	0.00	0.00	0
NORTHWEST WALL	5/2/2018		0	0.63	1.8	33	35.43	630.00	950.00	230.00	**1,810**
NORTH WALL	5/2/2018		0	0	0	0	0.00	0.00	0.00	0.00	0
EAST WALL	5/2/2018		0	0	0	0	0.00	0.00	0.00	0.00	0
NORTHWEST WALL	6/29/2018		0	0	0.617	6.29	6.91	183.00	4210.00	796.00	**5,189**
NORTHWEST BASE	6/29/2018		0	0	0	0.704	0.70	26.00	156.00	44.60	227
NORTHWEST WALL	7/11/2018		0	0	0	0	0.00	0.00	0.00	0.00	0
BIOPILE CELL 1	6/12/2018		0.000696	0	0	0.00198	0.00	0.00	49.50	31.00	81
BIOPILE CELL 2	6/12/2018		0.000641	0	0	0.00272	0.00	0.17	83.80	46.60	131
BIOPILE CELL 3	6/12/2018		0.000622	0	0	0	0.00	0.00	60.80	41.70	103
BIOPILE CELL 4	6/12/2018		0.00094	0	0	0.00259	0.00	0.00	43.00	29.80	73
BIOPILE CELL 5	6/12/2018		0.000622	0	0	0.00203	0.00	0.00	88.10	55.10	143
BIOPILE CELL 6	6/12/2018		0.00713	0	0	0	0.01	0.33	56.10	43.60	100
BIOPILE CELL 7	6/12/2018		0.000766	0	0	0.00231	0.00	0.19	60.50	45.90	107
BIOPILE CELL 8	6/12/2018		0.00055	0	0	0.00804	0.01	1.36	478.00	162.00	641
BIOPILE CELL 9	6/12/2018		0.000618	0	0	0.00167	0.00	0.16	59.30	36.00	95
BIOPILE CELL 10	6/12/2018		0.000788	0	0	0.00206	0.00	0.17	83.00	41.50	125
BIOPILE CELL 11	6/12/2018		0.000766	0	0	0.00177	0.00	0.28	123.00	63.70	187
BIOPILE CELL 12	6/12/2018		0.000558	0	0	0.00242	0.00	0.16	145.00	74.40	220
BIOPILE CELL 13	6/12/2018		0	0	0.00446	0.0109	0.02	0.77	392.00	160.00	553
BIOPILE CELL 14	6/12/2018		0	0	0	0.00167	0.00	0.18	159.00	86.50	246
BIOPILE CELL 15	6/12/2018		0.000656	0	0.00605	0.0117	0.02	0.85	190.00	86.30	277
BIOPILE SAMPLE 1	8/11/2018		0	0	0	0.00322	0.00	0.66	147.00	62.10	210
BIOPILE SAMPLE 2	8/11/2018		0	0	0	0.00243	0.00	0.47	136.00	61.30	198
BIOPILE SAMPLE 3	8/11/2018		0.000524	0	0	0	0.00	0.21	65.70	34.20	100
BIOPILE SAMPLE 4	8/11/2018		0	0	0	0	0.00	0.00	50.50	35.80	86
BIOPILE SAMPLE 5	8/11/2018		0	0	0	0	0.00	0.00	29.80	22.40	52
VADOSE ZONE NW BIOPILE AREA	11/6/2018		0.000647	0	0	0	0.00	0.00	8.24	7.78	16
VADOSE ZONE N MIDDLE BIOPILE AREA	11/6/2018		0.000749	0	0	0	0.00	0.00	18.50	14.90	33
VADOSE ZONE NE BIOPILE AREA	11/6/2018		0.000538	0	0	0	0.00	0.00	10.90	10.10	21
VADOSE ZONE W BIOPILE AREA	11/6/2018		0.000526	0	0	0	0.00	0.00	9.01	10.10	19
VADOSE ZONE E BIOPILE AREA	11/6/2018		0.000646	0	0	0	0.00	0.00	4.22	5.83	10
NMOCD Standards			**10**				**50**				**1,000**

NOTES:

< - indicates result is less than the stated laboratory reporting limit

Bold - indicates value exceeds stated NMOCD standard

BTEX - benzene, toluene, ethylbenzene, total xylenes

DRO - diesel range organics

GRO - gasoline range organics

mg/kg - milligrams per kilogram

MRO - motor oil range organics

NE - Not Established

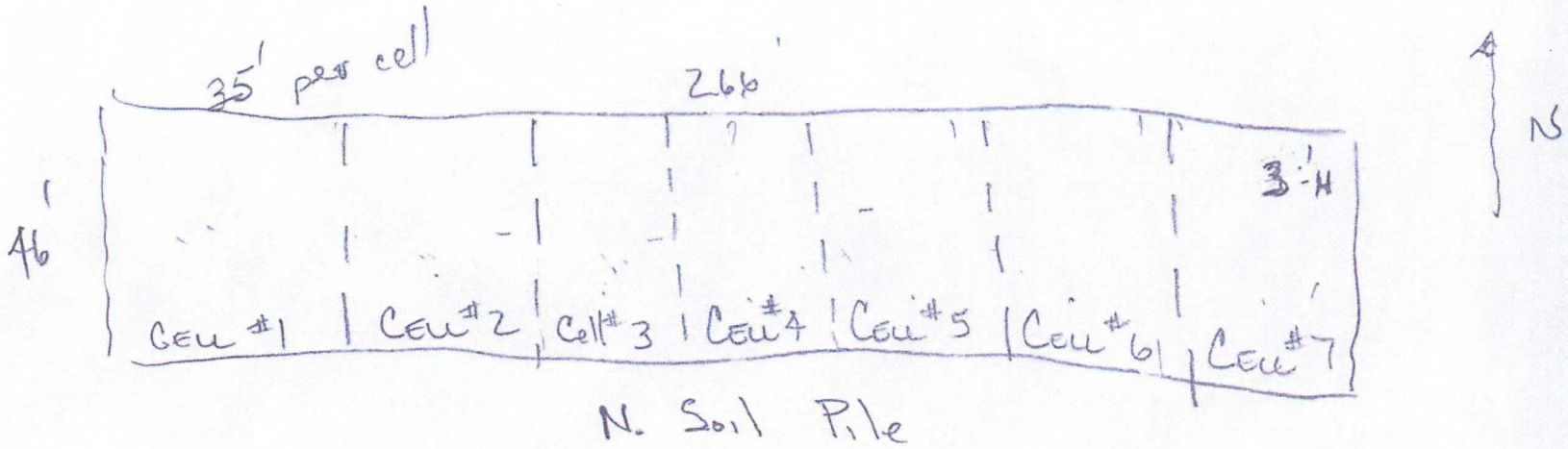
NMOCD - New Mexico Oil Conservation Division

ppm - parts per million

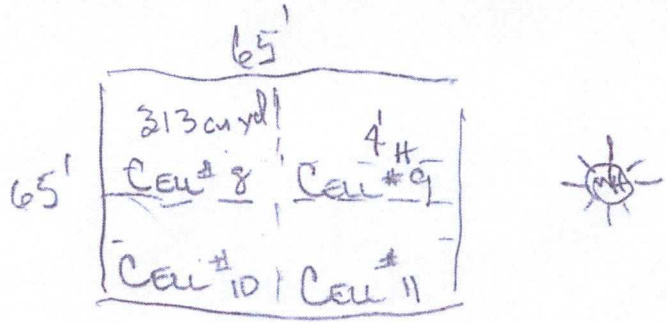
TPH - total petroleum hydrocarbons

6-8-18

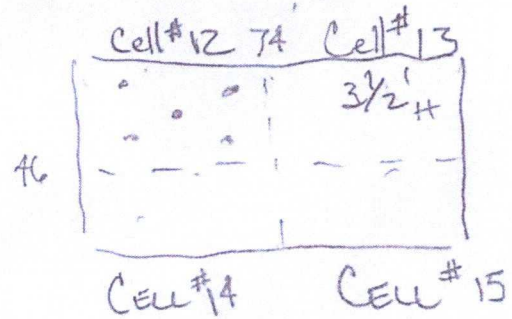
Charcoal Fed #2



N. Soil Pile



W. Soil Pile



E. Soil Pile

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 08, 2018

Lindsay Dumas
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX

RE: Chacon Federal #2 OrderNo.: 1805255

Dear Lindsay Dumas:

Hall Environmental Analysis Laboratory received 6 sample(s) on 5/3/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1805255**
Date Reported: **5/8/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Chacon Federal #2
Lab ID: 1805255-001 **Matrix:** SOIL

Client Sample ID: BOTTOM
Collection Date: 5/2/2018 10:30:00 AM
Received Date: 5/3/2018 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	430	10		mg/Kg	1	5/7/2018 4:11:24 PM
Motor Oil Range Organics (MRO)	120	51		mg/Kg	1	5/7/2018 4:11:24 PM
Surr: DNOP	109	70-130		%Rec	1	5/7/2018 4:11:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	300	24		mg/Kg	5	5/7/2018 11:08:02 AM
Surr: BFB	603	15-316	S	%Rec	5	5/7/2018 11:08:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12		mg/Kg	5	5/7/2018 11:08:02 AM
Toluene	0.26	0.24		mg/Kg	5	5/7/2018 11:08:02 AM
Ethylbenzene	0.94	0.24		mg/Kg	5	5/7/2018 11:08:02 AM
Xylenes, Total	16	0.48		mg/Kg	5	5/7/2018 11:08:02 AM
Surr: 4-Bromofluorobenzene	126	80-120	S	%Rec	5	5/7/2018 11:08:02 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Chacon Federal #2
Lab ID: 1805255-002 **Matrix:** SOIL

Client Sample ID: S WALL
Collection Date: 5/2/2018 10:37:00 AM
Received Date: 5/3/2018 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/7/2018 4:33:42 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/7/2018 4:33:42 PM
Surr: DNOP	97.4	70-130		%Rec	1	5/7/2018 4:33:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/5/2018 6:21:57 PM
Surr: BFB	94.3	15-316		%Rec	1	5/5/2018 6:21:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	5/5/2018 6:21:57 PM
Toluene	ND	0.047		mg/Kg	1	5/5/2018 6:21:57 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/5/2018 6:21:57 PM
Xylenes, Total	ND	0.095		mg/Kg	1	5/5/2018 6:21:57 PM
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	1	5/5/2018 6:21:57 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Chacon Federal #2
Lab ID: 1805255-003 **Matrix:** SOIL

Client Sample ID: SW WALL
Collection Date: 5/2/2018 10:40:00 AM
Received Date: 5/3/2018 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	5/7/2018 4:55:42 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/7/2018 4:55:42 PM
Surr: DNOP	103	70-130		%Rec	1	5/7/2018 4:55:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/5/2018 6:45:24 PM
Surr: BFB	89.7	15-316		%Rec	1	5/5/2018 6:45:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	5/5/2018 6:45:24 PM
Toluene	ND	0.048		mg/Kg	1	5/5/2018 6:45:24 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/5/2018 6:45:24 PM
Xylenes, Total	ND	0.095		mg/Kg	1	5/5/2018 6:45:24 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	5/5/2018 6:45:24 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Chacon Federal #2
Lab ID: 1805255-004 **Matrix:** SOIL

Client Sample ID: NW WALL
Collection Date: 5/2/2018 10:45:00 AM
Received Date: 5/3/2018 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	950	9.7		mg/Kg	1	5/7/2018 5:17:53 PM
Motor Oil Range Organics (MRO)	230	49		mg/Kg	1	5/7/2018 5:17:53 PM
Surr: DNOP	122	70-130		%Rec	1	5/7/2018 5:17:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	630	23		mg/Kg	5	5/7/2018 11:54:42 AM
Surr: BFB	1080	15-316	S	%Rec	5	5/7/2018 11:54:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12		mg/Kg	5	5/7/2018 11:54:42 AM
Toluene	0.63	0.23		mg/Kg	5	5/7/2018 11:54:42 AM
Ethylbenzene	1.8	0.23		mg/Kg	5	5/7/2018 11:54:42 AM
Xylenes, Total	33	0.47		mg/Kg	5	5/7/2018 11:54:42 AM
Surr: 4-Bromofluorobenzene	135	80-120	S	%Rec	5	5/7/2018 11:54:42 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Project: Chacon Federal #2
Lab ID: 1805255-005 **Matrix:** SOIL

Client Sample ID: N WALL
Collection Date: 5/2/2018 10:47:00 AM
Received Date: 5/3/2018 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/7/2018 6:02:06 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/7/2018 6:02:06 PM
Surr: DNOP	96.0	70-130		%Rec	1	5/7/2018 6:02:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/5/2018 7:31:57 PM
Surr: BFB	89.4	15-316		%Rec	1	5/5/2018 7:31:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	5/5/2018 7:31:57 PM
Toluene	ND	0.049		mg/Kg	1	5/5/2018 7:31:57 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/5/2018 7:31:57 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/5/2018 7:31:57 PM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	5/5/2018 7:31:57 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: E WALL
Project: Chacon Federal #2
Collection Date: 5/2/2018 10:55:00 AM
Lab ID: 1805255-006 **Matrix:** SOIL **Received Date:** 5/3/2018 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/7/2018 6:24:33 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/7/2018 6:24:33 PM
Surr: DNOP	96.6	70-130		%Rec	1	5/7/2018 6:24:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/5/2018 7:55:13 PM
Surr: BFB	93.6	15-316		%Rec	1	5/5/2018 7:55:13 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	5/5/2018 7:55:13 PM
Toluene	ND	0.046		mg/Kg	1	5/5/2018 7:55:13 PM
Ethylbenzene	ND	0.046		mg/Kg	1	5/5/2018 7:55:13 PM
Xylenes, Total	ND	0.092		mg/Kg	1	5/5/2018 7:55:13 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	5/5/2018 7:55:13 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805255**

08-May-18

Client: HILCORP ENERGY

Project: Chacon Federal #2

Sample ID	**LCS-37955**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**37955**		RunNo:	**51078**				
Prep Date:	**5/4/2018**	Analysis Date:	**5/7/2018**		SeqNo:	**1659095**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.2	70	130			
Surr: DNOP	4.2		5.000		84.4	70	130			

Sample ID	**MB-37955**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**37955**		RunNo:	**51078**				
Prep Date:	**5/4/2018**	Analysis Date:	**5/7/2018**		SeqNo:	**1659097**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.5		10.00		95.1	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805255**

08-May-18

Client: HILCORP ENERGY

Project: Chacon Federal #2

Sample ID **MB-37952**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **37952**	RunNo: **51065**
Prep Date: **5/4/2018**	Analysis Date: **5/5/2018**	SeqNo: **1658563** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	930		1000		92.9	15	316			

Sample ID **LCS-37952**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **37952**	RunNo: **51065**
Prep Date: **5/4/2018**	Analysis Date: **5/5/2018**	SeqNo: **1658564** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	102	75.9	131			
Surr: BFB	1100		1000		107	15	316			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805255**

08-May-18

Client: HILCORP ENERGY

Project: Chacon Federal #2

Sample ID **MB-37952**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **37952**	RunNo: **51065**
Prep Date: **5/4/2018**	Analysis Date: **5/5/2018**	SeqNo: **1658597** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Sample ID **LCS-37952**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **37952**	RunNo: **51065**
Prep Date: **5/4/2018**	Analysis Date: **5/5/2018**	SeqNo: **1658598** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	98.6	77.3	128			
Toluene	1.0	0.050	1.000	0	99.9	79.2	125			
Ethylbenzene	1.0	0.050	1.000	0	101	80.7	127			
Xylenes, Total	3.1	0.10	3.000	0	103	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY FAR Work Order Number: 1805255 RcptNo: 1

Received By: Anne Thorne 5/3/2018 7:55:00 AM Anne Thorne
Completed By: Anne Thorne 5/4/2018 7:07:46 AM Anne Thorne
Reviewed By: JC 5.4.18
Labeled by: AT 05/04/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks: Custody Seals intact on soil jars / AT 05/04/18

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp Energy

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Chacon Federal #2

Project #:

Project Manager: Lindsay Dumas

Sampler: Kurt

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No 1805255	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
~~5-2~~	~~10:30~~	~~Soil~~																				
5-2	10:30	Soil	Bottom	4oz Jar	On Ice	001	X		X													
"	10:37	"	S. Wall	"	"	002	X		X													
"	10:40	"	S.W. Wall	"	"	003	X		X													
"	10:45	"	N.W. Wall	"	"	004	X		X													
"	10:47	"	N. Wall	"	"	005	X		X													
"	10:55	"	E. Wall	"	"	006	X		X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
5-2	4:00			5/2/18	1600
5/4/18	1811			5/3/18	0755

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

ANALYTICAL REPORT

July 06, 2018

HilCorp-Farmington, NM

Sample Delivery Group:	L1006448
Samples Received:	07/03/2018
Project Number:	
Description:	
Site:	CHACON FEDERAL #2
Report To:	Kurt Hoekstra and Lindsay Dumas 382 Road 3100 Aztec, NM 87401

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Technical Service Representative

TABLE OF CONTENTS

NORTHWEST WALL #2 L1006448-01 Solid

Collected by	Collected date/time	Received date/time
Travis	06/29/18 11:05	07/03/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1132401	1	07/03/18 13:10	07/04/18 00:47	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1133967	50	07/03/18 11:48	07/05/18 16:59	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1133805	50	07/04/18 07:11	07/05/18 14:34	DMW

NORTHWEST BASE L1006448-02 Solid

Collected by	Collected date/time	Received date/time
Travis	06/29/18 11:10	07/03/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1132401	1	07/03/18 13:10	07/04/18 00:57	MCG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1133967	25	07/03/18 11:48	07/05/18 16:36	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1133805	1	07/04/18 07:11	07/05/18 14:21	DMW

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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
Technical Service Representative

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	279		10.0	1	07/04/2018 00:47	WG1132401

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.0250	50	07/05/2018 16:59	WG1133967
Toluene	ND		0.250	50	07/05/2018 16:59	WG1133967
Ethylbenzene	0.617		0.0250	50	07/05/2018 16:59	WG1133967
Total Xylene	6.29		0.0750	50	07/05/2018 16:59	WG1133967
TPH (GC/FID) Low Fraction	183		5.00	50	07/05/2018 16:59	WG1133967
(S) a,a,a-Trifluorotoluene(FID)	*99.4*		*77.0-120*		*07/05/2018 16:59*	WG1133967
(S) a,a,a-Trifluorotoluene(PID)	*99.8*		*75.0-128*		*07/05/2018 16:59*	WG1133967

Sample Narrative:

L1006448-01 WG1133967: 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	4210		200	50	07/05/2018 14:34	WG1133805
C28-C40 Oil Range	796		200	50	07/05/2018 14:34	WG1133805
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*07/05/2018 14:34*	WG1133805

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

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	237		10.0	1	07/04/2018 00:57	WG1132401

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	07/05/2018 16:36	WG1133967
Toluene	ND		0.125	25	07/05/2018 16:36	WG1133967
Ethylbenzene	ND		0.0125	25	07/05/2018 16:36	WG1133967
Total Xylene	0.704		0.0375	25	07/05/2018 16:36	WG1133967
TPH (GC/FID) Low Fraction	26.0		2.50	25	07/05/2018 16:36	WG1133967
(S) a,a,a-Trifluorotoluene(FID)	*99.3*		*77.0-120*		*07/05/2018 16:36*	WG1133967
(S) a,a,a-Trifluorotoluene(PID)	*99.5*		*75.0-128*		*07/05/2018 16:36*	WG1133967

Sample Narrative:

L1006448-02 WG1133967: 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	156		4.00	1	07/05/2018 14:21	WG1133805
C28-C40 Oil Range	44.6		4.00	1	07/05/2018 14:21	WG1133805
(S) o-Terphenyl	*89.4*		*18.0-148*		*07/05/2018 14:21*	WG1133805

Method Blank (MB)

(MB) R3323080-1 07/03/18 17:47

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

L1005202-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1005202-01 07/03/18 23:03 • (DUP) R3323080-4 07/03/18 23:12

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	48.4	49.2	1	1.72		15

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

(LCS) R3323080-2 07/03/18 17:57 • (LCSD) R3323080-3 07/03/18 18:06

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 %
Chloride	200	196	198	98.2	98.8	80.0-120			0.532	15

L1005202-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1005202-02 07/03/18 23:22 • (MS) R3323080-5 07/03/18 23:31 • (MSD) R3323080-6 07/03/18 23:41

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 %
Chloride	500	49.9	534	558	96.8	102	1	80.0-120			4.32	15

Method Blank (MB)

(MB) R3323413-5 07/05/18 12:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000395	J	0.000150	0.00500
Ethylbenzene	U		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)	*98.7*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*99.3*			*75.0-128*

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

(LCS) R3323413-1 07/05/18 10:14 • (LCSD) R3323413-2 07/05/18 10:36

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	0.0429	0.0478	85.8	95.6	71.0-121			10.7	20
Toluene	0.0500	0.0462	0.0516	92.4	103	72.0-120			11.0	20
Ethylbenzene	0.0500	0.0484	0.0540	96.9	108	76.0-121			10.9	20
Total Xylene	0.150	0.146	0.162	97.3	108	75.0-124			10.7	20
(S) a,a,a-Trifluorotoluene(FID)				*99.1*	*99.0*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*98.4*	*98.6*	*75.0-128*				

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

(LCS) R3323413-3 07/05/18 10:58 • (LCSD) R3323413-4 07/05/18 11:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.64	5.58	103	101	70.0-136			1.11	20
(S) a,a,a-Trifluorotoluene(FID)				*102*	*103*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*107*	*107*	*75.0-128*				

Method Blank (MB)

(MB) R3323298-1 07/05/18 09:31

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	*116*			*18.0-148*

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

(LCS) R3323298-2 07/05/18 09:44 • (LCSD) R3323298-3 07/05/18 09:57

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	40.9	42.4	81.9	84.9	50.0-150			3.61	20
(S) o-Terphenyl				*132*	*140*	*18.0-148*				

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

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
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.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences 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 ESC Lab Sciences.

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

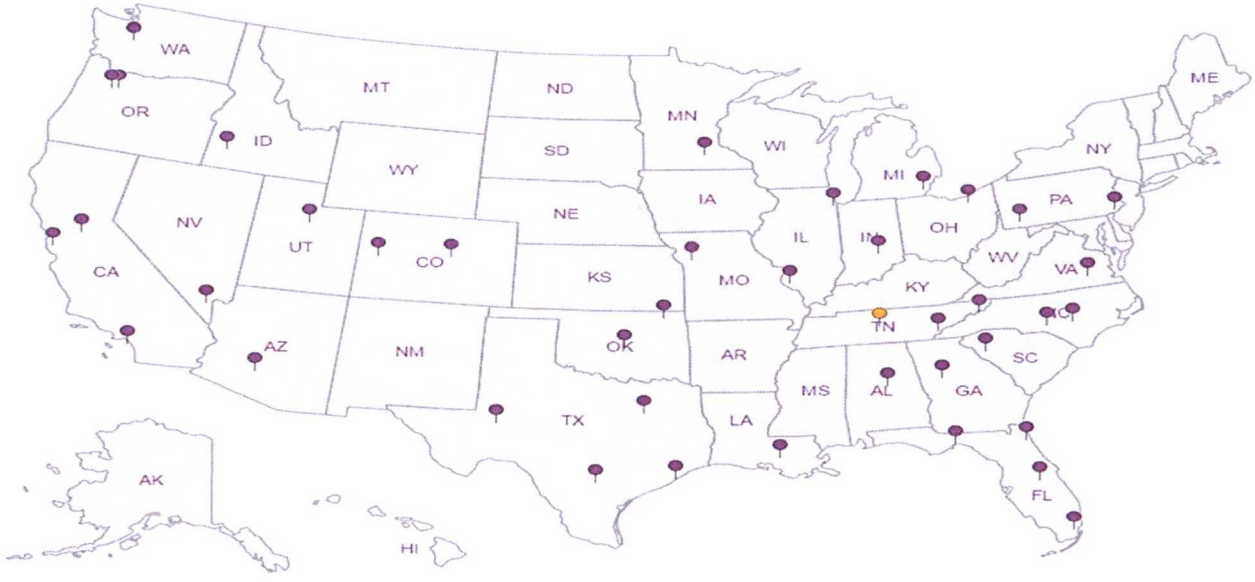
Third Party Federal Accreditations

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

ESC Lab Sciences 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. ESC Lab Sciences performs all testing at our central laboratory.



HilCorp
382 Road 3100
Aztec, NM 87401

Billing Inform

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1006448
F021

Report to: LINDSAY DUMAS
Kurt Hoekstra

Email To: LIND[illegible]Y DUMAS
khoekstra@hilc[illegible]om

Project Description:

City/State Collected:

Phone:
Fax:

Client Project #

Lab Proje[illegible]

P.O. #

Collected by (print): TRAVIS

Site/Facility ID # CHACOD FEDERAL #2

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
X Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Acctnum: HILCORANM
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH 8015 - DRO, GRO, MRO	BTEX 8021	CHLORIDE	Remarks	Sample # (lab only)
NORTHWEST WALL #2 Comp	S			6-29-18	11:05	1	X	X	X		-06
NORTHWEST BASE	Comp	S		6-29-18	11:10	1	X	X	X		-07

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier __ _____

Tracking # 7305 8947 4780

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
TRAVIS MUNKERS	7-2-18	8:00	Kurt Hoekstra	
Relinquished by: (Signature) Kurt Hoekstra	7-2-18	9:30	Received by: (Signature)	Temp: 5.9KT °C Bottles Received: 2
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) ASM	Date: 7/3/18 Time: 845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

envirotech
Analytical Laboratory

Analytical Report

Report Summary

Client: Hilcorp Energy Co

Chain Of Custody Number:

Samples Received: 7/11/2018 8:50:00AM

Job Number: 17051-0002

Work Order: P807014

Project Name/Location: Chacon Federal #2

Report Reviewed By: _____ Date: 7/12/18

Walter Hinchman, Laboratory Director

_____ Date: 7/12/18

Tim Cain, Project Manager

NELAP ACCREDITED TNI LABORATORY

Envirotech Inc. certifies the test results meet all requirements of TNI unless footnoted otherwise.
Statement of Data Authenticity: Envirotech, Inc, attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.
Envirotech, Inc, currently holds the appropriate and available Utah TNI certification NM009792018-1 for the data reported.

envirotech
Analytical Laboratory

Hilcorp Energy Co	Project Name:	Chacon Federal #2	
PO Box 61529	Project Number:	17051-0002	**Reported:**
Houston TX, 77208	Project Manager:	Lindsay Dumas	12-Jul-18 16:04

Analyical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
West Wall #3	P807014-01A	Soil	07/10/18	07/11/18	Glass Jar, 4 oz.

Hilcorp Energy Co	Project Name:	Chacon Federal #2	
PO Box 61529	Project Number:	17051-0002	**Reported:**
Houston TX, 77208	Project Manager:	Lindsay Dumas	12-Jul-18 16:04

West Wall #3

P807014-01 (Solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	100	ug/kg	1	1828012	07/11/18	07/11/18	EPA 8021B	
Toluene	ND	100	ug/kg	1	1828012	07/11/18	07/11/18	EPA 8021B	
Ethylbenzene	ND	100	ug/kg	1	1828012	07/11/18	07/11/18	EPA 8021B	
p,m-Xylene	ND	200	ug/kg	1	1828012	07/11/18	07/11/18	EPA 8021B	
o-Xylene	ND	100	ug/kg	1	1828012	07/11/18	07/11/18	EPA 8021B	
Total Xylenes	ND	100	ug/kg	1	1828012	07/11/18	07/11/18	EPA 8021B	
Total BTEX	ND	100	ug/kg	1	1828012	07/11/18	07/11/18	EPA 8021B	
Surrogate: 4-Bromochlorobenzene-PID		*98.5 %*		*50-150*	*1828012*	*07/11/18*	*07/11/18*	*EPA 8021B*	
Nonhalogenated Organics by 8015									
Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1828012	07/11/18	07/11/18	EPA 8015D	
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg	1	1828011	07/11/18	07/11/18	EPA 8015D	
Oil Range Organics (C28-C40+)	ND	50.0	mg/kg	1	1828011	07/11/18	07/11/18	EPA 8015D	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*98.9 %*		*50-150*	*1828012*	*07/11/18*	*07/11/18*	*EPA 8015D*	
Surrogate: n-Nonane		*115 %*		*50-200*	*1828011*	*07/11/18*	*07/11/18*	*EPA 8015D*	

Hilcorp Energy Co	Project Name:	Chacon Federal #2	
PO Box 61529	Project Number:	17051-0002	**Reported:**
Houston TX, 77208	Project Manager:	Lindsay Dumas	12-Jul-18 16:04

Volatile Organics by EPA 8021 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1828012 - Purge and Trap EPA 5030A										
Blank (1828012-BLK1)				Prepared & Analyzed: 11-Jul-18						
Benzene	ND	100	ug/kg							
Toluene	ND	100	"							
Ethylbenzene	ND	100	"							
p,m-Xylene	ND	200	"							
o-Xylene	ND	100	"							
Total Xylenes	ND	100	"							
Total BTEX	ND	100	"							
Surrogate: 4-Bromochlorobenzene-PID	*7900*		"	*8000*		*98.8*	*50-150*			
LCS (1828012-BS1)				Prepared & Analyzed: 11-Jul-18						
Benzene	5380	100	ug/kg	5000		108	70-130			
Toluene	5470	100	"	5000		109	70-130			
Ethylbenzene	5520	100	"	5000		110	70-130			
p,m-Xylene	10700	200	"	10000		107	70-130			
o-Xylene	5490	100	"	5000		110	70-130			
Total Xylenes	16200	100	"	15000		108	70-130			
Surrogate: 4-Bromochlorobenzene-PID	*7920*		"	*8000*		*99.0*	*50-150*			
Matrix Spike (1828012-MS1)	**Source: P807014-01**			Prepared & Analyzed: 11-Jul-18						
Benzene	3770	100	ug/kg	5000	ND	75.5	54.3-133			
Toluene	3830	100	"	5000	ND	76.6	61.4-130			
Ethylbenzene	3860	100	"	5000	ND	77.2	61.4-133			
p,m-Xylene	7530	200	"	10000	ND	75.4	63.3-131			
o-Xylene	3860	100	"	5000	ND	77.2	63.3-131			
Total Xylenes	11400	100	"	15000	ND	76.0	63.3-131			
Surrogate: 4-Bromochlorobenzene-PID	*7730*		"	*8000*		*96.7*	*50-150*			
Matrix Spike Dup (1828012-MSD1)	**Source: P807014-01**			Prepared & Analyzed: 11-Jul-18						
Benzene	4420	100	ug/kg	5000	ND	88.4	54.3-133	15.8	20	
Toluene	4490	100	"	5000	ND	89.9	61.4-130	15.9	20	
Ethylbenzene	4540	100	"	5000	ND	90.9	61.4-133	16.3	20	
p,m-Xylene	8840	200	"	10000	ND	88.4	63.3-131	16.0	20	
o-Xylene	4550	100	"	5000	ND	91.0	63.3-131	16.4	20	
Total Xylenes	13400	100	"	15000	ND	89.3	63.3-131	16.1	20	
Surrogate: 4-Bromochlorobenzene-PID	*7830*		"	*8000*		*97.9*	*50-150*			

Hilcorp Energy Co	Project Name:	Chacon Federal #2	
PO Box 61529	Project Number:	17051-0002	**Reported:**
Houston TX, 77208	Project Manager:	Lindsay Dumas	12-Jul-18 16:04

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1828011 - DRO Extraction EPA 3570										
Blank (1828011-BLK1)				Prepared & Analyzed: 11-Jul-18						
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40+)	ND	50.0	"							
Surrogate: n-Nonane	*50.8*		"	*50.0*		*102*	*50-200*			
LCS (1828011-BS1)				Prepared & Analyzed: 11-Jul-18						
Diesel Range Organics (C10-C28)	515	25.0	mg/kg	500		103	38-132			
Surrogate: n-Nonane	*56.1*		"	*50.0*		*112*	*50-200*			
Matrix Spike (1828011-MS1)	**Source: P807014-01**			Prepared & Analyzed: 11-Jul-18						
Diesel Range Organics (C10-C28)	497	25.0	mg/kg	500	ND	99.3	38-132			
Surrogate: n-Nonane	*53.5*		"	*50.0*		*107*	*50-200*			
Matrix Spike Dup (1828011-MSD1)	**Source: P807014-01**			Prepared & Analyzed: 11-Jul-18						
Diesel Range Organics (C10-C28)	506	25.0	mg/kg	500	ND	101	38-132	1.83	20	
Surrogate: n-Nonane	*53.3*		"	*50.0*		*107*	*50-200*			

envirotech
Analytical Laboratory

Hilcorp Energy Co	Project Name:	Chacon Federal #2	
PO Box 61529	Project Number:	17051-0002	**Reported:**
Houston TX, 77208	Project Manager:	Lindsay Dumas	12-Jul-18 16:04

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1828012 - Purge and Trap EPA 5030A										
Blank (1828012-BLK1)				Prepared & Analyzed: 11-Jul-18						
Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.61*		"	*8.00*		*95.1*	*50-150*			
LCS (1828012-BS2)				Prepared & Analyzed: 11-Jul-18						
Gasoline Range Organics (C6-C10)	47.7	20.0	mg/kg	50.0		95.4	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.87*		"	*8.00*		*98.4*	*50-150*			
Matrix Spike (1828012-MS2)		**Source: P807014-01**		Prepared & Analyzed: 11-Jul-18						
Gasoline Range Organics (C6-C10)	51.3	20.0	mg/kg	50.0	ND	103	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.87*		"	*8.00*		*98.4*	*50-150*			
Matrix Spike Dup (1828012-MSD2)		**Source: P807014-01**		Prepared & Analyzed: 11-Jul-18						
Gasoline Range Organics (C6-C10)	48.1	20.0	mg/kg	50.0	ND	96.3	70-130	6.51	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	*8.01*		"	*8.00*		*100*	*50-150*			

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Analytical Laboratory

Hilcorp Energy Co	Project Name:	Chacon Federal #2	
PO Box 61529	Project Number:	17051-0002	**Reported:**
Houston TX, 77208	Project Manager:	Lindsay Dumas	12-Jul-18 16:04

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
RPD	Relative Percent Difference
**	Methods marked with ** are non-accredited methods.

Project Information RUSH

Chain of Custody

Page 1 of 1

Client:	Hilcorp Energy
Project:	Chacon Federal #2
Project Manager:	Lindsay Dumas
Address:	
City, State, Zip	
Phone:	505-486-9543 Kurt
Email:	LDumas@hilcorp.com

Report Attention

Report due by:	
Attention:	
Address:	
City, State, Zip	
Phone:	
Email:	

Lab Use Only

Lab WO#	Job Number
P807014	17051-0002

TAT

1D	3D
X	

EPA Program

RCRA	CWA	SDWA

State

NM	CO	UT	AZ
X			

Time Sampled	Date Sampled	Matrix	No Containers	Sample ID	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	TPH 418.1					Remarks
10:20	7-10-18	SS	(1) 4oz Jar	West Wall #3	1	X	X	X									(1) 4oz glass Jar

Additional Instructions: vis. ice in cooler -mj

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabelling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Sampled by: Travis KH

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Kurt Hoekstra	7-11-18	8:50	Alanna Cha	7/11/18	08:50
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Lab Use Only

Received on ice: (Y) / N

T1 11.3 AC T2 11.4 AC T3

AVG Temp °C 4.0 C

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____

Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above boratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.

envirotech Analytical Laboratory
5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
envirotech-inc.com
laboratory@envirotech-inc.com

ANALYTICAL REPORT

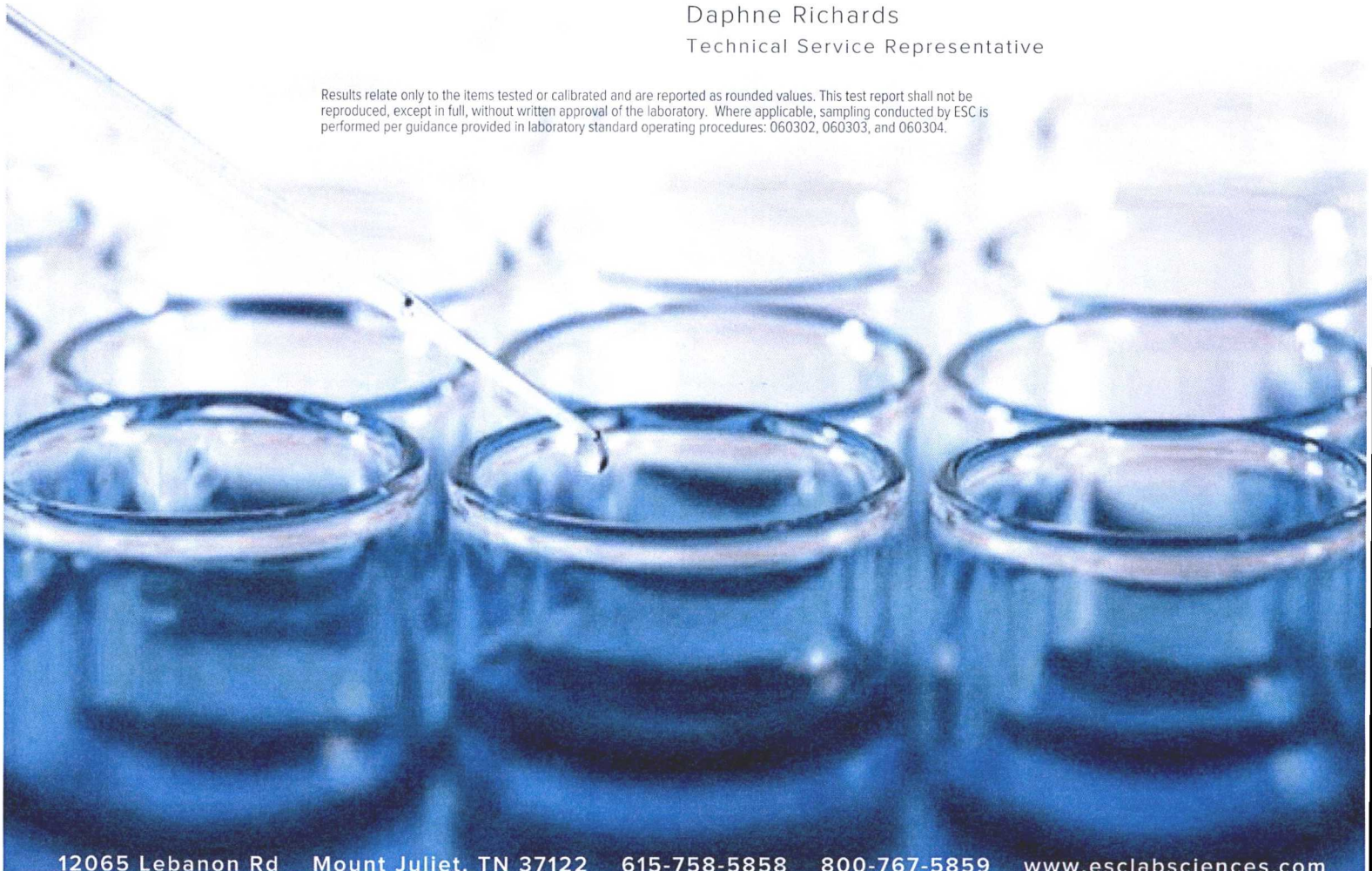
June 19, 2018

HilCorp-Farmington, NM

Sample Delivery Group:	L1000895
Samples Received:	06/12/2018
Project Number:	
Description:	Chacon Feferal #2
Report To:	Kurt Hoekstra and Lindsay Dumas 382 Road 3100 Aztec, NM 87401

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Technical Service Representative



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CELL #1 L1000895-01 Solid

Collected by	Collected date/time	Received date/time
Kurt	06/08/18 12:22	06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125125	1	06/15/18 15:16	06/15/18 15:36	JD
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 00:48	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/13/18 21:12	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 15:53	AAT

CELL #2 L1000895-02 Solid

Collected by	Collected date/time	Received date/time
Kurt	06/08/18 12:26	06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125125	1	06/15/18 15:16	06/15/18 15:36	JD
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 01:50	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/13/18 21:34	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 16:32	AAT

CELL #3 L1000895-03 Solid

Collected by	Collected date/time	Received date/time
Kurt	06/08/18 12:30	06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125129	1	06/15/18 13:16	06/15/18 13:26	KS
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 02:05	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/13/18 21:57	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 16:45	AAT

CELL #4 L1000895-04 Solid

Collected by	Collected date/time	Received date/time
Kurt	06/08/18 12:33	06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125129	1	06/15/18 13:16	06/15/18 13:26	KS
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 02:52	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/13/18 22:19	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 16:57	AAT

CELL #5 L1000895-05 Solid

Collected by	Collected date/time	Received date/time
Kurt	06/08/18 12:37	06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125129	1	06/15/18 13:16	06/15/18 13:26	KS
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 03:07	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/13/18 22:41	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 17:11	AAT

CELL #6 L1000895-06 Solid

Collected by	Collected date/time	Received date/time
Kurt	06/08/18 12:45	06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125129	1	06/15/18 13:16	06/15/18 13:26	KS
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 03:23	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/13/18 23:04	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 17:25	AAT

CELL #7 L1000895-07 Solid

Collected by: Kurt | Collected date/time: 06/08/18 12:50 | Received date/time: 06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125129	1	06/15/18 13:16	06/15/18 13:26	KS
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 03:38	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/13/18 23:26	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 17:38	AAT

CELL #8 L1000895-08 Solid

Collected by: Kurt | Collected date/time: 06/08/18 13:02 | Received date/time: 06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125129	1	06/15/18 13:16	06/15/18 13:26	KS
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 03:53	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/13/18 23:49	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 17:50	AAT
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	10	06/16/18 16:48	06/18/18 10:22	MTJ

CELL #9 L1000895-09 Solid

Collected by: Kurt | Collected date/time: 06/08/18 13:23 | Received date/time: 06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125129	1	06/15/18 13:16	06/15/18 13:26	KS
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 04:09	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/14/18 00:11	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 18:03	AAT

CELL #10 L1000895-10 Solid

Collected by: Kurt | Collected date/time: 06/08/18 13:11 | Received date/time: 06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125129	1	06/15/18 13:16	06/15/18 13:26	KS
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 04:55	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/14/18 00:33	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 18:16	AAT

CELL #11 L1000895-11 Solid

Collected by: Kurt | Collected date/time: 06/08/18 13:27 | Received date/time: 06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125129	1	06/15/18 13:16	06/15/18 13:26	KS
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 05:10	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/14/18 00:56	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 19:07	AAT

CELL #12 L1000895-12 Solid

Collected by: Kurt | Collected date/time: 06/08/18 13:41 | Received date/time: 06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125129	1	06/15/18 13:16	06/15/18 13:26	KS
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 05:26	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/14/18 08:41	RAS
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 19:20	AAT

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

CELL #13 L1000895-13 Solid

Collected by: Kurt
Collected date/time: 06/08/18 13:51
Received date/time: 06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125131	1	06/15/18 15:40	06/15/18 15:56	JD
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 05:41	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/14/18 09:03	RAS
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 19:33	AAT
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	10	06/16/18 16:48	06/18/18 10:34	MTJ

CELL #14 L1000895-14 Solid

Collected by: Kurt
Collected date/time: 06/08/18 13:39
Received date/time: 06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1125131	1	06/15/18 15:40	06/15/18 15:56	JD
Wet Chemistry by Method 9056A	WG1123432	1	06/13/18 13:09	06/15/18 06:12	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/14/18 09:25	RAS
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 19:45	AAT

CELL #15 L1000895-15 Solid

Collected by: Kurt
Collected date/time: 06/08/18 13:50
Received date/time: 06/12/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1124385	1	06/14/18 14:04	06/14/18 14:20	JD
Wet Chemistry by Method 9056A	WG1123435	1	06/12/18 23:59	06/14/18 14:31	DR
Volatile Organic Compounds (GC) by Method 8015/8021	WG1124116	1	06/12/18 19:47	06/14/18 09:48	RAS
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1124294	1	06/16/18 16:48	06/17/18 19:58	AAT

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

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.8		1	06/15/2018 15:36	WG1125125

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	67.9	J3	10.6	1	06/15/2018 00:48	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000696	B	0.000528	1	06/13/2018 21:12	WG1124116
Toluene	ND		0.00528	1	06/13/2018 21:12	WG1124116
Ethylbenzene	ND		0.000528	1	06/13/2018 21:12	WG1124116
Total Xylene	0.00198		0.00158	1	06/13/2018 21:12	WG1124116
TPH (GC/FID) Low Fraction	ND		0.106	1	06/13/2018 21:12	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*93.3*		*77.0-120*		*06/13/2018 21:12*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*97.2*		*75.0-128*		*06/13/2018 21:12*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	49.5	J3	4.22	1	06/17/2018 15:53	WG1124294
C28-C40 Oil Range	31.0		4.22	1	06/17/2018 15:53	WG1124294
(S) o-Terphenyl	*45.6*		*18.0-148*		*06/17/2018 15:53*	WG1124294

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.8		1	06/15/2018 15:36	WG1125125

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	67.7		10.3	1	06/15/2018 01:50	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000641	B	0.000516	1	06/13/2018 21:34	WG1124116
Toluene	ND		0.00516	1	06/13/2018 21:34	WG1124116
Ethylbenzene	ND		0.000516	1	06/13/2018 21:34	WG1124116
Total Xylene	0.00272		0.00155	1	06/13/2018 21:34	WG1124116
TPH (GC/FID) Low Fraction	0.169		0.103	1	06/13/2018 21:34	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*93.3*		*77.0-120*		*06/13/2018 21:34*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*96.9*		*75.0-128*		*06/13/2018 21:34*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	83.8		4.13	1	06/17/2018 16:32	WG1124294
C28-C40 Oil Range	46.6		4.13	1	06/17/2018 16:32	WG1124294
(S) o-Terphenyl	*39.5*		*18.0-148*		*06/17/2018 16:32*	WG1124294

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.5		1	06/15/2018 13:26	WG1125129

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	73.2		10.5	1	06/15/2018 02:05	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000622	B	0.000523	1	06/13/2018 21:57	WG1124116
Toluene	ND		0.00523	1	06/13/2018 21:57	WG1124116
Ethylbenzene	ND		0.000523	1	06/13/2018 21:57	WG1124116
Total Xylene	ND		0.00157	1	06/13/2018 21:57	WG1124116
TPH (GC/FID) Low Fraction	ND		0.105	1	06/13/2018 21:57	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*93.4*		*77.0-120*		*06/13/2018 21:57*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*96.9*		*75.0-128*		*06/13/2018 21:57*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	60.8		4.19	1	06/17/2018 16:45	WG1124294
C28-C40 Oil Range	41.7		4.19	1	06/17/2018 16:45	WG1124294
(S) o-Terphenyl	*39.7*		*18.0-148*		*06/17/2018 16:45*	WG1124294

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

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.3		1	06/15/2018 13:26	WG1125129

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	80.8		10.5	1	06/15/2018 02:52	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000940	B	0.000525	1	06/13/2018 22:19	WG1124116
Toluene	ND		0.00525	1	06/13/2018 22:19	WG1124116
Ethylbenzene	ND		0.000525	1	06/13/2018 22:19	WG1124116
Total Xylene	0.00259		0.00157	1	06/13/2018 22:19	WG1124116
TPH (GC/FID) Low Fraction	ND		0.105	1	06/13/2018 22:19	WG1124116
(S) α,α,α-Trifluorotoluene(FID)	*93.0*		*77.0-120*		*06/13/2018 22:19*	WG1124116
(S) α,α,α-Trifluorotoluene(PID)	*96.5*		*75.0-128*		*06/13/2018 22:19*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	43.0		4.20	1	06/17/2018 16:57	WG1124294
C28-C40 Oil Range	29.8		4.20	1	06/17/2018 16:57	WG1124294
(S) o-Terphenyl	*46.6*		*18.0-148*		*06/17/2018 16:57*	WG1124294

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

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.1		1	06/15/2018 13:26	WG1125129

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	70.3		10.6	1	06/15/2018 03:07	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000622	B	0.000531	1	06/13/2018 22:41	WG1124116
Toluene	ND		0.00531	1	06/13/2018 22:41	WG1124116
Ethylbenzene	ND		0.000531	1	06/13/2018 22:41	WG1124116
Total Xylene	0.00203		0.00159	1	06/13/2018 22:41	WG1124116
TPH (GC/FID) Low Fraction	ND		0.106	1	06/13/2018 22:41	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*93.1*		*77.0-120*		*06/13/2018 22:41*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*96.2*		*75.0-128*		*06/13/2018 22:41*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	88.1		4.25	1	06/17/2018 17:11	WG1124294
C28-C40 Oil Range	55.1		4.25	1	06/17/2018 17:11	WG1124294
(S) o-Terphenyl	*56.4*		*18.0-148*		*06/17/2018 17:11*	WG1124294

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.0		1	06/15/2018 13:26	WG1125129

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	113		10.6	1	06/15/2018 03:23	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000713	B	0.000532	1	06/13/2018 23:04	WG1124116
Toluene	ND		0.00532	1	06/13/2018 23:04	WG1124116
Ethylbenzene	ND		0.000532	1	06/13/2018 23:04	WG1124116
Total Xylene	ND		0.00160	1	06/13/2018 23:04	WG1124116
TPH (GC/FID) Low Fraction	0.333		0.106	1	06/13/2018 23:04	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*92.8*		*77.0-120*		*06/13/2018 23:04*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*96.4*		*75.0-128*		*06/13/2018 23:04*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	56.1		4.25	1	06/17/2018 17:25	WG1124294
C28-C40 Oil Range	49.2		4.25	1	06/17/2018 17:25	WG1124294
(S) o-Terphenyl	*43.6*		*18.0-148*		*06/17/2018 17:25*	WG1124294

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

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	%				
Total Solids	95.9		1	06/15/2018 13:26	WG1125129

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	71.0		10.4	1	06/15/2018 03:38	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000766	B	0.000522	1	06/13/2018 23:26	WG1124116
Toluene	ND		0.00522	1	06/13/2018 23:26	WG1124116
Ethylbenzene	ND		0.000522	1	06/13/2018 23:26	WG1124116
Total Xylene	0.00231		0.00156	1	06/13/2018 23:26	WG1124116
TPH (GC/FID) Low Fraction	0.186		0.104	1	06/13/2018 23:26	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*92.6*		*77.0-120*		*06/13/2018 23:26*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*96.0*		*75.0-128*		*06/13/2018 23:26*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	60.5		4.17	1	06/17/2018 17:38	WG1124294
C28-C40 Oil Range	45.9		4.17	1	06/17/2018 17:38	WG1124294
(S) o-Terphenyl	*55.2*		*18.0-148*		*06/17/2018 17:38*	WG1124294

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

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.3		1	06/15/2018 13:26	WG1125129

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	97.0		10.6	1	06/15/2018 03:53	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000550	B	0.000530	1	06/13/2018 23:49	WG1124116
Toluene	ND		0.00530	1	06/13/2018 23:49	WG1124116
Ethylbenzene	ND		0.000530	1	06/13/2018 23:49	WG1124116
Total Xylene	0.00804		0.00159	1	06/13/2018 23:49	WG1124116
TPH (GC/FID) Low Fraction	1.36		0.106	1	06/13/2018 23:49	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*93.6*		*77.0-120*		*06/13/2018 23:49*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*97.2*		*75.0-128*		*06/13/2018 23:49*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	478		42.4	10	06/18/2018 10:22	WG1124294
C28-C40 Oil Range	162		4.24	1	06/17/2018 17:50	WG1124294
(S) o-Terphenyl	*116*		*18.0-148*		*06/18/2018 10:22*	WG1124294
(S) o-Terphenyl	*74.6*		*18.0-148*		*06/17/2018 17:50*	WG1124294

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.4		1	06/15/2018 13:26	WG1125129

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	106		10.6	1	06/15/2018 04:09	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000618	B	0.000529	1	06/14/2018 00:11	WG1124116
Toluene	ND		0.00529	1	06/14/2018 00:11	WG1124116
Ethylbenzene	ND		0.000529	1	06/14/2018 00:11	WG1124116
Total Xylene	0.00167		0.00159	1	06/14/2018 00:11	WG1124116
TPH (GC/FID) Low Fraction	0.164		0.106	1	06/14/2018 00:11	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*94.5*		*77.0-120*		*06/14/2018 00:11*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*98.1*		*75.0-128*		*06/14/2018 00:11*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	59.3		4.24	1	06/17/2018 18:03	WG1124294
C28-C40 Oil Range	36.0		4.24	1	06/17/2018 18:03	WG1124294
(S) o-Terphenyl	*53.7*		*18.0-148*		*06/17/2018 18:03*	WG1124294

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.8		1	06/15/2018 13:26	WG1125129

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	74.5		10.5	1	06/15/2018 04:55	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000788	B	0.000527	1	06/14/2018 00:33	WG1124116
Toluene	ND		0.00527	1	06/14/2018 00:33	WG1124116
Ethylbenzene	ND		0.000527	1	06/14/2018 00:33	WG1124116
Total Xylene	0.00206		0.00158	1	06/14/2018 00:33	WG1124116
TPH (GC/FID) Low Fraction	0.171		0.105	1	06/14/2018 00:33	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*93.7*		*77.0-120*		*06/14/2018 00:33*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*97.1*		*75.0-128*		*06/14/2018 00:33*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	83.0		4.22	1	06/17/2018 18:16	WG1124294
C28-C40 Oil Range	41.5		4.22	1	06/17/2018 18:16	WG1124294
(S) o-Terphenyl	*65.4*		*18.0-148*		*06/17/2018 18:16*	WG1124294

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

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	89.3		1	06/15/2018 13:26	WG1125129

Wet Chemistry by Method 9056A

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	101		11.2	1	06/15/2018 05:10	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000766	B	0.000560	1	06/14/2018 00:56	WG1124116
Toluene	ND		0.00560	1	06/14/2018 00:56	WG1124116
Ethylbenzene	ND		0.000560	1	06/14/2018 00:56	WG1124116
Total Xylene	0.00177		0.00168	1	06/14/2018 00:56	WG1124116
TPH (GC/FID) Low Fraction	0.275		0.112	1	06/14/2018 00:56	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*93.9*		*77.0-120*		*06/14/2018 00:56*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*97.1*		*75.0-128*		*06/14/2018 00:56*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	123		4.48	1	06/17/2018 19:07	WG1124294
C28-C40 Oil Range	63.7		4.48	1	06/17/2018 19:07	WG1124294
(S) o-Terphenyl	*61.3*		*18.0-148*		*06/17/2018 19:07*	WG1124294

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.7		1	06/15/2018 13:26	WG1125129

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	66.3		10.3	1	06/15/2018 05:26	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.000558	B	0.000517	1	06/14/2018 08:41	WG1124116
Toluene	ND		0.00517	1	06/14/2018 08:41	WG1124116
Ethylbenzene	ND		0.000517	1	06/14/2018 08:41	WG1124116
Total Xylene	0.00242		0.00155	1	06/14/2018 08:41	WG1124116
TPH (GC/FID) Low Fraction	0.164		0.103	1	06/14/2018 08:41	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*93.1*		*77.0-120*		*06/14/2018 08:41*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*96.7*		*75.0-128*		*06/14/2018 08:41*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	145		4.14	1	06/17/2018 19:20	WG1124294
C28-C40 Oil Range	74.4		4.14	1	06/17/2018 19:20	WG1124294
(S) o-Terphenyl	*68.9*		*18.0-148*		*06/17/2018 19:20*	WG1124294

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

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.8		1	06/15/2018 15:56	WG1125131

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	90.1	J3	10.4	1	06/15/2018 05:41	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.000522	1	06/14/2018 09:03	WG1124116
Toluene	ND		0.00522	1	06/14/2018 09:03	WG1124116
Ethylbenzene	0.00446		0.000522	1	06/14/2018 09:03	WG1124116
Total Xylene	0.0109		0.00157	1	06/14/2018 09:03	WG1124116
TPH (GC/FID) Low Fraction	0.771		0.104	1	06/14/2018 09:03	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*93.1*		*77.0-120*		*06/14/2018 09:03*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*96.5*		*75.0-128*		*06/14/2018 09:03*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	392		41.7	10	06/18/2018 10:34	WG1124294
C28-C40 Oil Range	160		4.17	1	06/17/2018 19:33	WG1124294
(S) o-Terphenyl	*102*		*18.0-148*		*06/18/2018 10:34*	WG1124294
(S) o-Terphenyl	*89.5*		*18.0-148*		*06/17/2018 19:33*	WG1124294

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.8		1	06/15/2018 15:56	WG1125131

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Chloride	106		10.4	1	06/15/2018 06:12	WG1123432

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.000522	1	06/14/2018 09:25	WG1124116
Toluene	ND		0.00522	1	06/14/2018 09:25	WG1124116
Ethylbenzene	ND		0.000522	1	06/14/2018 09:25	WG1124116
Total Xylene	0.00167		0.00157	1	06/14/2018 09:25	WG1124116
TPH (GC/FID) Low Fraction	0.180		0.104	1	06/14/2018 09:25	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*93.2*		*77.0-120*		*06/14/2018 09:25*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*97.5*		*75.0-128*		*06/14/2018 09:25*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	159		4.18	1	06/17/2018 19:45	WG1124294
C28-C40 Oil Range	86.5		4.18	1	06/17/2018 19:45	WG1124294
(S) o-Terphenyl	*67.4*		*18.0-148*		*06/17/2018 19:45*	WG1124294

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

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	%				
Total Solids	93.4		1	06/14/2018 14:20	WG1124385

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Chloride	76.6		10.7	1	06/14/2018 14:31	WG1123435

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	0.000656	B	0.000535	1	06/14/2018 09:48	WG1124116
Toluene	ND		0.00535	1	06/14/2018 09:48	WG1124116
Ethylbenzene	0.00605		0.000535	1	06/14/2018 09:48	WG1124116
Total Xylene	0.0117	J6	0.00161	1	06/14/2018 09:48	WG1124116
TPH (GC/FID) Low Fraction	0.854		0.107	1	06/14/2018 09:48	WG1124116
(S) a,a,a-Trifluorotoluene(FID)	*93.9*		*77.0-120*		*06/14/2018 09:48*	WG1124116
(S) a,a,a-Trifluorotoluene(PID)	*97.2*		*75.0-128*		*06/14/2018 09:48*	WG1124116

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	190		4.28	1	06/17/2018 19:58	WG1124294
C28-C40 Oil Range	86.3		4.28	1	06/17/2018 19:58	WG1124294
(S) o-Terphenyl	*65.2*		*18.0-148*		*06/17/2018 19:58*	WG1124294

Method Blank (MB)

(MB) R3318142-1 06/14/18 14:20

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1000669-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1000669-01 06/14/18 14:20 • (DUP) R3318142-3 06/14/18 14:20

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	91.1	92.5	1	1.50		5

Laboratory Control Sample (LCS)

(LCS) R3318142-2 06/14/18 14:20

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3318464-1 06/15/18 15:36

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1000895-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1000895-01 06/15/18 15:36 • (DUP) R3318464-3 06/15/18 15:36

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	94.8	94.6	1	0.229		5

Laboratory Control Sample (LCS)

(LCS) R3318464-2 06/15/18 15:36

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3318674-1 06/15/18 13:26

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1000895-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1000895-12 06/15/18 13:26 • (DUP) R3318674-3 06/15/18 13:26

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	96.7	95.8	1	0.974		5

Laboratory Control Sample (LCS)

(LCS) R3318674-2 06/15/18 13:26

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3318465-1 06/15/18 15:56

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1000915-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1000915-01 06/15/18 15:56 • (DUP) R3318465-3 06/15/18 15:56

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	84.8	85.9	1	1.29		5

Laboratory Control Sample (LCS)

(LCS) R3318465-2 06/15/18 15:56

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3318202-1 06/14/18 22:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	0.928	J	0.795	10.0

L1000895-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1000895-01 06/15/18 00:48 • (DUP) R3318202-4 06/15/18 01:04

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	67.9	109	1	46.5	J3	15

L1000895-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1000895-13 06/15/18 05:41 • (DUP) R3318202-7 06/15/18 05:57

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	90.1	119	1	27.6	J3	15

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

(LCS) R3318202-2 06/14/18 22:45 • (LCSD) R3318202-3 06/14/18 23:00

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 %
Chloride	200	194	203	97.2	101	80.0-120			4.10	15

L1000895-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1000895-03 06/15/18 02:05 • (MS) R3318202-5 06/15/18 02:21 • (MSD) R3318202-6 06/15/18 02:36

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	523	73.2	615	649	104	110	1	80.0-120			5.32	15

Method Blank (MB)

(MB) R3318064-1 06/14/18 13:33

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

L1000895-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1000895-15 06/14/18 14:31 • (DUP) R3318064-4 06/14/18 14:40

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	76.6	76.6	1	0.0643		15

L1000916-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1000916-02 06/14/18 18:38 • (DUP) R3318064-7 06/14/18 18:48

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	69.8	73.6	1	5.36		15

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

(LCS) R3318064-2 06/14/18 13:43 • (LCSD) R3318064-3 06/14/18 13:52

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 %
Chloride	200	204	200	102	99.8	80.0-120			2.01	15

L1000908-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1000908-09 06/14/18 16:25 • (MS) R3318064-5 06/14/18 16:34 • (MSD) R3318064-6 06/14/18 16:44

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	541	559	1120	1120	104	105	1	80.0-120	E	E	0.331	15

Method Blank (MB)

(MB) R3317779-5 06/13/18 19:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000225	J	0.000120	0.000500
Toluene	0.000230	J	0.000150	0.00500
Ethylbenzene	0.000133	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)	*95.5*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*99.7*			*75.0-128*

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

(LCS) R3317779-1 06/13/18 17:08 • (LCSD) R3317779-2 06/13/18 17:30

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	0.0507	0.0507	101	101	71.0-121			0.182	20
Toluene	0.0500	0.0523	0.0524	105	105	72.0-120			0.303	20
Ethylbenzene	0.0500	0.0519	0.0518	104	104	76.0-121			0.295	20
Total Xylene	0.150	0.154	0.154	103	103	75.0-124			0.195	20
(S) a,a,a-Trifluorotoluene(FID)				*95.3*	*94.4*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*98.0*	*96.8*	*75.0-128*				

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

(LCS) R3317779-4 06/13/18 18:37 • (LCSD) R3317779-3 06/13/18 18:15

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	5.51	5.55	100	101	70.0-136			0.719	20
(S) a,a,a-Trifluorotoluene(FID)				*109*	*110*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*112*	*113*	*75.0-128*				

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

L1000895-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1000895-15 06/14/18 09:48 • (MS) R3317779-6 06/14/18 10:10 • (MSD) R3317779-7 06/14/18 10:32

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0535	0.000656	0.0329	0.0371	60.1	68.1	1	10.0-146			12.2	29
Toluene	0.0535	ND	0.0328	0.0370	59.6	67.5	1	10.0-143			12.1	30
Ethylbenzene	0.0535	0.00605	0.0329	0.0359	50.1	55.8	1	10.0-147			8.94	31
Total Xylene	0.161	0.0117	0.0995	0.106	54.7	59.0	1	10.0-149	J6	J6	6.76	30
(S) a,a,a-Trifluorotoluene(FID)					*93.4*	*93.7*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*96.1*	*97.1*		*75.0-128*				

L1000895-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1000895-15 06/14/18 09:48 • (MS) R3317779-8 06/14/18 10:55 • (MSD) R3317779-9 06/14/18 11:17

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.89	0.854	2.01	1.69	19.6	14.2	1	10.0-147			16.9	30
(S) a,a,a-Trifluorotoluene(FID)					*89.9*	*90.6*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*99.7*	*99.1*		*75.0-128*				

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

Method Blank (MB)

(MB) R3318634-1 06/17/18 15:15

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	*84.6*			*18.0-148*

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

(LCS) R3318634-2 06/17/18 15:28 • (LCSD) R3318634-3 06/17/18 15:40

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	33.3	31.0	66.6	62.0	50.0-150			7.10	20
(S) o-Terphenyl		*111*	*105*			*18.0-148*				

L1000895-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1000895-01 06/17/18 15:53 • (MS) R3318634-4 06/17/18 16:06 • (MSD) R3318634-5 06/17/18 16:19

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	52.8	49.5	126	82.6	145	62.8	1	50.0-150		J3	41.6	20
(S) o-Terphenyl					*59.5*	*60.8*		*18.0-148*				

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

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

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

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

Cp
Tc
Ss
Cn
Sr
Qc
Al
Sc

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences 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 ESC Lab Sciences.

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

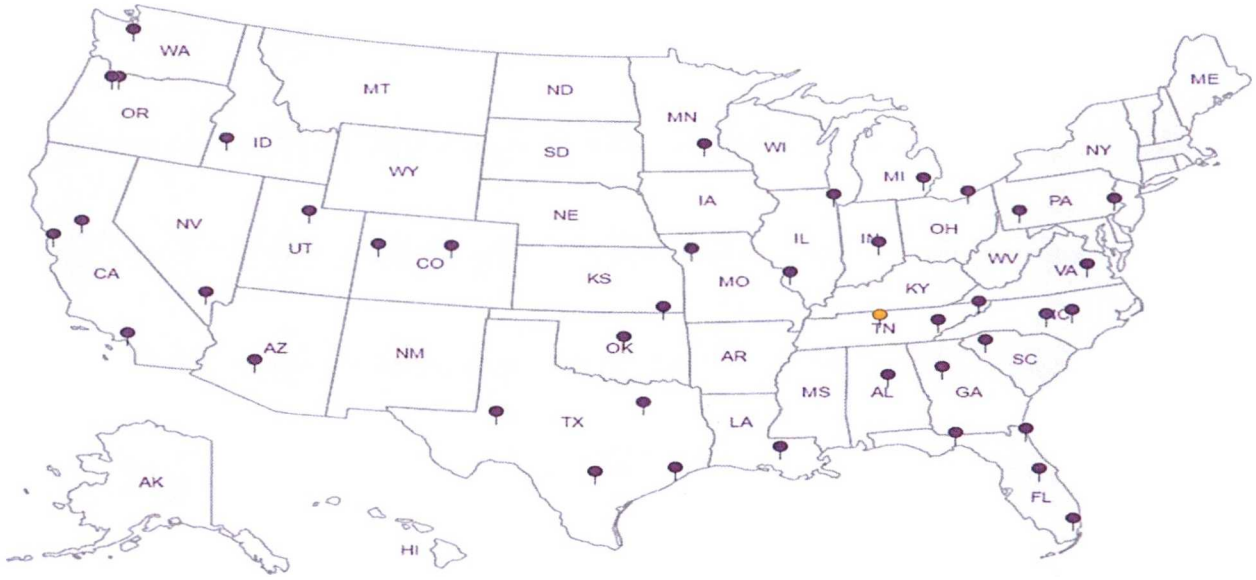
Third Party Federal Accreditations

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

ESC Lab Sciences 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. ESC Lab Sciences performs all testing at our central laboratory.



HilCorp
382 Road 3100
Aztec, NM 87401

Billing Information:

Report to: Kurt Hoekstra / Lindsay Dumas
Email To: LDumas@hilcorp.com, khoekstra@hilcorp.com

Project Description: Chacon Federal #2
City/State Collected:

Phone:
Fax:

Client Project #
Lab Project #

Collected by (print): Kurt
Collected by (signature): Kurt Hoekstra
Immediately Packed on Ice N ___ Y X

Site/Facility ID #
P.O. #

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #
Date Results Needed: STANDARD TURNAROUND

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH 8015 - DRO, GRO, MRO	BTEX 8021	CHLORIDE	Remarks	Sample # (lab only)
Cell #1	Comp	S		6-8-18	12:22	1	X	X	X		-01
Cell #2	"	"		"	12:26	1	X	X	X		02
Cell #3	"	"		"	12:30	1	X	X	X		03
Cell #4	"	"		"	12:33	1	X	X	X		04
Cell #5	"	"		"	12:37	1	X	X	X		05
Cell #6	"	"		"	12:45	1	X	X	X		06
Cell #7	"	"		"	12:50	1	X	X	X		07
Cell #8	"	"		"	1:02	1	X	X	X		08
Cell #9	"	"		"	1:23	1	X	X	X		09
Cell #10	"	"		"	1:11	1	X	X	X		10

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking # 7372 1960 3359

Chain of Custody Page ___ of ___

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1006896
D125

Acctnum: HILCORANM
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Kurt Hoekstra	6-11-18	3:00	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)
			K Kenner

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 3.7 °C Bottles Received: 15

Date: 6/12/18 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

HilCorp
382 Road 3100
Aztec, NM 87401

Billing Information:

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

ESC LABORATORY SCIENCES

ESC LAB SCIENCES
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Report to: **Kurt Hoekstra** / LINDSAY DUMAS

Email To: LDumas@hilcorp.com
khoekstra@hilcorp.com

Project Description: CHACON FEDERAL # 2

City/State Collected:

Phone:
Fax:

Client Project #

Lab Project #

Collected by (print): KURT

Site/Facility ID #

P.O. #

Collected by (signature): Kurt Hoekstra

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: STANDARD TURNAROUND

L# L1600845

Table #

Acctnum: HILCORANM

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH 8015 - DRO, GRO, MRO	BTEX 8021	CHLORIDES	Remarks	Sample # (lab only)
CELL # 11	Comp	S		6-8-18	1:27	1	X	X	X		-11
CELL # 12	"	"		"	1:41	1	X	X	X		12
CELL # 13	"	"		"	1:51	1	X	X	X		13
CELL # 14	"	"		"	1:39	1	X	X	X		14
CELL # 15	"	"		"	1:50	1	X	X	X		15

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 7312 1960 3359

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Kurt Hoekstra	6-11-18	3:00			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.7 °C Bottles Received: 15	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 6/12/18 Time: 0845	Hold: Condition: NCF / OK

Lindsay Dumas

From: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Sent: Tuesday, October 30, 2018 4:33 PM
To: Kurt Hoekstra; Lindsay Dumas
Subject: RE: [EXTERNAL] RE: Chacon Federal 2

Kurt,

OCD Agrees to your sampling with following condition

- HEC will collect 3x 5pt composite samples from the Northern soil pile area.
- If there any areas that wet/stained or otherwise show signs of HC impacts those area to either be include in the composite or a separate grab sample.
- Please include pictures of vadose zone sampling in your Closure report per 19.15.29.12

HEC needs to include this approval email in your final report.

OCD approval of this sampling plan does not relieve HEC of any other requirements imposed by other regulatory agencies.

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

From: Kurt Hoekstra <khoekstra@hilcorp.com>
Sent: Tuesday, October 30, 2018 8:28 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Lindsay Dumas <ldumas@hilcorp.com>
Subject: [EXT] RE: [EXTERNAL] RE: Chacon Federal 2

HI Cory attached is the diagram I used when sampling the soil piles. I propose to take an East and West 5 point composite sample of the North soil pile Vadose zone about 6" to 1' deep, basically dividing the North soil pile area in half. The West and East soil pile areas 1 composite sample of each area about 6" to 1' deep, for a total of 4 vadose zone samples.

From: Smith, Cory, EMNRD [mailto:Cory.Smith@state.nm.us]
Sent: Tuesday, October 30, 2018 7:08 AM
To: Kurt Hoekstra <khoekstra@hilcorp.com>; Lindsay Dumas <ldumas@hilcorp.com>
Subject: [EXTERNAL] RE: Chacon Federal 2

Kurt,

At this time that time should work for me however there may be a possibility I may not beable to make it as I am the only one in the office this week.. If HEC doesn't want to do a 200sf sampling area You can put together a simple sampling map showing were the piles were area etc. and proposed a sampling plan.

Let me know.

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

From: Kurt Hoekstra <khoekstra@hilcorp.com>
Sent: Tuesday, October 30, 2018 6:42 AM
To: Lindsay Dumas <ldumas@hilcorp.com>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Subject: [EXT] RE: Chacon Federal 2

Hi Cory, would you be available to witness sampling the vadose zone at the Chacon Federal # 2 on Thursday, November 1st about 10:00 – 10:30 am. Let me know.

Thanks

From: Lindsay Dumas
Sent: Monday, October 29, 2018 9:22 AM
To: Kurt Hoekstra <khoekstra@hilcorp.com>
Subject: Chacon Federal 2

Kurt – If you are available, could you get with Cory to schedule vadose zone sampling on the Chacon Federal 2? We landfarmed on this location and need to grab surface soil samples to close it out. Can you cc me in emails so I can keep track of the dates? Thank you!

Kind regards,

Lindsay Dumas
Environmental Specialist
Hilcorp Energy – L48 West
Office: 832-839-4585
Mobile: 281-794-9159

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 15, 2018

HilCorp-Farmington, NM

Sample Delivery Group:	L1042478
Samples Received:	11/08/2018
Project Number:	
Description:	
Site:	CHACON FEDERAL #2
Report To:	Lindsay Dumas 382 Road 3100 Aztec, NM 87401

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

TABLE OF CONTENTS

N.W. BIO PILE AREA L1042478-01 Solid

Collected by: Kurt | Collected date/time: 11/06/18 10:30 | Received date/time: 11/08/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1194834	1	11/13/18 12:09	11/13/18 20:08	ELN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1194876	1	11/09/18 09:09	11/11/18 17:29	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1196841	1	11/14/18 14:19	11/14/18 20:39	MTJ

N. MIDDLE BIO PILE AREA L1042478-02 Solid

Collected by: Kurt | Collected date/time: 11/06/18 10:33 | Received date/time: 11/08/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1194834	1	11/13/18 12:09	11/13/18 20:16	ELN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1194876	1	11/09/18 09:09	11/11/18 17:50	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1196841	1	11/14/18 14:19	11/14/18 20:53	MTJ

N.E. BIO PILE AREA L1042478-03 Solid

Collected by: Kurt | Collected date/time: 11/06/18 10:35 | Received date/time: 11/08/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1194550	1	11/10/18 12:56	11/10/18 15:54	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1194876	1	11/09/18 09:09	11/11/18 18:11	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1196841	1	11/14/18 14:19	11/14/18 21:09	MTJ

W. BIO PILE AREA L1042478-04 Solid

Collected by: Kurt | Collected date/time: 11/06/18 10:50 | Received date/time: 11/08/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1194550	1	11/10/18 12:56	11/10/18 16:12	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1194876	1	11/09/18 09:09	11/11/18 18:32	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1196841	1	11/14/18 14:19	11/14/18 21:24	MTJ

E. BIO PILE AREA L1042478-05 Solid

Collected by: Kurt | Collected date/time: 11/06/18 11:00 | Received date/time: 11/08/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1194550	1	11/10/18 12:56	11/10/18 16:20	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1194876	1	11/09/18 09:09	11/11/18 18:53	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1196841	1	11/14/18 14:19	11/14/18 21:40	MTJ

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Olivia Studebaker
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	10.5		10.0	1	11/13/2018 20:08	WG1194834

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000647	B	0.000500	1	11/11/2018 17:29	WG1194876
Toluene	ND		0.00500	1	11/11/2018 17:29	WG1194876
Ethylbenzene	ND		0.000500	1	11/11/2018 17:29	WG1194876
Total Xylene	ND		0.00150	1	11/11/2018 17:29	WG1194876
TPH (GC/FID) Low Fraction	ND		0.100	1	11/11/2018 17:29	WG1194876
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*11/11/2018 17:29*	WG1194876
(S) a,a,a-Trifluorotoluene(PID)	*99.7*		*72.0-128*		*11/11/2018 17:29*	WG1194876

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	8.24		4.00	1	11/14/2018 20:39	WG1196841
C28-C40 Oil Range	7.78		4.00	1	11/14/2018 20:39	WG1196841
(S) o-Terphenyl	*60.9*		*18.0-148*		*11/14/2018 20:39*	WG1196841

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	ND		10.0	1	11/13/2018 20:16	WG1194834

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000749	B	0.000500	1	11/11/2018 17:50	WG1194876
Toluene	ND	J3	0.00500	1	11/11/2018 17:50	WG1194876
Ethylbenzene	ND	J3	0.000500	1	11/11/2018 17:50	WG1194876
Total Xylene	ND	J3 J6	0.00150	1	11/11/2018 17:50	WG1194876
TPH (GC/FID) Low Fraction	ND		0.100	1	11/11/2018 17:50	WG1194876
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*11/11/2018 17:50*	WG1194876
(S) a,a,a-Trifluorotoluene(PID)	*99.5*		*72.0-128*		*11/11/2018 17:50*	WG1194876

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	18.5		4.00	1	11/14/2018 20:53	WG1196841
C28-C40 Oil Range	14.9		4.00	1	11/14/2018 20:53	WG1196841
(S) o-Terphenyl	*61.6*		*18.0-148*		*11/14/2018 20:53*	WG1196841

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

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	14.7	B	10.0	1	11/10/2018 15:54	WG1194550

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000538	B	0.000500	1	11/11/2018 18:11	WG1194876
Toluene	ND		0.00500	1	11/11/2018 18:11	WG1194876
Ethylbenzene	ND		0.000500	1	11/11/2018 18:11	WG1194876
Total Xylene	ND		0.00150	1	11/11/2018 18:11	WG1194876
TPH (GC/FID) Low Fraction	ND		0.100	1	11/11/2018 18:11	WG1194876
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*11/11/2018 18:11*	WG1194876
(S) a,a,a-Trifluorotoluene(PID)	*99.1*		*72.0-128*		*11/11/2018 18:11*	WG1194876

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	10.9		4.00	1	11/14/2018 21:09	WG1196841
C28-C40 Oil Range	10.1		4.00	1	11/14/2018 21:09	WG1196841
(S) o-Terphenyl	*75.0*		*18.0-148*		*11/14/2018 21:09*	WG1196841

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	ND		10.0	1	11/10/2018 16:12	WG1194550

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000526	B	0.000500	1	11/11/2018 18:32	WG1194876
Toluene	ND		0.00500	1	11/11/2018 18:32	WG1194876
Ethylbenzene	ND		0.000500	1	11/11/2018 18:32	WG1194876
Total Xylene	ND		0.00150	1	11/11/2018 18:32	WG1194876
TPH (GC/FID) Low Fraction	ND		0.100	1	11/11/2018 18:32	WG1194876
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*11/11/2018 18:32*	WG1194876
(S) a,a,a-Trifluorotoluene(PID)	*99.2*		*72.0-128*		*11/11/2018 18:32*	WG1194876

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	9.01		4.00	1	11/14/2018 21:24	WG1196841
C28-C40 Oil Range	10.1		4.00	1	11/14/2018 21:24	WG1196841
(S) o-Terphenyl	*72.6*		*18.0-148*		*11/14/2018 21:24*	WG1196841

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	16.0		10.0	1	11/10/2018 16:20	WG1194550

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000646	B	0.000500	1	11/11/2018 18:53	WG1194876
Toluene	ND		0.00500	1	11/11/2018 18:53	WG1194876
Ethylbenzene	ND		0.000500	1	11/11/2018 18:53	WG1194876
Total Xylene	ND		0.00150	1	11/11/2018 18:53	WG1194876
TPH (GC/FID) Low Fraction	ND		0.100	1	11/11/2018 18:53	WG1194876
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*11/11/2018 18:53*	WG1194876
(S) a,a,a-Trifluorotoluene(PID)	*99.2*		*72.0-128*		*11/11/2018 18:53*	WG1194876

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	4.22		4.00	1	11/14/2018 21:40	WG1196841
C28-C40 Oil Range	5.83		4.00	1	11/14/2018 21:40	WG1196841
(S) o-Terphenyl	*73.1*		*18.0-148*		*11/14/2018 21:40*	WG1196841

Method Blank (MB)

(MB) R3358758-1 11/10/18 14:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	1.48	J	0.795	10.0

L1042478-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1042478-03 11/10/18 15:54 • (DUP) R3358758-3 11/10/18 16:03

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	14.7	14.4	1	2.26		15

L1042845-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1042845-04 11/10/18 19:47 • (DUP) R3358758-6 11/10/18 19:55

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	10800	10300	20	5.18		15

Laboratory Control Sample (LCS)

(LCS) R3358758-2 11/10/18 14:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	206	103	80.0-120	

Method Blank (MB)

(MB) R3359639-1 11/13/18 18:22

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

L1042462-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1042462-10 11/13/18 18:49 • (DUP) R3359639-3 11/13/18 18:57

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	9.02	10.7	1	17.1	P1	15

L1043331-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1043331-04 11/13/18 21:09 • (DUP) R3359639-6 11/13/18 21:18

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	6.76	5.02	1	29.6	J P1	15

Laboratory Control Sample (LCS)

(LCS) R3359639-2 11/13/18 18:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	187	93.7	80.0-120	

L1042462-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1042462-12 11/13/18 19:15 • (MS) R3359639-4 11/13/18 19:24 • (MSD) R3359639-5 11/13/18 19:32

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	13.7	413	464	79.9	90.1	1	80.0-120	J6		11.6	15

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

Method Blank (MB)

(MB) R3358963-5 11/11/18 12:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000197	J	0.000120	0.000500
Toluene	0.000438	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)	*103*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*100*			*72.0-128*

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

(LCS) R3358963-1 11/11/18 11:10 • (LCSD) R3358963-2 11/11/18 11:31

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	0.0450	0.0442	90.0	88.4	76.0-121			1.83	20
Toluene	0.0500	0.0488	0.0487	97.6	97.4	80.0-120			0.270	20
Ethylbenzene	0.0500	0.0507	0.0506	101	101	80.0-124			0.188	20
Total Xylene	0.150	0.149	0.149	99.3	99.4	37.0-160			0.0671	20
(S) a,a,a-Trifluorotoluene(FID)				*104*	*104*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*104*	*103*	*72.0-128*				

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

(LCS) R3358963-3 11/11/18 11:52 • (LCSD) R3358963-4 11/11/18 12:14

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	5.31	5.48	96.6	99.6	72.0-127			3.12	20
(S) a,a,a-Trifluorotoluene(FID)				*91.8*	*92.8*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*108*	*108*	*72.0-128*				

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

L1042478-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1042478-02 11/11/18 17:50 • (MS) R3358963-6 11/11/18 21:01 • (MSD) R3358963-7 11/11/18 21:22

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	0.000749	0.0196	0.0152	37.6	28.9	1	10.0-155			25.1	32
Toluene	0.0500	ND	0.0163	0.0110	31.3	20.8	1	10.0-160		J3	38.3	34
Ethylbenzene	0.0500	ND	0.0111	0.00696	21.9	13.6	1	10.0-160		J3	46.1	32
Total Xylene	0.150	ND	0.0294	0.0175	18.9	11.0	1	10.0-160	J6	J3 J6	50.5	32
(S) a,a,a-Trifluorotoluene(FID)					*100*	*100*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*98.8*	*99.0*		*72.0-128*				

L1043123-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043123-04 11/11/18 20:40 • (MS) R3358963-8 11/11/18 21:44 • (MSD) R3358963-9 11/11/18 22:05

Analyte	Spike Amount mg/kg	Original Result	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	6.17		102	114	74.1	82.7	25	10.0-151			10.9	28
(S) a,a,a-Trifluorotoluene(FID)					*99.7*	*98.9*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*105*	*105*		*72.0-128*				

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

Method Blank (MB)

(MB) R3359976-1 11/14/18 20:02

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	*78.7*			*18.0-148*

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

(LCS) R3359976-2 11/14/18 20:14 • (LCSD) R3359976-3 11/14/18 20:27

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	31.1	33.3	62.2	66.6	50.0-150			6.83	20
(S) o-Terphenyl				*68.5*	*72.8*	*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.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

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

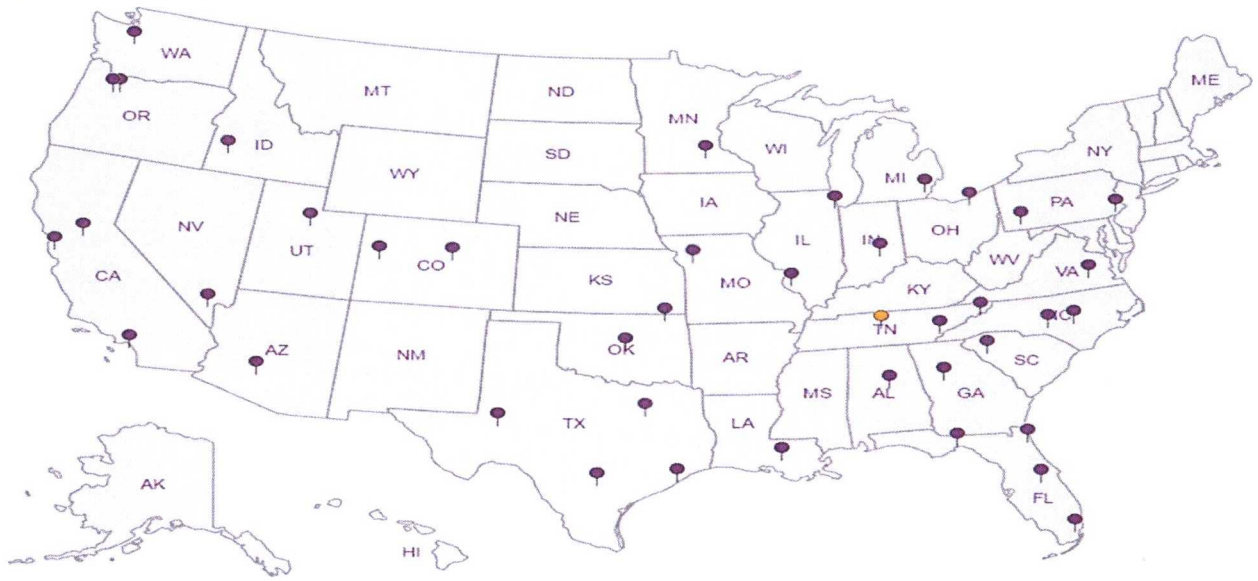
Third Party Federal Accreditations

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.



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

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: LINDSAY DUMAS	Email To: LDumas@hilcorp.com KHOCKSTRA@hilcorp.com
Copy To:	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 #: CHACON FEDERAL #2
Collected by (print): KURT	Purchase Order #: Quote #:
Collected by (signature): Kurt Hockstra	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: [ ] 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	CHLORIDE	Lab Sample # / Comments
N.W. BIO PILE AREA	SS	Comp	11-6	10:30				1	X	X	X	1042478-01
N. MIDDLE BIO PILE AREA	"	"	"	10:33				"	X	X	X	02
N.E. BIO PILE AREA	"	"	"	10:35				"	X	X	X	03
W. BIO PILE AREA	"	"	"	10:50				"	X	X	X	04
E. BIO PILE AREA	"	"	"	11:00				"	X	X	X	05

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

1042478

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 8520

Samples received via: FEDEX UPS Client Courier Pace Courier

LAB Sample Temperature Info:

Temp Blank Received: Y N NA

Therm ID#: BA2

Cooler 1 Temp Upon Receipt 0.2 oC

Cooler 1 Therm Corr. Factor 0.0 oC

Cooler 1 Corrected Temp 0.1 oC

Comments:

Trip Blank Received: Y N NA

HCL MeOH TSP Other

NonConformance(s): YES / NO

Page ____ of ____

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Kurt Hockstra	11-7-18 7:15		11/8/18 8:45
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

E230

Acctnum: HILCORANM

Template:

Prelogin:

PM: 288 - Daphne Richards

PB:

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

August 17, 2018

HilCorp-Farmington, NM

Sample Delivery Group:	L1016992
Samples Received:	08/11/2018
Project Number:	
Description:	
Site:	CHACON FED #2
Report To:	Kurt Hoekstra 382 Road 3100 Aztec, NM 87401

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

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

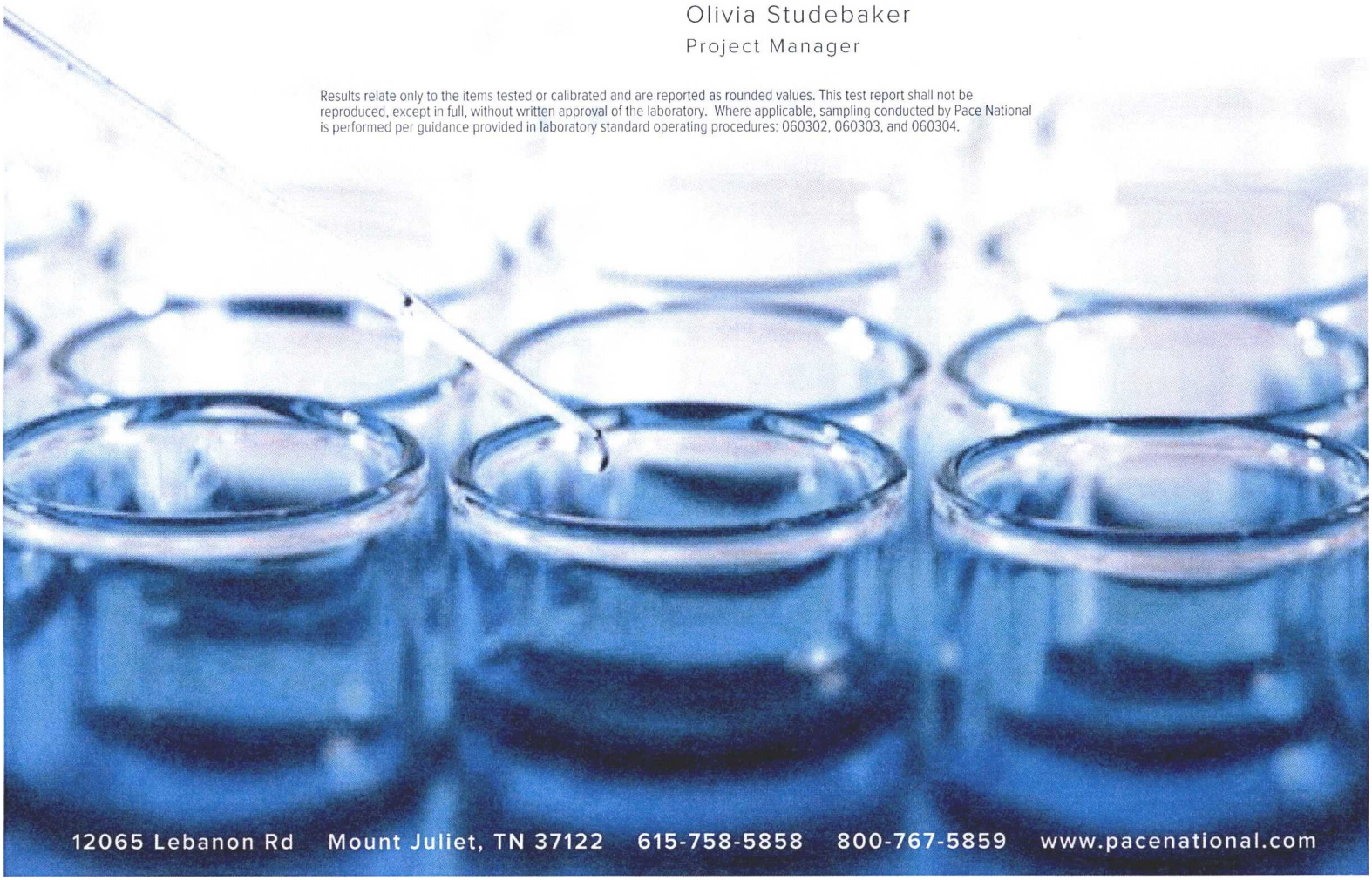


TABLE OF CONTENTS

BIOPILE SAMPLE #1 L1016992-01 Solid

Collected by: Travis | Collected date/time: 08/09/18 11:00 | Received date/time: 08/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1151278	1	08/13/18 07:19	08/13/18 12:59	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1152271	1	08/14/18 08:57	08/15/18 04:49	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1152138	1	08/15/18 07:28	08/16/18 17:40	MTJ

BIOPILE SAMPLE #2 L1016992-02 Solid

Collected by: Travis | Collected date/time: 08/09/18 10:50 | Received date/time: 08/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1151278	1	08/13/18 07:19	08/13/18 13:08	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1152271	1	08/14/18 08:57	08/15/18 05:13	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1152138	1	08/15/18 07:28	08/16/18 00:14	MG

BIOPILE SAMPLE #3 L1016992-03 Solid

Collected by: Travis | Collected date/time: 08/09/18 10:45 | Received date/time: 08/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1151278	1	08/13/18 07:19	08/13/18 13:26	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1152271	1	08/14/18 08:57	08/15/18 05:37	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1152138	1	08/15/18 07:28	08/16/18 00:27	MG

BIOPILE SAMPLE #4 L1016992-04 Solid

Collected by: Travis | Collected date/time: 08/09/18 10:40 | Received date/time: 08/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1151278	1	08/13/18 07:19	08/13/18 13:34	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1152271	1	08/14/18 08:57	08/15/18 06:01	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1152138	1	08/15/18 07:28	08/16/18 00:40	MG

BIOPILE SAMPLE #5 L1016992-05 Solid

Collected by: Travis | Collected date/time: 08/09/18 10:35 | Received date/time: 08/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1151278	1	08/13/18 07:19	08/13/18 14:01	MAJ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1152271	1	08/14/18 08:57	08/15/18 06:25	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1152138	1	08/15/18 07:28	08/16/18 00:52	MG

BIOPILE SAMPLE #6 L1016992-06 Solid

Collected by: Travis | Collected date/time: 08/09/18 10:28 | Received date/time: 08/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1152596	1	08/15/18 12:05	08/15/18 15:56	ELN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1152271	1	08/14/18 08:57	08/15/18 06:50	LRL
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1152138	1	08/15/18 07:28	08/16/18 01:05	MG

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

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Olivia Studebaker
Project Manager

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	110		10.0	1	08/13/2018 12:59	WG1151278

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	08/15/2018 04:49	WG1152271
Toluene	ND		0.00500	1	08/15/2018 04:49	WG1152271
Ethylbenzene	ND		0.000500	1	08/15/2018 04:49	WG1152271
Total Xylene	0.00322		0.00150	1	08/15/2018 04:49	WG1152271
TPH (GC/FID) Low Fraction	0.658		0.100	1	08/15/2018 04:49	WG1152271
(S) a,a,a-Trifluorotoluene(FID)	*97.6*		*77.0-120*		*08/15/2018 04:49*	WG1152271
(S) a,a,a-Trifluorotoluene(PID)	*97.5*		*75.0-128*		*08/15/2018 04:49*	WG1152271

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	147		4.00	1	08/16/2018 17:40	WG1152138
C28-C40 Oil Range	62.1		4.00	1	08/16/2018 17:40	WG1152138
(S) o-Terphenyl	*77.9*		*18.0-148*		*08/16/2018 17:40*	WG1152138

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	169		10.0	1	08/13/2018 13:08	WG1151278

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	08/15/2018 05:13	WG1152271
Toluene	ND		0.00500	1	08/15/2018 05:13	WG1152271
Ethylbenzene	ND		0.000500	1	08/15/2018 05:13	WG1152271
Total Xylene	0.00243		0.00150	1	08/15/2018 05:13	WG1152271
TPH (GC/FID) Low Fraction	0.468		0.100	1	08/15/2018 05:13	WG1152271
(S) a,a,a-Trifluorotoluene(FID)	*97.4*		*77.0-120*		*08/15/2018 05:13*	WG1152271
(S) a,a,a-Trifluorotoluene(PID)	*96.7*		*75.0-128*		*08/15/2018 05:13*	WG1152271

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	136		4.00	1	08/16/2018 00:14	WG1152138
C28-C40 Oil Range	61.3		4.00	1	08/16/2018 00:14	WG1152138
(S) o-Terphenyl	*64.4*		*18.0-148*		*08/16/2018 00:14*	WG1152138

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	128		10.0	1	08/13/2018 13:26	WG1151278

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000524		0.000500	1	08/15/2018 05:37	WG1152271
Toluene	ND		0.00500	1	08/15/2018 05:37	WG1152271
Ethylbenzene	ND		0.000500	1	08/15/2018 05:37	WG1152271
Total Xylene	ND		0.00150	1	08/15/2018 05:37	WG1152271
TPH (GC/FID) Low Fraction	0.207		0.100	1	08/15/2018 05:37	WG1152271
(S) a,a,a-Trifluorotoluene(FID)	*97.7*		*77.0-120*		*08/15/2018 05:37*	WG1152271
(S) a,a,a-Trifluorotoluene(PID)	*97.0*		*75.0-128*		*08/15/2018 05:37*	WG1152271

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	65.7		4.00	1	08/16/2018 00:27	WG1152138
C28-C40 Oil Range	34.2		4.00	1	08/16/2018 00:27	WG1152138
(S) o-Terphenyl	*60.8*		*18.0-148*		*08/16/2018 00:27*	WG1152138

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	126		10.0	1	08/13/2018 13:34	WG1151278

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	08/15/2018 06:01	WG1152271
Toluene	ND		0.00500	1	08/15/2018 06:01	WG1152271
Ethylbenzene	ND		0.000500	1	08/15/2018 06:01	WG1152271
Total Xylene	ND		0.00150	1	08/15/2018 06:01	WG1152271
TPH (GC/FID) Low Fraction	ND		0.100	1	08/15/2018 06:01	WG1152271
(S) a,a,a-Trifluorotoluene(FID)	*98.1*		*77.0-120*		*08/15/2018 06:01*	WG1152271
(S) a,a,a-Trifluorotoluene(PID)	*97.3*		*75.0-128*		*08/15/2018 06:01*	WG1152271

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	50.5		4.00	1	08/16/2018 00:40	WG1152138
C28-C40 Oil Range	35.8		4.00	1	08/16/2018 00:40	WG1152138
(S) o-Terphenyl	*62.7*		*18.0-148*		*08/16/2018 00:40*	WG1152138

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	89.9		10.0	1	08/13/2018 14:01	WG1151278

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	08/15/2018 06:25	WG1152271
Toluene	ND		0.00500	1	08/15/2018 06:25	WG1152271
Ethylbenzene	ND		0.000500	1	08/15/2018 06:25	WG1152271
Total Xylene	ND		0.00150	1	08/15/2018 06:25	WG1152271
TPH (GC/FID) Low Fraction	ND		0.100	1	08/15/2018 06:25	WG1152271
(S) a,a,a-Trifluorotoluene(FID)	*97.8*		*77.0-120*		*08/15/2018 06:25*	WG1152271
(S) a,a,a-Trifluorotoluene(PID)	*97.1*		*75.0-128*		*08/15/2018 06:25*	WG1152271

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	29.8		4.00	1	08/16/2018 00:52	WG1152138
C28-C40 Oil Range	22.4		4.00	1	08/16/2018 00:52	WG1152138
(S) o-Terphenyl	*52.3*		*18.0-148*		*08/16/2018 00:52*	WG1152138

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	93.6		10.0	1	08/15/2018 15:56	WG1152596

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	08/15/2018 06:50	WG1152271
Toluene	ND		0.00500	1	08/15/2018 06:50	WG1152271
Ethylbenzene	ND		0.000500	1	08/15/2018 06:50	WG1152271
Total Xylene	ND		0.00150	1	08/15/2018 06:50	WG1152271
TPH (GC/FID) Low Fraction	ND		0.100	1	08/15/2018 06:50	WG1152271
(S) a,a,a-Trifluorotoluene(FID)	*98.0*		*77.0-120*		*08/15/2018 06:50*	WG1152271
(S) a,a,a-Trifluorotoluene(PID)	*97.3*		*75.0-128*		*08/15/2018 06:50*	WG1152271

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	17.7		4.00	1	08/16/2018 01:05	WG1152138
C28-C40 Oil Range	14.9		4.00	1	08/16/2018 01:05	WG1152138
(S) o-Terphenyl	*55.1*		*18.0-148*		*08/16/2018 01:05*	WG1152138

Method Blank (MB)

(MB) R3333151-1 08/13/18 11:58

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

L1016992-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1016992-02 08/13/18 13:08 • (DUP) R3333151-4 08/13/18 13:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Chloride	169	148	1	13.2		15

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

(LCS) R3333151-2 08/13/18 12:07 • (LCSD) R3333151-3 08/13/18 12:15

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Chloride	200	201	201	100	100	80.0-120			0.000498	15

L1016992-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1016992-04 08/13/18 13:34 • (MS) R3333151-5 08/13/18 13:43 • (MSD) R3333151-6 08/13/18 13:52

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	126	611	636	97.0	102	1	80.0-120			4.02	15

Method Blank (MB)

(MB) R3334140-1 08/15/18 14:25

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

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

(LCS) R3334140-2 08/15/18 14:44 • (LCSD) R3334140-3 08/15/18 15:02

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 %
Chloride	200	213	215	106	107	80.0-120			0.862	15

Method Blank (MB)

(MB) R3333797-5 08/15/18 04:25

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	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.9*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*99.5*			*75.0-128*

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

(LCS) R3333797-1 08/15/18 02:00 • (LCSD) R3333797-2 08/15/18 02:49

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	0.0555	0.0564	111	113	71.0-121			1.62	20
Toluene	0.0500	0.0530	0.0536	106	107	72.0-120			1.01	20
Ethylbenzene	0.0500	0.0545	0.0556	109	111	76.0-121			1.98	20
Total Xylene	0.150	0.171	0.174	114	116	75.0-124			1.69	20
(S) a,a,a-Trifluorotoluene(FID)				*99.7*	*99.5*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*98.9*	*98.6*	*75.0-128*				

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

(LCS) R3333797-3 08/15/18 03:13 • (LCSD) R3333797-4 08/15/18 03:37

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	6.00	5.77	109	105	70.0-136			3.93	20
(S) a,a,a-Trifluorotoluene(FID)				*106*	*105*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*104*	*106*	*75.0-128*				

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

L1017291-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1017291-12 08/15/18 11:38 • (MS) R3333797-6 08/15/18 12:02 • (MSD) R3333797-7 08/15/18 12:26

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	ND	0.0198	0.0360	39.4	71.7	1	10.0-146		J3	57.9	29
Toluene	0.0500	ND	0.0136	0.0318	27.1	63.6	1	10.0-143		J3	80.4	30
Ethylbenzene	0.0500	ND	0.00899	0.0293	18.0	58.6	1	10.0-147		J3	106	31
Total Xylene	0.150	ND	0.0285	0.0901	19.0	60.1	1	10.0-149	J6	J3 J6	104	30
(S) a,a,a-Trifluorotoluene(FID)					*96.8*	*97.9*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*95.4*	*96.3*		*75.0-128*				

L1017291-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1017291-12 08/15/18 11:38 • (MS) R3333797-8 08/15/18 12:50 • (MSD) R3333797-9 08/15/18 13:14

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	0.160	1.95	1.74	32.6	28.7	1	10.0-147			11.6	30
(S) a,a,a-Trifluorotoluene(FID)					*97.4*	*97.2*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*97.2*	*97.2*		*75.0-128*				

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

Method Blank (MB)

(MB) R3334159-1 08/15/18 21:55

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	*67.0*			*18.0-148*

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

(LCS) R3334159-2 08/15/18 22:08 • (LCSD) R3334159-3 08/15/18 22:20

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	29.7	32.1	59.4	64.2	50.0-150			7.77	20
(S) o-Terphenyl				*65.6*	*68.6*	*18.0-148*				

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

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
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
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

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.

HilCorp
382 Road 3100
Aztec, NM 87401

Billing Information:

Pres Chk

LaDumas@Hilcorp.com

Report to: **Kurt Hoekstra**

Email To: TMunkres@hilcorp.com
khoekstra@hilcorp.com

Project Description:

City/State Collected:

Phone: 505-486-9543
Fax:

Client Project #

Lab Project #

Collected by (print): TRAVIS

Site/Facility ID #: CHACON FED #2

P.O. #

Collected by (signature): TRAVIS MUNKRES

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
X Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH 8015 - DRO, GRO, MRO	BTEX 8021	CHLORIDES	Remarks	Sample # (lab only)
Biopile Sample #1	Comp	SS		8-9-18	11:00	1	X	X	X		01
" #2	"	"		"	10:50	1	X	X	X		02
" #3	"	"		"	10:45	1	X	X	X		03
" #4	"	"		"	10:40	1	X	X	X		04
" #5	"	"		"	10:35	1	X	X	X		05

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

ESC LABORATORIES

Mount Juliet, TN
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 101692

F178

Acctnum: **HILCORANM**
Template:
Prelogin:
TSR:
PB:
Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier __ _____

Tracking # 7305 8947 5146

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
TRAVIS MUNKRES	8-10-18	7:35	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Kurt Hoekstra	8-10-18	8:07	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			ASM

Trip Blank Received: Yes / (No) HCL / MeoH TBR

Temp: 1.2 °C Bottles Received: 6

Date: 8/11/18 Time: 845

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: X N
Bottles arrive intact: X N
Correct bottles used: X N
Sufficient volume sent: X N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
4.5 ME/HR

Andy Vann

Pace Analytical®
National Center for Testing & Innovation

Login #:1016992	Client: HILCORANM	Date:8/11	Evaluated by:Alex

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time		Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Couri
	Insufficient sample volume.	x	Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: received BIOPILE #6 not on COC

Client informed by:		Call x		Email		Voice Mail		Date: 8/13/18	Time: 0928
TSR Initials: OS	Client Contact: Kurt Hoekstra								

Login Instructions:

Please add sample to login for BTEXGRO, CHLORIDE, and DRORLA, time and date should be on sample container.