

SITE INFORMATION

Report Type: Work Plan 1RP-3721

General Site Information:

Site:	Lotus SWD #2					
Company:	EOG Resources					
Section, Township and Range	Unit G	Sec 32	T 22S	R 32E		
Lease Number:	API No. 30-025-31694					
County:	Lea County					
GPS:	32.350083° N			103.694825° W		
Surface Owner:	State					
Mineral Owner:	State					
Directions:	From the intersection of HWY 128 and Red Rd in rural Lea County, travel north on Red Rd for approx. 6.9 miles, turn east onto lease road for 2.7 miles, turn south onto lease road for 0.25 miles to location.					

APPROVED

By CHernandez at 3:06 pm. Nov 13, 2018

APPROVED

By CHernandez at 3:06 pm, Nov 13, 2018

Release Data:

Date Released:	6/19/2015	Approved with conditions. See email correspondence.
Type Release:	Oil & Produced Water	
Source of Contamination:	Motor Valve	
Fluid Released:	1 bbl oil & 559 bbl water	
Fluids Recovered:	1 bbl oil & 550 bbl water	

Official Communication:

Name:	James Kennedy		Clair Gonzales
Company:	EOG Resources		Tetra Tech
Address:	5509 Champions Dr		901 West Wall St.
			Ste 100
City:	Midland Texas, 79706		Midland, Texas
Phone number:	(432) 258-4346		(432) 687-8123
Fax:			
Email:	James_Kennedy@eogresources.com		Clair.Gonzales@tetrattech.com

Site Characterization

Depth to Groundwater:	325' - 350'
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Recommended Remedial Action Levels (RRALs)

Benzene	Total BTEX	TPH (GRO+DRO)	TPH (GRO+DRO+MRO)	Chlorides
10 mg/kg	50 mg/kg	1,000 mg/kg	2,500 mg/kg	20,000 mg/kg



TETRA TECH

October 25, 2018

Ms. Olivia Yu
Environmental Engineer Specialist
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

Re: Work Plan for the EOG Resources, Lotus SWD #2, Unit G, Section 32, Township 22 South, Range 32 East, Lea County, New Mexico. 1RP-3721.

Ms. Yu:

Tetra Tech, Inc. (Tetra Tech) was contacted by EOG Resources to assess a release that occurred at the Lotus SWD #2, Unit G, Section 32, Township 22 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.350083°, W 103.694825°. The site location is shown on Figures 1 and 2.

Background

The release occurred under Yates Petroleum Corporation, however the facility has since been acquired by EOG Resources, Inc. According to the State of New Mexico C-141 Initial Report, the leak was discovered on June 19, 2015, and released approximately 1 barrel of oil and 559 barrels of produced water due to a failed motor valve. The release was contained inside the lined berm. Vacuum trucks were used to remove all freestanding fluids, recovering approximately 1 barrel of oil and 550 barrels of produced water. The release impacted an area inside the berm measuring approximately 20' x 80'. A copy of the initial C-141 Form is included in Appendix A.

Groundwater

No water wells were listed within Section 32 on the New Mexico Office of the State Engineer's (NMOSE) database, the Geology and Groundwater Resources of Southern Lea County (Report 6), or the USGS National Water Information Database. The nearest well is listed on the USGS National Water Information System in Section 03, Township 23 South, Range 32 East, approximately 1.81 miles southeast of the site, and has a reported depth to groundwater of 480' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is between 325' and 350' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

901 West Wall, Suite 100, Midland, TX 79701

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, updated August 14, 2018. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 2,500 mg/kg (GRO + DRO + ORO). Additionally, based on the reported depth to groundwater in the area, the proposed RRAL for chlorides is 20,000 mg/kg.

Soil Assessment and Analytical Results

On September 5, 2018, Tetra Tech personnel were onsite to supervise the removal of gravel from inside the bermed facility and visually inspect the liner for integrity. During the visual inspection of the liner, multiple tears were discovered in the liner.

On October 2, 2018, Tetra Tech personnel returned to the site to evaluate and sample the release area. Five (5) auger holes (AH-1 through AH-5) were installed at the liner breaches to total depths of 5'-5.5' below surface. Selected soil samples were submitted to the laboratory for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The sample location is shown on Figure 3.

Referring to Table 1, none of the samples analyzed for benzene, total BTEX, or chlorides showed concentrations in exceedance of the RRAL's. Additionally, none of the samples collected in the areas of auger holes (AH-1, AH-3, AH-4, and AH-5) showed TPH concentrations above the RRAL. However, the area of auger hole (AH-2) showed elevated TPH concentrations to the shallow soils with a TPH high of 9,190 mg/kg at 2'-2.5' below surface. The TPH concentrations in this area then declined with depth to 766 mg/kg at 5'-5.5' below surface.

Work Plan

Based on the laboratory data, EOG proposes to excavate the impacted area as shown on Figure 4 and highlighted (green) on Table 1. The area of auger hole (AH-2) will be excavated to approximately 4'-5' below surface to remove the TPH impacted soils. Sidewall and confirmation samples will be collected to confirm proper removal of the impacted material. Once excavated to the appropriate depth, the excavation will be backfilled with clean material to surface grade. An estimated 230 cubic yards of material will be removed and transported offsite for proper disposal.



TETRA TECH

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns for onsite personnel. As such, EOG will excavate the impacted soils to the maximum extent practicable.

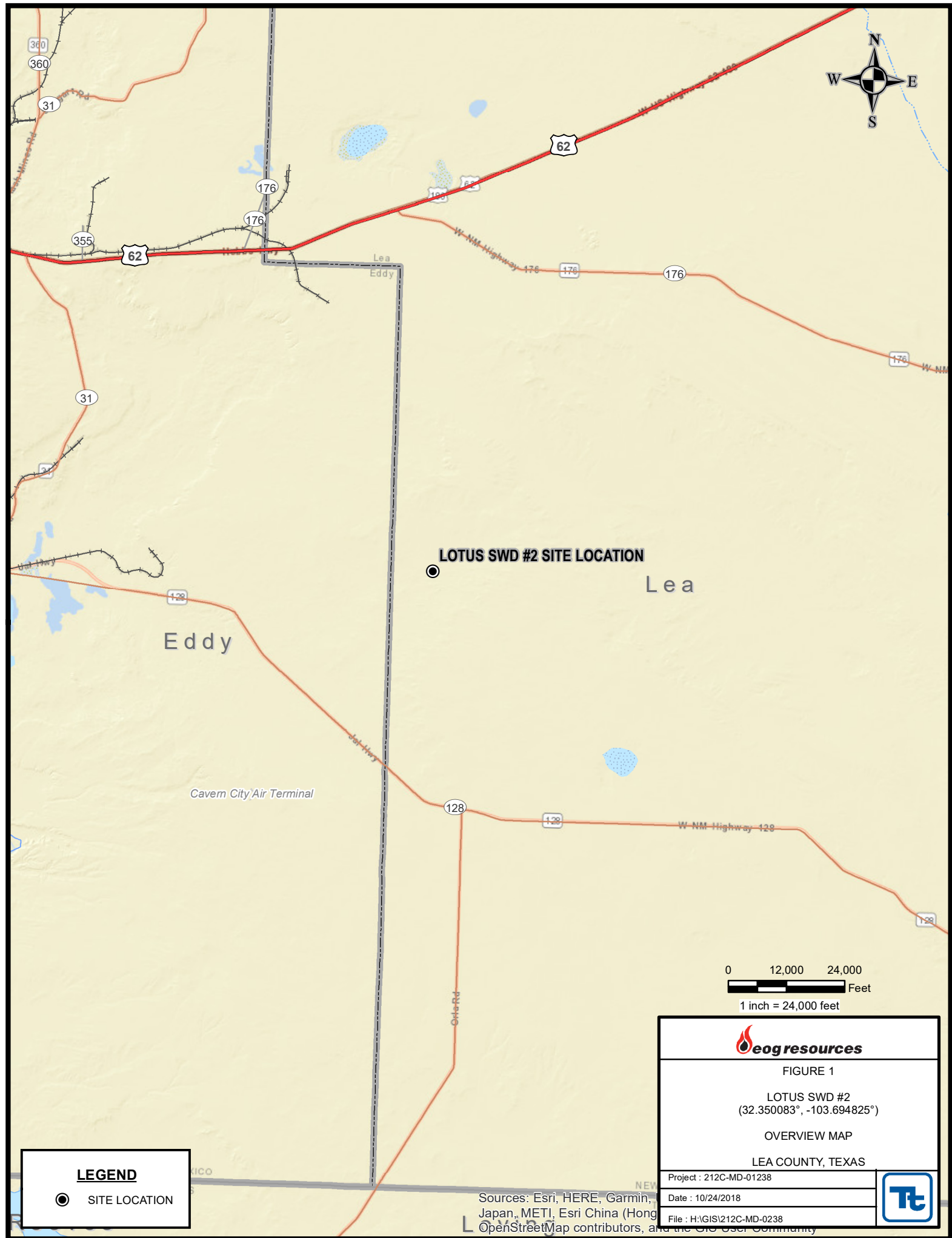
If you have any questions or comments concerning the assessment or remediation activities for this site, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Clair Gonzales,
Project Manager

cc: Ryann Mann - NMSLO
Christina Hernandez - NMOCD
James Kennedy - EOG

Figures



LEGEND

● SITE LOCATION



FIGURE 1

LOTUS SWD #2
(32.350083°, -103.694825°)

OVERVIEW MAP

LEA COUNTY, TEXAS

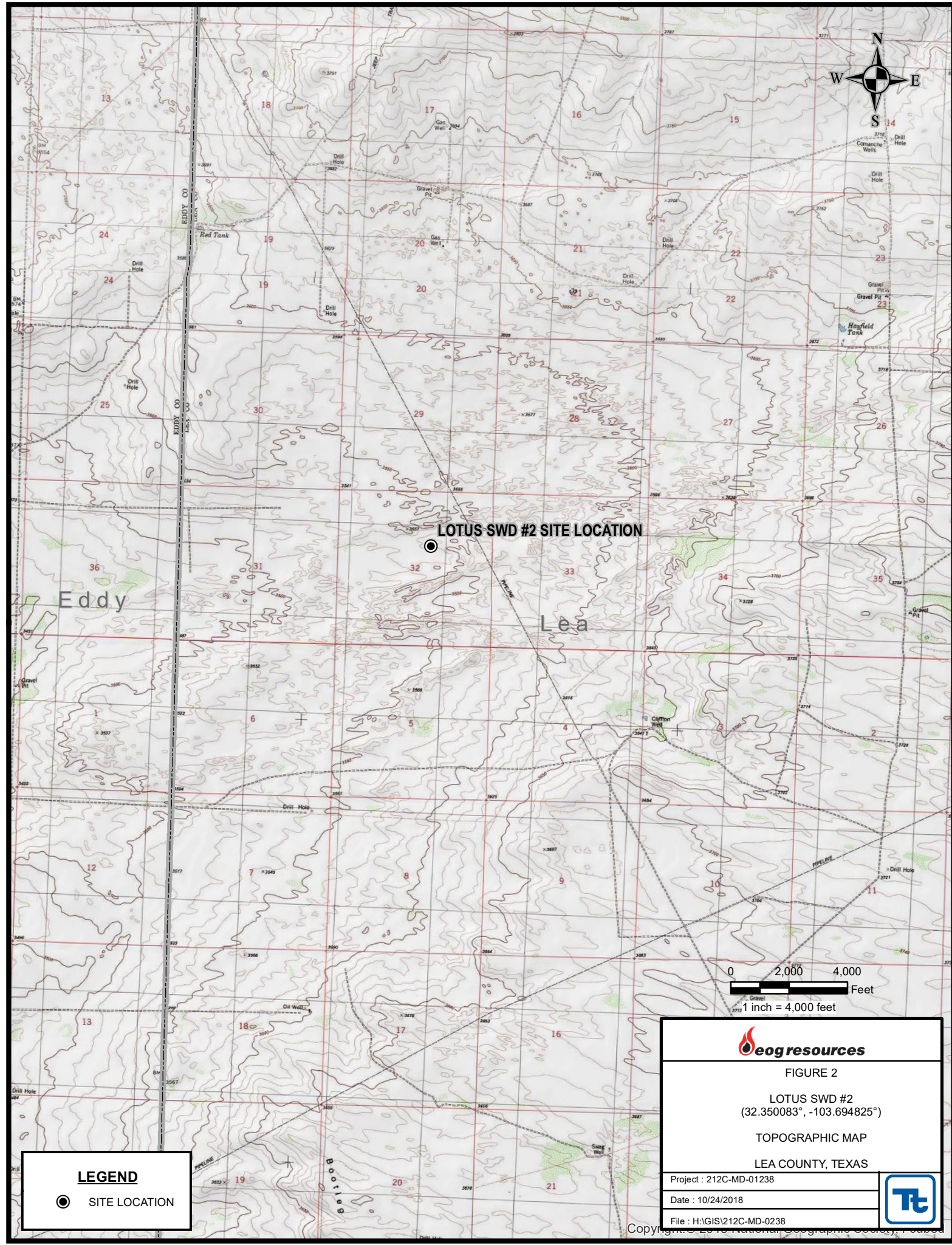
Project : 212C-MD-01238

Date : 10/24/2018

File : H:\GIS\212C-MD-0238



Sources: Esri, HERE, Garmin,
Japan, METI, Esri China (Hong
Kong), OpenStreetMap contributors, and the Geo-User Community



LEGEND

● SITE LOCATION



FIGURE 2

LOTUS SWD #2
(32.350083°, -103.694825°)

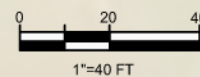
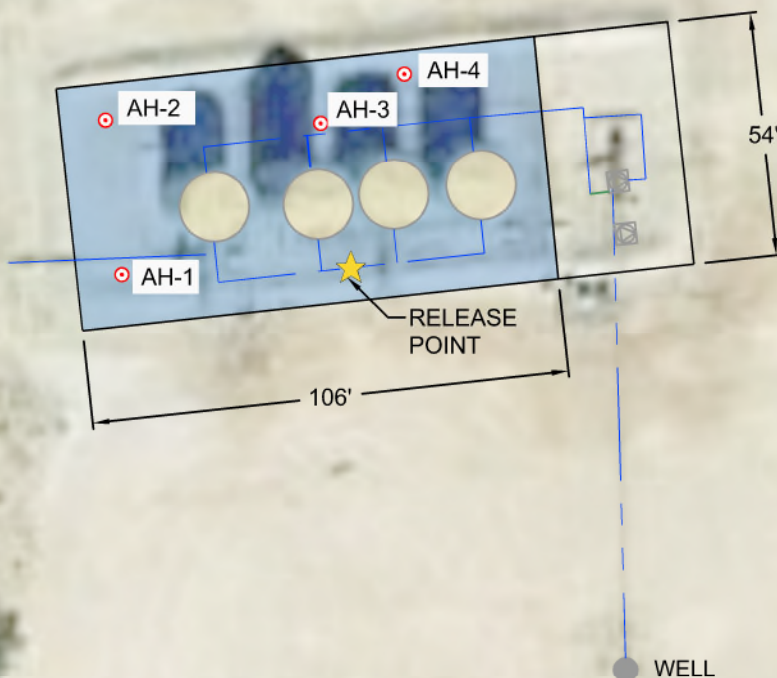
TOPOGRAPHIC MAP

LEA COUNTY, TEXAS

Project : 212C-MD-01238
Date : 10/24/2018
File : H:\GIS\212C-MD-0238



AUGER HOLE DESIGNATIONS	LATITUDE	LONGITUDE
AH-1	32.350107	-103.694978
AH-2	32.350141	-103.694997
AH-3	32.350153	-103.694861
AH-4	32.350175	-103.694797
AH-5	32.350131	-103.694784



LEGEND

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- SPILL AREA
- EQUIPMENT
- STEEL PIPE



FIGURE 3

LOTUS SWD #2
(32.350083°, -103.694825°)

SPILL ASSESSMENT MAP
LEA COUNTY, NEW MEXICO

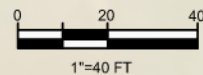
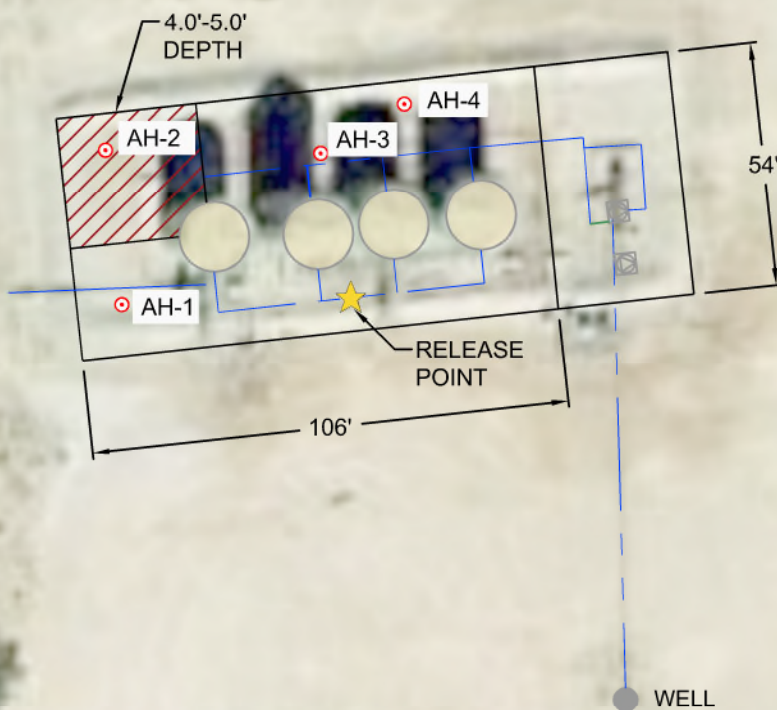
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AUGER HOLE DESIGNATIONS	LATITUDE	LONGITUDE
AH-1	32.350107	-103.694978
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LEGEND

- ⊙ AUGER HOLE SAMPLE LOCATIONS
- PROPOSED EXCAVATION AREA
- EQUIPMENT
- STEEL PIPE



FIGURE 3

LOTUS SWD #2
(32.350083°, -103.694825°)

PROPOSED EXCAVATION AREA &
DEPTH MAP
LEA COUNTY, NEW MEXICO

Project: 212C-MD-01238

Date: 10/24/2018

File: H:\GIS\212C-MD-01238



Tables

Table 1
EOG Resources
Lotus SWD #2
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Sample Depth (in)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	MRO	Total						
AH-1	10/2/2018	0-1	-	X		<15.0	32.9	<15.0	32.9	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	268
	"	1-1.5	-	X		<15.0	80.7	<15.0	80.7	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	124
	"	2-2.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	113
	"	3-3.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	113
	"	4-4.5	-	X		<14.9	<14.9	<14.9	<14.9	-	-	-	-	-	30.0
	"	5-5.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	118
AH-2	10/2/2018	0-1	-	X		746	7,610	384	8,740	<0.00201	0.00289	0.0729	0.375	0.451	158
	"	1-1.5	-	X		765	6,950	395	8,110	<0.00201	<0.00201	0.0596	0.144	0.203	178
	"	2-2.5	-	X		689	7,840	660	9,190	-	-	-	-	-	214
	"	3-3.5	-	X		37.9	1,870	60.8	1,970	-	-	-	-	-	180
	"	4-4.5	-	X		25.8	1,010	103	1,140	-	-	-	-	-	94.0
	"	5-5.5	-	X		24.3	664	77.6	766	-	-	-	-	-	268
AH-3	10/2/2018	0-1	-	X		18.2	18.2	19.5	220	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	718
	"	1-1.5	-	X		<15.0	<15.0	<15.0	<15.0	<0.00196	<0.00196	<0.00196	<0.00196	<0.00196	121
	"	2-2.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	89.0
	"	3-3.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	439
	"	4-4.5	-	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	156
	"	5-5.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	631
AH-4	10/2/2018	0-1	-	X		<14.9	<14.9	<14.9	<14.9	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	1,000
	"	1-1.5	-	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	0.00736	0.00736	208
	"	2-2.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	162
	"	3-3.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	524
	"	4-4.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	459
	"	5-5.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	470
AH-5	10/2/2018	0-1	-	X		<15.0	133	<15.0	133	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	290
	"	1-1.5	-	X		<14.9	61.9	<14.9	61.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	400
	"	2-2.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	204
	"	3-3.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	679
	"	4-4.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	182
	"	5-5.5	-	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	127

(-) Not Analyzed

Proposed Excavation Depths

Photos

EOG Resources
Lotus SWD #2
Lea County, New Mexico



View East – Area of AH-1



View South – Area of AH-2

EOG Resources
Lotus SWD #2
Lea County, New Mexico



View Southeast – Area of AH-3



View East – Area of AH-4

EOG Resources
Lotus SWD #2
Lea County, New Mexico



TETRA TECH



View Southwest – Area of AH-5

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

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 in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☒ Final Report

Name of Company Yates Petroleum Corporation	OGRID Number 25575	Contact Robert Asher
Address 104 S. 4 th Street	Telephone No. 575-748-1471	
Facility Name Lotus SWD #2	Facility Type Battery	

RECEIVED

By OCD District 1 at 3:21 pm, Jul 09, 2015

Surface Owner State	Mineral Owner State	API No. 30-025-31694
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LOCATION OF RELEASE

Unit Letter G	Section 32	Township 22S	Range 32E	Feet from the 1980	North/South Line North	Feet from the 1980	East/West Line East	County Lea
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Latitude 32.34961 Longitude 103.69412

NATURE OF RELEASE

Type of Release Crude Oil & Produced Water	Volume of Release 1 B/O & 559 B/PW	Volume Recovered 1 B/O & 550 B/PW
Source of Release Motor Valve	Date and Hour of Occurrence 6/19/2015; AM	Date and Hour of Discovery 6/19/2015; AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Kellie Jones, Ian Dolly, Mathew Hagman, Mark Naranjo & Dana Strang	
By Whom? Robert Asher/Yates Petroleum Corporation	Date and Hour 6/19/2015; PM (Email)	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The motor valve system failed, causing the release. Vacuum truck(s) and clean- up crews were called.

Describe Area Affected and Cleanup Action Taken.*

An approximate area of 80'X 20' within the lined/bermed battery was affected. The valves were closed; 100% of the released crude oil and approximately 98% of the produced water was recovered. Impacted gravel was excavated /hailed to a NMOCD approved facility. **Depth to Ground Water: > 100' (approximately 325', per ChevronTexaco Trend Map), Wellhead Protection Area: No, Distance to Surface Water Body: >1000', SITE RANKING IS 0. Based on the battery being lined and bermed and the majority of the produced water recovered, Yates Petroleum Corporation requests closure.**

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: Robert Asher	Approved by Environmental Specialist: 	
Title: NM Environmental Regulatory Supervisor	Approval Date: 07/09/2015	Expiration Date:
E-mail Address: boba@yatespetroleum.com	Conditions of Approval: Site samples required. Delineate and remediate as per NMOCD guidelines.	Attached ☐
Date: June 30, 2015 Phone: 575-748-4217	1RP- 3721	25575

* Attach Additional Sheets If Necessary

pTO1519056190

nTO1519055552

Geotagged photographs
of remediation required.

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
EOG - Lotus SWD #2

21 South			31 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South			31 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			31 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

21 South			32 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South			32 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19 (S)	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			32 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

21 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

90 Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

121 Abandoned Waterwell (recently measured)



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Code	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 02096		CUB	ED	2	3	14	22S	32E		627204	3584464*	435	360	75
C 02821		C	LE	2	2	3	14	22S	32E	627303	3584563*	540	340	200
C 02939		C	LE	3	3	1	19	22S	32E	620234	3583042*	280		
C 03717 POD1		C	LE	4	4	1	09	22S	32E	624094	3586365	650		
C 04144 POD1		CUB	LE	3	1	3	07	22S	32E	620240	3585844	58	49	9
C 04144 POD2		CUB	LE	3	1	3	07	22S	32E	620147	3585768	60	55	5
C 04144 POD3		CUB	LE	3	1	3	07	22S	32E	620240	3585842			
C 04144 POD4		CUB	LE	3	1	3	07	22S	32E	620200	3585808			
C 04144 POD9		CUB	LE	1	3	3	07	22S	32E	620126	3585667	63	0	63

Average Depth to Water: **160 feet**

Minimum Depth: **0 feet**

Maximum Depth: **360 feet**

Record Count: 9

PLSS Search:

Township: 22S **Range:** 32E

*UTM location was derived from PLSS - see Help

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

10/16/18 12:40 PM

WATER COLUMN/ AVERAGE DEPTH TO
WATER



[USGS Home](#)
[Contact USGS](#)
[Search USGS](#)

National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category:

Groundwater

Geographic Area:

New Mexico

GO

Click to hide News Bulletins

- [Please see news on new formats](#)
- [Full News](#) 

Groundwater levels for New Mexico

Click to hide state-specific text

Search Results -- 1 sites found

site_no list =

- 321952103400801

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 321952103400801 23S.32E.03.311114

Available data for this site

Groundwater: Field measurements

GO

Lea County, New Mexico

Hydrologic Unit Code 13060011

Latitude 32°19'59.2", Longitude 103°40'12.6" NAD83

Land-surface elevation 3,648.00 feet above NGVD29

The depth of the well is 630 feet below land surface.

This well is completed in the Santa Rosa Sandstone (231SNRS) local aquifer.

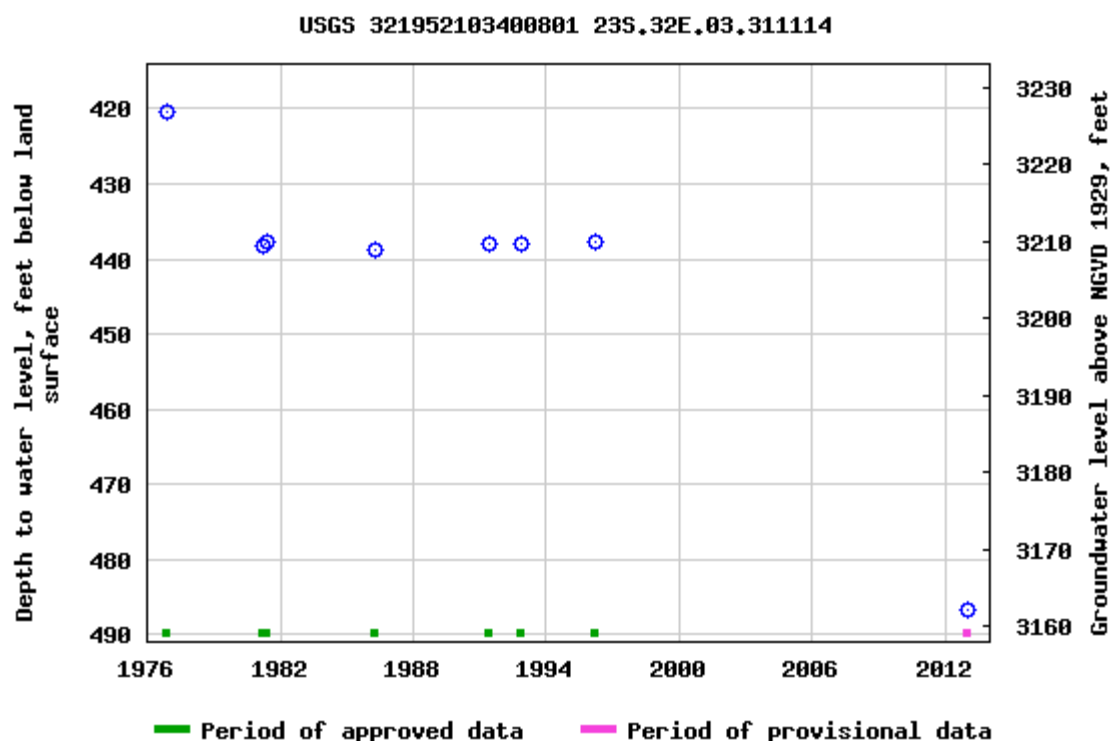
Output formats

[Table of data](#)

[Tab-separated data](#)

[Graph of data](#)

[Reselect period](#)



Breaks in the plot represent a gap of at least one year between field measurements.

[Download a presentation-quality graph](#)

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Title: Groundwater for New Mexico: Water Levels

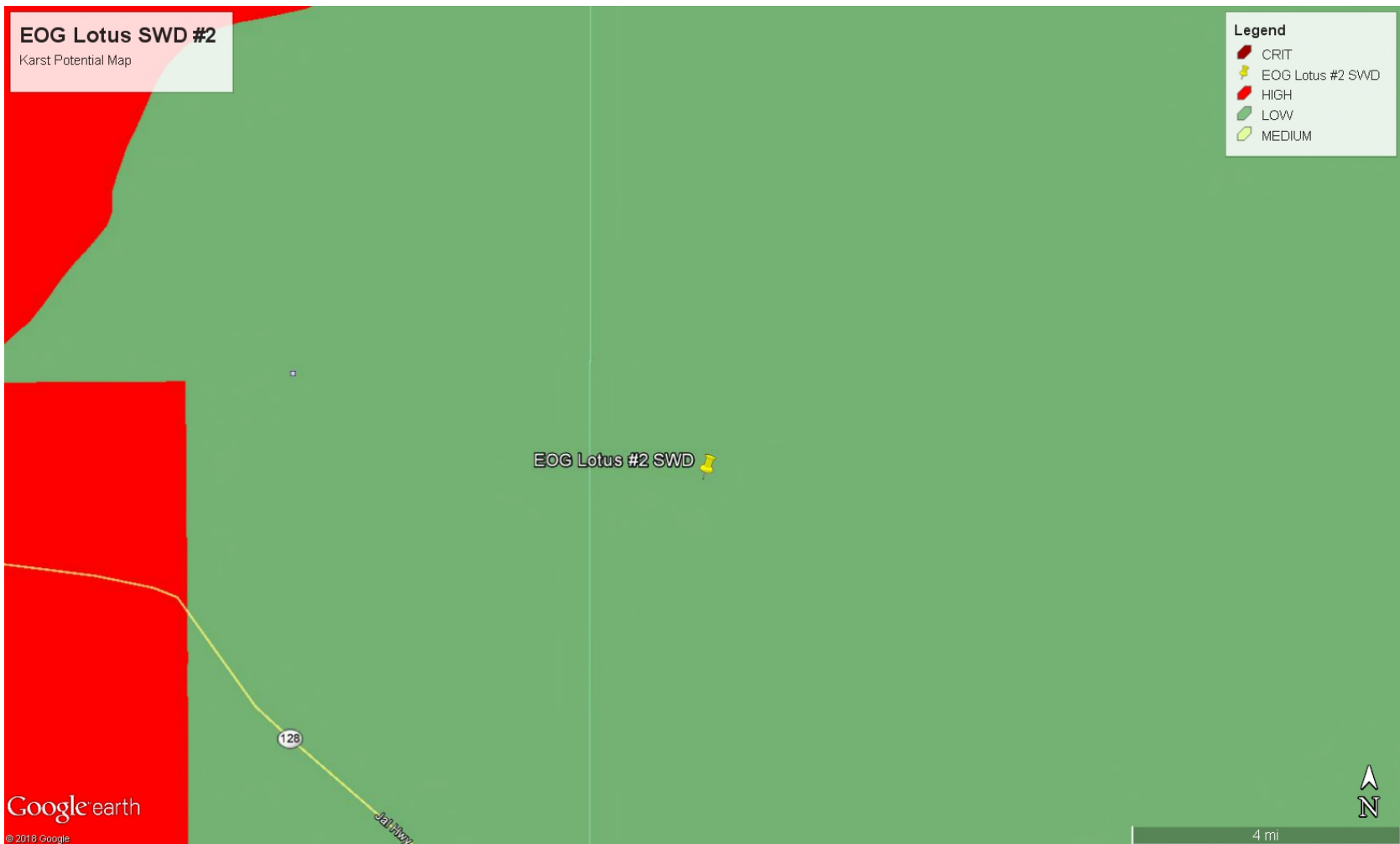
URL: [https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?](https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?site_no=321952103400801)



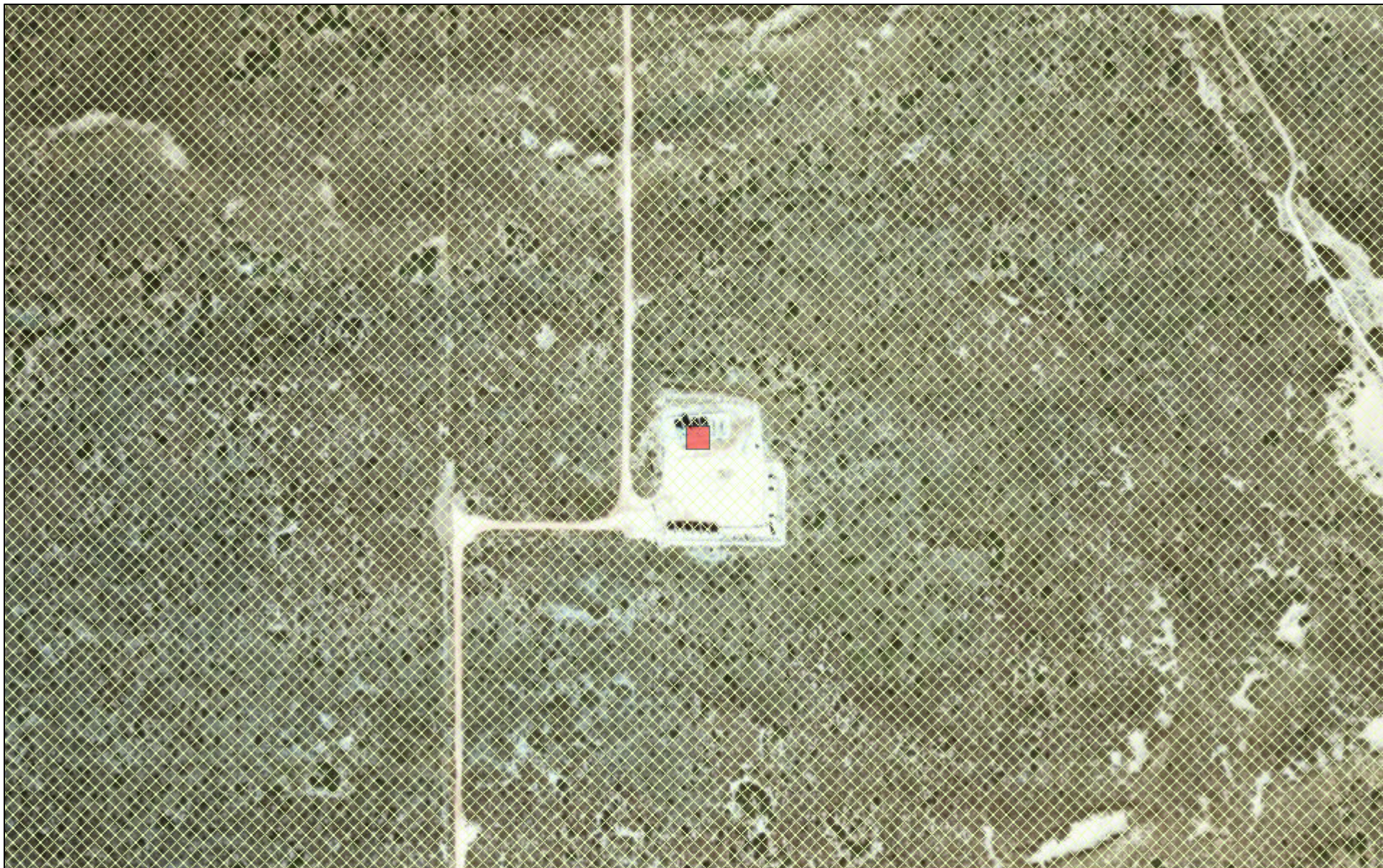
Page Contact Information: [New Mexico Water Data Maintainer](#)

Page Last Modified: 2018-10-16 14:41:51 EDT

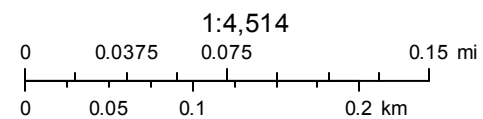
1.04 0.9 nadww01



New Mexico NFHL Data



October 16, 2018



FEMA
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Appendix C



Certificate of Analysis Summary 601608

Tetra Tech- Midland, Midland, TX

Project Name: EOG-Lotus SWD #2



Project Id: 212C-MD-01238
Contact: Stephen Reyes
Project Location: Lea County, New Mexico

Date Received in Lab: Fri Oct-05-18 03:47 pm
Report Date: 16-OCT-18
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	601608-001	601608-002	601608-003	601608-004	601608-005	601608-006
	<i>Field Id:</i>	AH#1 (0-1')	AH#1 (1-1.5')	AH#1 (2-2.5')	AH#1 (3-3.5')	AH#1 (4-4.5')	AH#1 (5-5.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-14-18 09:30	Oct-14-18 09:15				
	<i>Analyzed:</i>	Oct-15-18 05:03	Oct-14-18 19:14				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Benzene		<0.00198 0.00198	<0.00199 0.00199				
Toluene		<0.00198 0.00198	<0.00199 0.00199				
Ethylbenzene		<0.00198 0.00198	<0.00199 0.00199				
m,p-Xylenes		<0.00397 0.00397	<0.00398 0.00398				
o-Xylene		<0.00198 0.00198	<0.00199 0.00199				
Total Xylenes		<0.00198 0.00198	<0.00199 0.00199				
Total BTEX		<0.00198 0.00198	<0.00199 0.00199				
Chloride by EPA 300	<i>Extracted:</i>	Oct-13-18 15:15	Oct-13-18 15:15	Oct-13-18 15:15	Oct-13-18 15:15	Oct-13-18 15:15	Oct-13-18 15:15
	<i>Analyzed:</i>	Oct-14-18 16:27	Oct-15-18 10:21	Oct-14-18 16:33	Oct-14-18 16:56	Oct-14-18 17:13	Oct-14-18 17:18
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		268 5.00	124 5.00	113 5.00	113 4.95	30.0 4.99	118 4.95
TPH By SW8015 Mod	<i>Extracted:</i>	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00
	<i>Analyzed:</i>	Oct-12-18 11:31	Oct-12-18 12:27	Oct-12-18 12:45	Oct-12-18 13:04	Oct-12-18 13:22	Oct-12-18 13:41
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0
Diesel Range Organics (DRO)		32.9 15.0	80.7 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0
Total TPH		32.9 15.0	80.7 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 601608

Tetra Tech- Midland, Midland, TX

Project Name: EOG-Lotus SWD #2



Project Id: 212C-MD-01238
Contact: Stephen Reyes
Project Location: Lea County, New Mexico

Date Received in Lab: Fri Oct-05-18 03:47 pm
Report Date: 16-OCT-18
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	601608-007	601608-008	601608-009	601608-010	601608-011	601608-012
	<i>Field Id:</i>	AH#2 (0-1')	AH#2 (1-1.5')	AH#2 (2-2.5')	AH#2 (3-3.5')	AH#2 (4-4.5')	AH#2 (5-5.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-14-18 09:15	Oct-14-18 09:15				
	<i>Analyzed:</i>	Oct-14-18 19:54	Oct-14-18 19:34				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Benzene		<0.00201 0.00201	<0.00201 0.00201				
Toluene		0.00289 0.00201	<0.00201 0.00201				
Ethylbenzene		0.0729 0.00201	0.0596 0.00201				
m,p-Xylenes		0.182 0.00402	0.0843 0.00402				
o-Xylene		0.193 0.00201	0.0594 0.00201				
Total Xylenes		0.375 0.00201	0.144 0.00201				
Total BTEX		0.451 0.00201	0.203 0.00201				
Chloride by EPA 300	<i>Extracted:</i>	Oct-13-18 15:15	Oct-13-18 15:15	Oct-13-18 15:15	Oct-13-18 15:15	Oct-13-18 15:15	Oct-13-18 15:30
	<i>Analyzed:</i>	Oct-14-18 17:24	Oct-14-18 17:30	Oct-14-18 17:35	Oct-14-18 17:41	Oct-14-18 17:47	Oct-14-18 18:32
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		158 4.97	178 4.95	214 24.9	180 24.8	94.0 4.95	268 5.00
TPH By SW8015 Mod	<i>Extracted:</i>	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00
	<i>Analyzed:</i>	Oct-12-18 14:00	Oct-12-18 14:18	Oct-12-18 14:37	Oct-13-18 07:44	Oct-12-18 15:51	Oct-12-18 16:09
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		746 74.7	765 74.9	689 75.0	37.9 15.0	25.8 15.0	24.3 15.0
Diesel Range Organics (DRO)		7610 74.7	6950 74.9	7840 75.0	1870 15.0	1010 15.0	664 15.0
Motor Oil Range Hydrocarbons (MRO)		384 74.7	395 74.9	660 75.0	60.8 15.0	103 15.0	77.6 15.0
Total TPH		8740 74.7	8110 74.9	9190 75.0	1970 15.0	1140 15.0	766 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 601608

Tetra Tech- Midland, Midland, TX

Project Name: EOG-Lotus SWD #2



Project Id: 212C-MD-01238
Contact: Stephen Reyes
Project Location: Lea County, New Mexico

Date Received in Lab: Fri Oct-05-18 03:47 pm
Report Date: 16-OCT-18
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	601608-013	601608-014	601608-015	601608-016	601608-017	601608-018
	<i>Field Id:</i>	AH#3 (0-1')	AH#3 (1-1.5')	AH#3 (2-2.5')	AH#3 (3-3.5')	AH#3 (4-4.5')	AH#3 (5-5.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-14-18 09:15	Oct-14-18 09:15			Oct-14-18 09:15	
	<i>Analyzed:</i>	Oct-14-18 18:53	Oct-14-18 18:33			Oct-14-18 18:13	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL			mg/kg RL	
Benzene		<0.00202 0.00202	<0.00196 0.00196			<0.00202 0.00202	
Toluene		<0.00202 0.00202	<0.00196 0.00196			<0.00202 0.00202	
Ethylbenzene		<0.00202 0.00202	<0.00196 0.00196			<0.00202 0.00202	
m,p-Xylenes		<0.00404 0.00404	<0.00392 0.00392			<0.00403 0.00403	
o-Xylene		<0.00202 0.00202	<0.00196 0.00196			<0.00202 0.00202	
Total Xylenes		<0.00202 0.00202	<0.00196 0.00196			<0.00202 0.00202	
Total BTEX		<0.00202 0.00202	<0.00196 0.00196			<0.00202 0.00202	
Chloride by EPA 300	<i>Extracted:</i>	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30
	<i>Analyzed:</i>	Oct-14-18 18:49	Oct-14-18 18:55	Oct-14-18 19:01	Oct-14-18 19:06	Oct-14-18 19:23	Oct-14-18 19:29
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		718 24.9	121 4.99	89.0 4.99	439 4.95	156 5.00	631 5.00
TPH By SW8015 Mod	<i>Extracted:</i>	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 07:00
	<i>Analyzed:</i>	Oct-12-18 16:28	Oct-12-18 16:46	Oct-12-18 17:05	Oct-12-18 17:23	Oct-12-18 17:42	Oct-12-18 18:00
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		18.2 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		182 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		19.5 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		220 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 601608

Tetra Tech- Midland, Midland, TX

Project Name: EOG-Lotus SWD #2



Project Id: 212C-MD-01238
Contact: Stephen Reyes
Project Location: Lea County, New Mexico

Date Received in Lab: Fri Oct-05-18 03:47 pm
Report Date: 16-OCT-18
Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	601608-019	601608-020	601608-021	601608-022	601608-023	601608-024
	Field Id:	AH#4 (0-1')	AH#4 (1-1.5')	AH#4 (2-2.5')	AH#4 (3-3.5')	AH#4 (4-4.5')	AH#4 (5-5.5')
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00
BTEX by EPA 8021B	Extracted:	Oct-14-18 09:15	Oct-14-18 09:15				
	Analyzed:	Oct-14-18 17:53	Oct-14-18 17:33				
	Units/RL:	mg/kg RL	mg/kg RL				
	Benzene	<0.00201 0.00201	<0.00199 0.00199				
	Toluene	<0.00201 0.00201	<0.00199 0.00199				
	Ethylbenzene	<0.00201 0.00201	<0.00199 0.00199				
	m,p-Xylenes	<0.00402 0.00402	<0.00398 0.00398				
	o-Xylene	<0.00201 0.00201	0.00736 0.00199				
Chloride by EPA 300	Extracted:	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30
	Analyzed:	Oct-14-18 19:35	Oct-14-18 19:40	Oct-14-18 19:46	Oct-14-18 19:52	Oct-14-18 20:09	Oct-14-18 20:15
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Chloride	1000 24.8	208 25.0	162 24.8	524 4.95	459 4.96	470 4.98
	Extracted:	Oct-12-18 07:00	Oct-12-18 07:00	Oct-12-18 15:00	Oct-12-18 15:00	Oct-12-18 15:00	Oct-12-18 15:00
	Analyzed:	Oct-12-18 18:19	Oct-12-18 18:37	Oct-13-18 11:31	Oct-13-18 12:27	Oct-13-18 12:45	Oct-13-18 13:04
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Gasoline Range Hydrocarbons (GRO)	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
TPH By SW8015 Mod	Diesel Range Organics (DRO)	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
	Motor Oil Range Hydrocarbons (MRO)	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
	Total TPH	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 601608

Tetra Tech- Midland, Midland, TX

Project Name: EOG-Lotus SWD #2



Project Id: 212C-MD-01238
Contact: Stephen Reyes
Project Location: Lea County, New Mexico

Date Received in Lab: Fri Oct-05-18 03:47 pm
Report Date: 16-OCT-18
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	601608-025	601608-026	601608-027	601608-028	601608-029	601608-030
	<i>Field Id:</i>	AH#5 (0-1')	AH#5 (1-1.5')	AH#5 (2-2.5')	AH#5 (3-3.5')	AH#5 (4-4.5')	AH#5 (5-5.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00	Oct-02-18 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-14-18 09:15	Oct-14-18 09:15				
	<i>Analyzed:</i>	Oct-14-18 17:13	Oct-14-18 16:53				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Benzene		<0.00200 0.00200	<0.00200 0.00200				
Toluene		<0.00200 0.00200	<0.00200 0.00200				
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200				
m,p-Xylenes		<0.00399 0.00399	<0.00401 0.00401				
o-Xylene		<0.00200 0.00200	<0.00200 0.00200				
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200				
Total BTEX		<0.00200 0.00200	<0.00200 0.00200				
Chloride by EPA 300	<i>Extracted:</i>	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30	Oct-13-18 15:30
	<i>Analyzed:</i>	Oct-14-18 20:32	Oct-14-18 20:37	Oct-14-18 20:43	Oct-14-18 20:49	Oct-14-18 20:54	Oct-14-18 21:00
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		290 5.00	400 4.95	204 4.98	679 4.96	182 5.00	127 5.00
TPH By SW8015 Mod	<i>Extracted:</i>	Oct-12-18 15:00	Oct-12-18 15:00	Oct-12-18 15:00	Oct-12-18 15:00	Oct-12-18 15:00	Oct-12-18 15:00
	<i>Analyzed:</i>	Oct-13-18 13:23	Oct-13-18 13:41	Oct-13-18 14:00	Oct-13-18 14:18	Oct-13-18 14:36	Oct-13-18 14:55
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		133 15.0	61.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		133 15.0	61.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

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Kelsey Brooks
Project Manager

Analytical Report 601608

for Tetra Tech- Midland

Project Manager: Stephen Reyes

EOG-Lotus SWD #2

212C-MD-01238

16-OCT-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-27), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-13)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)

Xenco-Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)



16-OCT-18

Project Manager: **Stephen Reyes**

Tetra Tech- Midland

901 West Wall ST

Midland, TX 79701

Reference: XENCO Report No(s): **601608**

EOG-Lotus SWD #2

Project Address: Lea County, New Mexico

Stephen Reyes:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 601608. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 601608 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH#1 (0-1')	S	10-02-18 00:00		601608-001
AH#1 (1-1.5')	S	10-02-18 00:00		601608-002
AH#1 (2-2.5')	S	10-02-18 00:00		601608-003
AH#1 (3-3.5')	S	10-02-18 00:00		601608-004
AH#1 (4-4.5')	S	10-02-18 00:00		601608-005
AH#1 (5-5.5')	S	10-02-18 00:00		601608-006
AH#2 (0-1')	S	10-02-18 00:00		601608-007
AH#2 (1-1.5')	S	10-02-18 00:00		601608-008
AH#2 (2-2.5')	S	10-02-18 00:00		601608-009
AH#2 (3-3.5')	S	10-02-18 00:00		601608-010
AH#2 (4-4.5')	S	10-02-18 00:00		601608-011
AH#2 (5-5.5')	S	10-02-18 00:00		601608-012
AH#3 (0-1')	S	10-02-18 00:00		601608-013
AH#3 (1-1.5')	S	10-02-18 00:00		601608-014
AH#3 (2-2.5')	S	10-02-18 00:00		601608-015
AH#3 (3-3.5')	S	10-02-18 00:00		601608-016
AH#3 (4-4.5')	S	10-02-18 00:00		601608-017
AH#3 (5-5.5')	S	10-02-18 00:00		601608-018
AH#4 (0-1')	S	10-02-18 00:00		601608-019
AH#4 (1-1.5')	S	10-02-18 00:00		601608-020
AH#4 (2-2.5')	S	10-02-18 00:00		601608-021
AH#4 (3-3.5')	S	10-02-18 00:00		601608-022
AH#4 (4-4.5')	S	10-02-18 00:00		601608-023
AH#4 (5-5.5')	S	10-02-18 00:00		601608-024
AH#5 (0-1')	S	10-02-18 00:00		601608-025
AH#5 (1-1.5')	S	10-02-18 00:00		601608-026
AH#5 (2-2.5')	S	10-02-18 00:00		601608-027
AH#5 (3-3.5')	S	10-02-18 00:00		601608-028
AH#5 (4-4.5')	S	10-02-18 00:00		601608-029
AH#5 (5-5.5')	S	10-02-18 00:00		601608-030



CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: EOG-Lotus SWD #2

Project ID: 212C-MD-01238
Work Order Number(s): 601608

Report Date: 16-OCT-18
Date Received: 10/05/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3066356 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3066374 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 601608-007,601608-008.

Batch: LBA-3066389 TPH By SW8015 Mod

Surrogate o-Terphenyl recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 601608-008,601608-007.



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#1 (0-1')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-001

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.15

Basis: Wet Weight

Seq Number: 3066332

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	268	5.00	mg/kg	10.14.18 16.27		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.12.18 11.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	32.9	15.0	mg/kg	10.12.18 11.31		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.12.18 11.31	U	1
Total TPH	PHC635	32.9	15.0	mg/kg	10.12.18 11.31		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	10.12.18 11.31	
o-Terphenyl	84-15-1	102	%	70-135	10.12.18 11.31	



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#1 (0-1')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-001

Date Collected: 10.02.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 09.30

Basis: Wet Weight

Seq Number: 3066356

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	10.15.18 05.03	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	10.15.18 05.03	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	10.15.18 05.03	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	10.15.18 05.03	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	10.15.18 05.03	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	10.15.18 05.03	U	1
Total BTEX		<0.00198	0.00198	mg/kg	10.15.18 05.03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	121	%	70-130	10.15.18 05.03		
1,4-Difluorobenzene	540-36-3	111	%	70-130	10.15.18 05.03		



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#1 (1-1.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-002

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.15

Basis: Wet Weight

Seq Number: 3066332

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	124	5.00	mg/kg	10.15.18 10.21		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.12.18 12.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	80.7	15.0	mg/kg	10.12.18 12.27		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.12.18 12.27	U	1
Total TPH	PHC635	80.7	15.0	mg/kg	10.12.18 12.27		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	10.12.18 12.27	
o-Terphenyl	84-15-1	101	%	70-135	10.12.18 12.27	



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#1 (1-1.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-002

Date Collected: 10.02.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 09.15

Basis: Wet Weight

Seq Number: 3066374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.14.18 19.14	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.14.18 19.14	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.14.18 19.14	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.14.18 19.14	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.14.18 19.14	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.14.18 19.14	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.14.18 19.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	124	%	70-130	10.14.18 19.14		
4-Bromofluorobenzene	460-00-4	112	%	70-130	10.14.18 19.14		



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#1 (2-2.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-003

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.15

Basis: Wet Weight

Seq Number: 3066332

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	113	5.00	mg/kg	10.14.18 16.33		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.12.18 12.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.12.18 12.45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.12.18 12.45	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.12.18 12.45	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	96	%	70-135	10.12.18 12.45		
o-Terphenyl	84-15-1	103	%	70-135	10.12.18 12.45		



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#1 (3-3.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-004

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.15

Basis: Wet Weight

Seq Number: 3066332

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	113	4.95	mg/kg	10.14.18 16.56		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.12.18 13.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.12.18 13.04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.12.18 13.04	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.12.18 13.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	10.12.18 13.04	
o-Terphenyl	84-15-1	99	%	70-135	10.12.18 13.04	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#1 (4-4.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-005

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.15

Basis: Wet Weight

Seq Number: 3066332

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	30.0	4.99	mg/kg	10.14.18 17.13		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	10.12.18 13.22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	10.12.18 13.22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	10.12.18 13.22	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	10.12.18 13.22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.12.18 13.22	
o-Terphenyl	84-15-1	97	%	70-135	10.12.18 13.22	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#1 (5-5.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-006

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.15

Basis: Wet Weight

Seq Number: 3066332

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	118	4.95	mg/kg	10.14.18 17.18		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.12.18 13.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.12.18 13.41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.12.18 13.41	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.12.18 13.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	97	%	70-135	10.12.18 13.41		
o-Terphenyl	84-15-1	100	%	70-135	10.12.18 13.41		



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#2 (0-1')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-007

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.15

Basis: Wet Weight

Seq Number: 3066332

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	158	4.97	mg/kg	10.14.18 17.24		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	746	74.7	mg/kg	10.12.18 14.00		5
Diesel Range Organics (DRO)	C10C28DRO	7610	74.7	mg/kg	10.12.18 14.00		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	384	74.7	mg/kg	10.12.18 14.00		5
Total TPH	PHC635	8740	74.7	mg/kg	10.12.18 14.00		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	129	%	70-135	10.12.18 14.00		
o-Terphenyl	84-15-1	227	%	70-135	10.12.18 14.00	**	



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: **AH#2 (0-1')**

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-007

Date Collected: 10.02.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 09.15

Basis: Wet Weight

Seq Number: 3066374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.14.18 19.54	U	1
Toluene	108-88-3	0.00289	0.00201	mg/kg	10.14.18 19.54		1
Ethylbenzene	100-41-4	0.0729	0.00201	mg/kg	10.14.18 19.54		1
m,p-Xylenes	179601-23-1	0.182	0.00402	mg/kg	10.14.18 19.54		1
o-Xylene	95-47-6	0.193	0.00201	mg/kg	10.14.18 19.54		1
Total Xylenes	1330-20-7	0.375	0.00201	mg/kg	10.14.18 19.54		1
Total BTEX		0.451	0.00201	mg/kg	10.14.18 19.54		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	115		%	70-130	10.14.18 19.54	
4-Bromofluorobenzene	460-00-4	520		%	70-130	10.14.18 19.54	**



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#2 (1-1.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-008

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.15

Basis: Wet Weight

Seq Number: 3066332

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	178	4.95	mg/kg	10.14.18 17.30		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	765	74.9	mg/kg	10.12.18 14.18		5
Diesel Range Organics (DRO)	C10C28DRO	6950	74.9	mg/kg	10.12.18 14.18		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	395	74.9	mg/kg	10.12.18 14.18		5
Total TPH	PHC635	8110	74.9	mg/kg	10.12.18 14.18		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	10.12.18 14.18	
o-Terphenyl	84-15-1	208	%	70-135	10.12.18 14.18	**



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#2 (1-1.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-008

Date Collected: 10.02.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 09.15

Basis: Wet Weight

Seq Number: 3066374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.14.18 19.34	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.14.18 19.34	U	1
Ethylbenzene	100-41-4	0.0596	0.00201	mg/kg	10.14.18 19.34		1
m,p-Xylenes	179601-23-1	0.0843	0.00402	mg/kg	10.14.18 19.34		1
o-Xylene	95-47-6	0.0594	0.00201	mg/kg	10.14.18 19.34		1
Total Xylenes	1330-20-7	0.144	0.00201	mg/kg	10.14.18 19.34		1
Total BTEX		0.203	0.00201	mg/kg	10.14.18 19.34		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	101	%	70-130	10.14.18 19.34		
4-Bromofluorobenzene	460-00-4	337	%	70-130	10.14.18 19.34	**	



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#2 (2-2.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-009

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.15

Basis: Wet Weight

Seq Number: 3066332

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	214	24.9	mg/kg	10.14.18 17.35		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	689	75.0	mg/kg	10.12.18 14.37		5
Diesel Range Organics (DRO)	C10C28DRO	7840	75.0	mg/kg	10.12.18 14.37		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	660	75.0	mg/kg	10.12.18 14.37		5
Total TPH	PHC635	9190	75.0	mg/kg	10.12.18 14.37		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	121	%	70-135	10.12.18 14.37	
o-Terphenyl	84-15-1	112	%	70-135	10.12.18 14.37	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#2 (3-3.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-010

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.15

Basis: Wet Weight

Seq Number: 3066332

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	180	24.8	mg/kg	10.14.18 17.41		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	37.9	15.0	mg/kg	10.13.18 07.44		1
Diesel Range Organics (DRO)	C10C28DRO	1870	15.0	mg/kg	10.13.18 07.44		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	60.8	15.0	mg/kg	10.13.18 07.44		1
Total TPH	PHC635	1970	15.0	mg/kg	10.13.18 07.44		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	10.13.18 07.44	
o-Terphenyl	84-15-1	114	%	70-135	10.13.18 07.44	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#2 (4-4.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-011

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.15

Basis: Wet Weight

Seq Number: 3066332

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	94.0	4.95	mg/kg	10.14.18 17.47		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	25.8	15.0	mg/kg	10.12.18 15.51		1
Diesel Range Organics (DRO)	C10C28DRO	1010	15.0	mg/kg	10.12.18 15.51		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	103	15.0	mg/kg	10.12.18 15.51		1
Total TPH	PHC635	1140	15.0	mg/kg	10.12.18 15.51		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	10.12.18 15.51	
o-Terphenyl	84-15-1	119	%	70-135	10.12.18 15.51	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#2 (5-5.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-012

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	268	5.00	mg/kg	10.14.18 18.32		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	24.3	15.0	mg/kg	10.12.18 16.09		1
Diesel Range Organics (DRO)	C10C28DRO	664	15.0	mg/kg	10.12.18 16.09		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	77.6	15.0	mg/kg	10.12.18 16.09		1
Total TPH	PHC635	766	15.0	mg/kg	10.12.18 16.09		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	98	%	70-135	10.12.18 16.09		
o-Terphenyl	84-15-1	111	%	70-135	10.12.18 16.09		



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#3 (0-1')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-013

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	718	24.9	mg/kg	10.14.18 18.49		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	18.2	14.9	mg/kg	10.12.18 16.28		1
Diesel Range Organics (DRO)	C10C28DRO	182	14.9	mg/kg	10.12.18 16.28		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	19.5	14.9	mg/kg	10.12.18 16.28		1
Total TPH	PHC635	220	14.9	mg/kg	10.12.18 16.28		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	10.12.18 16.28	
o-Terphenyl	84-15-1	108	%	70-135	10.12.18 16.28	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#3 (0-1')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-013

Date Collected: 10.02.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 09.15

Basis: Wet Weight

Seq Number: 3066374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.14.18 18.53	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.14.18 18.53	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.14.18 18.53	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	10.14.18 18.53	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.14.18 18.53	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.14.18 18.53	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.14.18 18.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	111	%	70-130	10.14.18 18.53		
4-Bromofluorobenzene	460-00-4	121	%	70-130	10.14.18 18.53		



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#3 (1-1.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-014

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	121	4.99	mg/kg	10.14.18 18.55		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.12.18 16.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.12.18 16.46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.12.18 16.46	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.12.18 16.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	94	%	70-135	10.12.18 16.46		
o-Terphenyl	84-15-1	97	%	70-135	10.12.18 16.46		



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#3 (1-1.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-014

Date Collected: 10.02.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 09.15

Basis: Wet Weight

Seq Number: 3066374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00196	0.00196	mg/kg	10.14.18 18.33	U	1
Toluene	108-88-3	<0.00196	0.00196	mg/kg	10.14.18 18.33	U	1
Ethylbenzene	100-41-4	<0.00196	0.00196	mg/kg	10.14.18 18.33	U	1
m,p-Xylenes	179601-23-1	<0.00392	0.00392	mg/kg	10.14.18 18.33	U	1
o-Xylene	95-47-6	<0.00196	0.00196	mg/kg	10.14.18 18.33	U	1
Total Xylenes	1330-20-7	<0.00196	0.00196	mg/kg	10.14.18 18.33	U	1
Total BTEX		<0.00196	0.00196	mg/kg	10.14.18 18.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	10.14.18 18.33		
4-Bromofluorobenzene	460-00-4	128	%	70-130	10.14.18 18.33		



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#3 (2-2.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-015

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	89.0	4.99	mg/kg	10.14.18 19.01		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.12.18 17.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.12.18 17.05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.12.18 17.05	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.12.18 17.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.12.18 17.05	
o-Terphenyl	84-15-1	96	%	70-135	10.12.18 17.05	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#3 (3-3.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-016

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	439	4.95	mg/kg	10.14.18 19.06		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.12.18 17.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.12.18 17.23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.12.18 17.23	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.12.18 17.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	10.12.18 17.23	
o-Terphenyl	84-15-1	97	%	70-135	10.12.18 17.23	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#3 (4-4.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-017

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	156	5.00	mg/kg	10.14.18 19.23		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.12.18 17.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.12.18 17.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.12.18 17.42	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.12.18 17.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.12.18 17.42	
o-Terphenyl	84-15-1	97	%	70-135	10.12.18 17.42	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#3 (4-4.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-017

Date Collected: 10.02.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 09.15

Basis: Wet Weight

Seq Number: 3066374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.14.18 18.13	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.14.18 18.13	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.14.18 18.13	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	10.14.18 18.13	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.14.18 18.13	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.14.18 18.13	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.14.18 18.13	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	121		%	70-130	10.14.18 18.13	
1,4-Difluorobenzene	540-36-3	123		%	70-130	10.14.18 18.13	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#3 (5-5.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-018

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	631	5.00	mg/kg	10.14.18 19.29		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.12.18 18.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.12.18 18.00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.12.18 18.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.12.18 18.00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	96	%	70-135	10.12.18 18.00		
o-Terphenyl	84-15-1	101	%	70-135	10.12.18 18.00		



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#4 (0-1')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-019

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1000	24.8	mg/kg	10.14.18 19.35		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	10.12.18 18.19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	10.12.18 18.19	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	10.12.18 18.19	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	10.12.18 18.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	10.12.18 18.19	
o-Terphenyl	84-15-1	101	%	70-135	10.12.18 18.19	



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#4 (0-1')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-019

Date Collected: 10.02.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 09.15

Basis: Wet Weight

Seq Number: 3066374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.14.18 17.53	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.14.18 17.53	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.14.18 17.53	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.14.18 17.53	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.14.18 17.53	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.14.18 17.53	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.14.18 17.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	122	%	70-130	10.14.18 17.53		
4-Bromofluorobenzene	460-00-4	109	%	70-130	10.14.18 17.53		



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#4 (1-1.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-020

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	208	25.0	mg/kg	10.14.18 19.40		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 07.00

Basis: Wet Weight

Seq Number: 3066389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.12.18 18.37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.12.18 18.37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.12.18 18.37	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.12.18 18.37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.12.18 18.37	
o-Terphenyl	84-15-1	98	%	70-135	10.12.18 18.37	



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#4 (1-1.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-020

Date Collected: 10.02.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 09.15

Basis: Wet Weight

Seq Number: 3066374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.14.18 17.33	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.14.18 17.33	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.14.18 17.33	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.14.18 17.33	U	1
o-Xylene	95-47-6	0.00736	0.00199	mg/kg	10.14.18 17.33		1
Total Xylenes	1330-20-7	0.00736	0.00199	mg/kg	10.14.18 17.33		1
Total BTEX		0.00736	0.00199	mg/kg	10.14.18 17.33		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118		%	70-130	10.14.18 17.33	
1,4-Difluorobenzene	540-36-3	125		%	70-130	10.14.18 17.33	



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#4 (2-2.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-021

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	162	24.8	mg/kg	10.14.18 19.46		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 15.00

Basis: Wet Weight

Seq Number: 3066395

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.13.18 11.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.13.18 11.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.13.18 11.31	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.13.18 11.31	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	92	%	70-135	10.13.18 11.31		
o-Terphenyl	84-15-1	96	%	70-135	10.13.18 11.31		



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#4 (3-3.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-022

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	524	4.95	mg/kg	10.14.18 19.52		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 15.00

Basis: Wet Weight

Seq Number: 3066395

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.13.18 12.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.13.18 12.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.13.18 12.27	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.13.18 12.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	10.13.18 12.27	
o-Terphenyl	84-15-1	95	%	70-135	10.13.18 12.27	



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#4 (4-4.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-023

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	459	4.96	mg/kg	10.14.18 20.09		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 15.00

Basis: Wet Weight

Seq Number: 3066395

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.13.18 12.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.13.18 12.45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.13.18 12.45	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.13.18 12.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	10.13.18 12.45	
o-Terphenyl	84-15-1	99	%	70-135	10.13.18 12.45	



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#4 (5-5.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-024

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	470	4.98	mg/kg	10.14.18 20.15		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 15.00

Basis: Wet Weight

Seq Number: 3066395

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	10.13.18 13.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	10.13.18 13.04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	10.13.18 13.04	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	10.13.18 13.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	10.13.18 13.04	
o-Terphenyl	84-15-1	99	%	70-135	10.13.18 13.04	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#5 (0-1')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-025

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	290	5.00	mg/kg	10.14.18 20.32		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 15.00

Basis: Wet Weight

Seq Number: 3066395

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.13.18 13.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	133	15.0	mg/kg	10.13.18 13.23		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.13.18 13.23	U	1
Total TPH	PHC635	133	15.0	mg/kg	10.13.18 13.23		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.13.18 13.23	
o-Terphenyl	84-15-1	102	%	70-135	10.13.18 13.23	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#5 (0-1')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-025

Date Collected: 10.02.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 09.15

Basis: Wet Weight

Seq Number: 3066374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.14.18 17.13	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.14.18 17.13	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.14.18 17.13	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.14.18 17.13	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.14.18 17.13	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.14.18 17.13	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.14.18 17.13	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	123	%	70-130	10.14.18 17.13		
1,4-Difluorobenzene	540-36-3	122	%	70-130	10.14.18 17.13		



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#5 (1-1.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-026

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	400	4.95	mg/kg	10.14.18 20.37		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 15.00

Basis: Wet Weight

Seq Number: 3066395

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	10.13.18 13.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	61.9	14.9	mg/kg	10.13.18 13.41		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	10.13.18 13.41	U	1
Total TPH	PHC635	61.9	14.9	mg/kg	10.13.18 13.41		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.13.18 13.41	
o-Terphenyl	84-15-1	94	%	70-135	10.13.18 13.41	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#5 (1-1.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-026

Date Collected: 10.02.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.14.18 09.15

Basis: Wet Weight

Seq Number: 3066374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.14.18 16.53	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.14.18 16.53	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.14.18 16.53	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	10.14.18 16.53	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.14.18 16.53	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.14.18 16.53	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.14.18 16.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	121	%	70-130	10.14.18 16.53		
4-Bromofluorobenzene	460-00-4	113	%	70-130	10.14.18 16.53		



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#5 (2-2.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-027

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	204	4.98	mg/kg	10.14.18 20.43		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 15.00

Basis: Wet Weight

Seq Number: 3066395

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.13.18 14.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.13.18 14.00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.13.18 14.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.13.18 14.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	10.13.18 14.00	
o-Terphenyl	84-15-1	105	%	70-135	10.13.18 14.00	



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Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#5 (3-3.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-028

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	679	4.96	mg/kg	10.14.18 20.49		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 15.00

Basis: Wet Weight

Seq Number: 3066395

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.13.18 14.18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.13.18 14.18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.13.18 14.18	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.13.18 14.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	98	%	70-135	10.13.18 14.18		
o-Terphenyl	84-15-1	101	%	70-135	10.13.18 14.18		



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#5 (4-4.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-029

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	182	5.00	mg/kg	10.14.18 20.54		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 15.00

Basis: Wet Weight

Seq Number: 3066395

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.13.18 14.36	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.13.18 14.36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.13.18 14.36	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.13.18 14.36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	91	%	70-135	10.13.18 14.36		
o-Terphenyl	84-15-1	93	%	70-135	10.13.18 14.36		



Certificate of Analytical Results 601608



Tetra Tech- Midland, Midland, TX

EOG-Lotus SWD #2

Sample Id: AH#5 (5-5.5')

Matrix: Soil

Date Received: 10.05.18 15.47

Lab Sample Id: 601608-030

Date Collected: 10.02.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.13.18 15.30

Basis: Wet Weight

Seq Number: 3066335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	127	5.00	mg/kg	10.14.18 21.00		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.12.18 15.00

Basis: Wet Weight

Seq Number: 3066395

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	10.13.18 14.55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	10.13.18 14.55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.13.18 14.55	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.13.18 14.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	94	%	70-135	10.13.18 14.55		
o-Terphenyl	84-15-1	97	%	70-135	10.13.18 14.55		

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

SDL Sample Detection Limit

LOD Limit of Detection

PQL Practical Quantitation Limit

MQL Method Quantitation Limit

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample

BLK

Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample

BKSD/LCSD

Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate

MS

Matrix Spike

MSD: Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Tetra Tech- Midland
EOG-Lotus SWD #2

Analytical Method: Chloride by EPA 300

Seq Number: 3066332

MB Sample Id: 7664092-1-BLK

Matrix: Solid

LCS Sample Id: 7664092-1-BKS

Prep Method: E300P

Date Prep: 10.13.18

LCSD Sample Id: 7664092-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	264	106	262	105	90-110	1	20	mg/kg	10.14.18 15:02	

Analytical Method: Chloride by EPA 300

Seq Number: 3066332

MB Sample Id: 7664117-1-BLK

Matrix: Solid

LCS Sample Id: 7664117-1-BKS

Prep Method: E300P

Date Prep: 10.13.18

LCSD Sample Id: 7664117-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	259	104	259	104	90-110	0	20	mg/kg	10.14.18 18:21	

Analytical Method: Chloride by EPA 300

Seq Number: 3066332

Parent Sample Id: 601595-072

Matrix: Soil

MS Sample Id: 601595-072 S

Prep Method: E300P

Date Prep: 10.13.18

MSD Sample Id: 601595-072 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	23.4	252	291	106	290	106	90-110	0	20	mg/kg	10.14.18 15:19	

Analytical Method: Chloride by EPA 300

Seq Number: 3066332

Parent Sample Id: 601608-003

Matrix: Soil

MS Sample Id: 601608-003 S

Prep Method: E300P

Date Prep: 10.13.18

MSD Sample Id: 601608-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	113	250	373	104	375	105	90-110	1	20	mg/kg	10.14.18 16:39	

Analytical Method: Chloride by EPA 300

Seq Number: 3066332

Parent Sample Id: 601608-012

Matrix: Soil

MS Sample Id: 601608-012 S

Prep Method: E300P

Date Prep: 10.13.18

MSD Sample Id: 601608-012 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	268	250	516	99	517	100	90-110	0	20	mg/kg	10.14.18 18:38	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



QC Summary 601608

Tetra Tech- Midland EOG-Lotus SWD #2

Analytical Method: Chloride by EPA 300

Seq Number: 3066335

Parent Sample Id: 601608-022

Matrix: Soil

MS Sample Id: 601608-022 S

Prep Method: E300P

Date Prep: 10.13.18

MSD Sample Id: 601608-022 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	524	248	777	102	772	100	90-110	1	20	mg/kg	10.14.18 19:58	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3066389

MB Sample Id: 7664100-1-BLK

Matrix: Solid

LCS Sample Id: 7664100-1-BKS

Prep Method: TX1005P

Date Prep: 10.12.18

LCSD Sample Id: 7664100-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1040	104	982	98	70-135	6	20	mg/kg	10.12.18 10:54	
Diesel Range Organics (DRO)	<8.13	1000	1040	104	990	99	70-135	5	20	mg/kg	10.12.18 10:54	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	91		120		128		70-135	%	10.12.18 10:54
o-Terphenyl	95		104		104		70-135	%	10.12.18 10:54

Analytical Method: TPH By SW8015 Mod

Seq Number: 3066395

MB Sample Id: 7664104-1-BLK

Matrix: Solid

LCS Sample Id: 7664104-1-BKS

Prep Method: TX1005P

Date Prep: 10.12.18

LCSD Sample Id: 7664104-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	12.8	1000	1140	114	985	99	70-135	15	20	mg/kg	10.13.18 10:53	
Diesel Range Organics (DRO)	<8.13	1000	1100	110	967	97	70-135	13	20	mg/kg	10.13.18 10:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	90		127		127		70-135	%	10.13.18 10:53
o-Terphenyl	93		116		100		70-135	%	10.13.18 10:53

Analytical Method: TPH By SW8015 Mod

Seq Number: 3066389

Parent Sample Id: 601608-001

Matrix: Soil

MS Sample Id: 601608-001 S

Prep Method: TX1005P

Date Prep: 10.12.18

MSD Sample Id: 601608-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	13.5	998	927	92	929	92	70-135	0	20	mg/kg	10.12.18 11:49	
Diesel Range Organics (DRO)	32.9	998	953	92	952	92	70-135	0	20	mg/kg	10.12.18 11:49	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	125		124		70-135	%	10.12.18 11:49
o-Terphenyl	99		101		70-135	%	10.12.18 11:49

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 $\text{Log Diff.} = \text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



QC Summary 601608

Tetra Tech- Midland EOG-Lotus SWD #2

Analytical Method: TPH By SW8015 Mod

Seq Number: 3066395

Parent Sample Id: 601608-021

Matrix: Soil

MS Sample Id: 601608-021 S

Prep Method: TX1005P

Date Prep: 10.12.18

MSD Sample Id: 601608-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	13.1	999	937	92	934	92	70-135	0	20	mg/kg	10.13.18 11:49	
Diesel Range Organics (DRO)	<8.12	999	930	93	928	93	70-135	0	20	mg/kg	10.13.18 11:49	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		113		70-135	%	10.13.18 11:49
o-Terphenyl	107		102		70-135	%	10.13.18 11:49

Analytical Method: BTEX by EPA 8021B

Seq Number: 3066374

MB Sample Id: 7664160-1-BLK

Matrix: Solid

LCS Sample Id: 7664160-1-BKS

Prep Method: SW5030B

Date Prep: 10.14.18

LCSD Sample Id: 7664160-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0992	99	0.0920	91	70-130	8	35	mg/kg	10.14.18 20:53	
Toluene	<0.00200	0.100	0.0915	92	0.0901	89	70-130	2	35	mg/kg	10.14.18 20:53	
Ethylbenzene	<0.00200	0.100	0.0901	90	0.0868	86	70-130	4	35	mg/kg	10.14.18 20:53	
m,p-Xylenes	<0.00401	0.200	0.179	90	0.183	91	70-130	2	35	mg/kg	10.14.18 20:53	
o-Xylene	<0.00200	0.100	0.116	116	0.104	103	70-130	11	35	mg/kg	10.14.18 20:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	119		100		102		70-130	%	10.14.18 20:53
4-Bromofluorobenzene	104		75		95		70-130	%	10.14.18 20:53

Analytical Method: BTEX by EPA 8021B

Seq Number: 3066356

MB Sample Id: 7664156-1-BLK

Matrix: Solid

LCS Sample Id: 7664156-1-BKS

Prep Method: SW5030B

Date Prep: 10.14.18

LCSD Sample Id: 7664156-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.122	122	0.117	117	70-130	4	35	mg/kg	10.14.18 19:29	
Toluene	<0.00200	0.100	0.106	106	0.107	107	70-130	1	35	mg/kg	10.14.18 19:29	
Ethylbenzene	<0.00200	0.100	0.121	121	0.121	121	70-130	0	35	mg/kg	10.14.18 19:29	
m,p-Xylenes	<0.00401	0.200	0.243	122	0.228	114	70-130	6	35	mg/kg	10.14.18 19:29	
o-Xylene	<0.00200	0.100	0.119	119	0.121	121	70-130	2	35	mg/kg	10.14.18 19:29	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		100		88		70-130	%	10.14.18 19:29
4-Bromofluorobenzene	90		102		108		70-130	%	10.14.18 19:29

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 $\text{Log Diff.} = \text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



QC Summary 601608

Tetra Tech- Midland EOG-Lotus SWD #2

Analytical Method: BTEX by EPA 8021B

Seq Number: 3066374

Parent Sample Id: 602221-035

Matrix: Soil

MS Sample Id: 602221-035 S

Prep Method: SW5030B

Date Prep: 10.14.18

MSD Sample Id: 602221-035 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0878	88	0.0876	88	70-130	0	35	mg/kg	10.14.18 11:14	
Toluene	<0.00199	0.0996	0.0842	85	0.0854	86	70-130	1	35	mg/kg	10.14.18 11:14	
Ethylbenzene	<0.00199	0.0996	0.0811	81	0.0820	82	70-130	1	35	mg/kg	10.14.18 11:14	
m,p-Xylenes	<0.00398	0.199	0.164	82	0.164	82	70-130	0	35	mg/kg	10.14.18 11:14	
o-Xylene	<0.00199	0.0996	0.0814	82	0.0826	83	70-130	1	35	mg/kg	10.14.18 11:14	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		98		70-130	%	10.14.18 11:14
4-Bromofluorobenzene	98		97		70-130	%	10.14.18 11:14

Analytical Method: BTEX by EPA 8021B

Seq Number: 3066356

Parent Sample Id: 601847-001

Matrix: Soil

MS Sample Id: 601847-001 S

Prep Method: SW5030B

Date Prep: 10.14.18

MSD Sample Id: 601847-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00222	0.111	0.0762	69	0.0765	76	70-130	0	35	mg/kg	10.14.18 20:12	X
Toluene	<0.00222	0.111	0.0534	48	0.0594	59	70-130	11	35	mg/kg	10.14.18 20:12	X
Ethylbenzene	<0.000628	0.111	0.0401	36	0.0465	46	70-130	15	35	mg/kg	10.14.18 20:12	X
m,p-Xylenes	0.00140	0.222	0.0731	32	0.0846	41	70-130	15	35	mg/kg	10.14.18 20:12	X
o-Xylene	<0.00222	0.111	0.0379	34	0.0448	44	70-130	17	35	mg/kg	10.14.18 20:12	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	86		99		70-130	%	10.14.18 20:12
4-Bromofluorobenzene	104		108		70-130	%	10.14.18 20:12

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Analysis Request of Chain of Custody Record

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Tetra Tech, Inc.

 4000 N. Big Spring Street, Ste
 401 Midland, Texas 79705
 Tel (432) 682-4559
 Fax (432) 682-3946

Client Name: EOG		Site Manager: Stephen Reyes	
Project Name: Lotus SWD #2			
Project Location: Lea County, New Mexico		Project #: 212C-MD-01238	
Invoice to:			
Receiving Laboratory: Xenco Midland, TX		Sampler Signature: Stephen Reyes	
Comments: Run deeper samples if GRO+DRO exceeds 1,000 mg/kg. Run deeper samples if benzene exceeds 10 mg/kg or total BTEX exceeds 50 mg/kg			

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD					# CONTAINERS	FILTERED (Y/N)
		DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE	None			
										YEAR: 2018		
AH #1 (0-1')		10/2/2018		X		X					1	N
AH #1 (1-1.5')		10/2/2018		X		X					1	N
AH #1 (2-2.5')		10/2/2018		X		X					1	N
AH #1 (3-3.5')		10/2/2018		X		X					1	N
AH #1 (4-4.5')		10/2/2018		X		X					1	N
AH #1 (5-5.5')		10/2/2018		X		X					1	N
AH #2 (0-1')		10/2/2018		X		X					1	N
AH #2 (1-1.5')		10/2/2018		X		X					1	N
AH #2 (2-2.5')		10/2/2018		X		X					1	N
AH #2 (3-3.5')		10/2/2018		X		X					1	N

Relinquished by: <i>[Signature]</i>	Date: 10-5-18	Time: 1547	Received by: <i>[Signature]</i>	Date: 10/5/18	Time: 1547
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
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ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

ANALYSIS REQUEST
(Circle or Specify Method No.)
 BTEX 8021B BTEX 8260B
 TPH TX1005 (Ext to C35)
 TPH 8015M (GRO - DRO - ORO - MRO)
 PAH 8270C
 Total Metals Ag As Ba Cd Cr Pb Se Hg
 TCLP Metals Ag As Ba Cd Cr Pb Se Hg
 TCLP Volatiles
 TCLP Semi Volatiles
 RCI
 GC/MS Vol. 8260B / 624
 GC/MS Semi. Vol. 8270C/625
 PCB's 8082 / 608
 NORM
 PLM (Asbestos)
 Chloride
 Chloride Sulfate TDS
 General Water Chemistry (see attached list)
 Anion/Cation Balance

Hold

Page 2 of 3

De lae

ORIGINAL COPY

601608

3 of 3



Fax (432) 682-3946

[illegible]

(Circle) **HAND DELIVERED** **FEDEX** **UPS** **Tracking #:** _____



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 10/05/2018 03:47:00 PM

Work Order #: 601608

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	.7
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 10/08/2018

Checklist reviewed by:

Kelsey Brooks

Kelsey Brooks

Date: 10/09/2018