

APPROVED

By CHernandez at 8:13 am, Nov 09, 2018

SITE INFORMATIONSee email
correspondence.**Report Type: Work Plan 1RP-3732**

ation:

Site:	Kiwi AKX State #8					
Company:	EOG Resources					
Section, Township and Range	Unit F	Sec 16	T 22S	R 32E		
Lease Number:	API No. 30-025-31889					
County:	Lea County					
GPS:	32.39328° N			103.68104° W		
Surface Owner:	State					
Mineral Owner:	State					
Directions:	From the intersection of Red Rd & Mills Ranch Rd in rural Lea County, travel northeast on Mills Ranch Rd for 4.10 mi, turn north onto lease road for 0.60 mi, turn east onto lease road for 0.30 mi, turn north and continue for 0.35 mi to location.					

Release Data:

Date Released:	6/28/2015
Type Release:	Produced Water & Crude Oil
Source of Contamination:	Gun Barrel Fill Line
Fluid Released:	2 bbls oil & 10 bbls water
Fluids Recovered:	8 bbls water

Official Communication:

Name:	James Kennedy		Clair Gonzales
Company:	EOG Resources		Tetra Tech
Address:	5509 Champions Dr		4000 N. Big Spring
			Ste 401
City:	Midland Texas, 79706		Midland, Texas
Phone number:	(432) 258-4346		(432) 687-8123
Fax:			
Email:	James_Kennedy@eogresources.com		Clair.Gonzales@tetratech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	300'
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:		0

Acceptable Soil RRAL (mg/kg)

Benzene	Total BTEX	TPH
10	50	2,500



TETRA TECH

October 10, 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, Kiwi AKX State #8, Unit F, Section 16,
Township 22 South, Range 32 East, Lea County, New Mexico.
1RP-3732**

Ms. Yu:

Tetra Tech, Inc. (Tetra Tech) was contacted by EOG Resources (EOG) to assess a release that occurred at the Kiwi AKX State #8, Unit F, Section 16, Township 22 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.39328°, W 103.68104°. The site location is shown on Figures 1 and 2.

Background

The release occurred under Yates Petroleum Corporation (Yates), 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 28, 2015 and released approximately two (2) barrels of oil and ten (10) barrels of produced water due to a failed gun barrel fill line. A vacuum truck was used to remove the freestanding fluids, recovering approximately eight (8) barrels of produced water. The release occurred inside the bermed facility and impacted an area measuring approximately 20' x 20'. The initial C-141 Form is included in Appendix A.

Groundwater

No water wells were listed within Section 16 on the New Mexico Office of the State Engineer's (NMOSE) database, the Geology and Groundwater Resources of Eddy County (Report 3), or the USGS National Water Information Database. The nearest well is listed on the NMOSE in Section 14, approximately 1.9 miles east-southeast of the site, and has a reported depth to groundwater of 340' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is approximately 300' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

4000 North Big Spring, Suite 401, Midland, TX 79705

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 May 9, 2018, Tetra Tech personnel were onsite to evaluate and sample the release area. One auger hole (AH-1) was installed inside the bermed facility to a total depth of 4.0'-4.5' below surface. Soil samples were collected and 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, the sample collected at 0-1' below surface showed benzene and total BTEX concentrations below the laboratory reporting limit and a TPH concentration of 1,350 mg/kg. Additionally, none of the samples collected showed chloride concentrations above the 600 mg/kg threshold, with concentrations ranging from 5.12 mg/kg and 312 mg/kg.

Based on discussions with the NMOCD, it was discovered that EOG Yates submitted an approved work plan dated February 13, 2017, which proposed excavating the release area to approximately 6.0' below surface and backfilling with clean material. The work plan also proposed bioremediation to treat the excavated material for downsizing activities. Based on this information, Tetra Tech personnel returned to the site on September 19, 2018 and installed three (3) auger holes (AH-1, AH-2, and AH-3) in the release area to total depths ranging from 6'-6.5' to 7'-7.5' below surface. Soil samples were collected and 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, The areas of auger holes (AH-1 and AH-3) showed TPH concentrations above the RRAL's to depths of 2-2.5' before declining with depth to 396 mg/kg (AH-1) and 133 mg/kg (AH-3) at 3'-3.5' below surface. Additionally, none of the samples collected in these areas showed benzene, total BTEX, or chloride concentrations above the RRALs. The area of auger hole (AH-2) showed elevated TPH concentrations to 3-3.5', with a TPH high of 8,430 mg/kg at 2'-2.5' below surface. The TPH concentrations declined with depth



to 112 mg/kg at 4'-4.5' and showed a bottom hole concentration of 266 mg/kg at 6'-6.5' below surface. The area of auger hole (AH-2) did not show any benzene or chloride concentrations above the RRALs, however total BTEX concentrations above the RRAL was detected at 2'-2.5' and 3'-3.5' of 123 mg/kg and 103 mg/kg, respectively. The total BTEX concentrations then declined to 0.806 mg/kg at 4'-4.5' and showed a bottom hole concentration of 0.548 mg/kg at 6'-6.5' below surface.

Based on the laboratory results, it does not appear that the approved work plan was implemented prior to the EOG – Yates merger.

Work Plan

Based on the sampling results, EOG proposes to excavate the areas as shown on Figure 4 and highlighted (green) on Table 1. The areas of auger holes (AH-1, AH-2, and AH-3) will be excavated to approximately 3.0' below surface to address the shallow hydrocarbon impact to the soils. Sidewall and bottom hole confirmation samples will be collected and analyzed for TPH and BTEX to ensure the proper removal of the impacted soils. The excavation will then be backfilled with clean material to surface grade. All of the excavated material will be transported offsite for proper disposal.

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.

Upon completion, a final report detailing the remediation activities will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Clair Gonzales,
Project Manager

cc: Ryan Mann – NMSLO
James Kennedy - EOG

Figures

★ **KIWI AKX STATE #8
SITE LOCATION**

★ Monument

★ Oil Center

★ Jal

★ Bennett



FIGURE 1

KIWI AKX STATE # 8 BATTERY
(32.39328,-103.68104)

OVERVIEW MAP

LEACOUNTY ,NEW MEXICO

Project : 212C-MD-01238

Date : 06/25/2018

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



Miles 0 6.06 12.12

SCALE: 1 in = 6 miles



FIGURE 2

KIWI AKX STATE # 8 BATTERY
(32.39328,-103.68104)

TOPOGRAPHY MAP 1:24,000

LEA COUNTY, NEW MEXICO

Project : 212C-MD-001238

Date : 06/25/2018

File : H:\GIS\212C-MD-006/25/2018



AUGERHOLE LOCATIONS	LAT.	LONG.
AH-1	32.393292	-103.681019
AH-2	32.393219	-103.681052
AH-3	32.3932	-103.681089

PASTURE

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PASTURE

LEGEND

- AUGER HOLE SAMPLE LOCATIONS
- SPILL AREA
- ABOVE GROUND STEEL PIPE
- UNDERGROUND PIPE
- FENCE

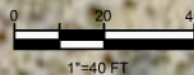


FIGURE 3

KIWI AKX STATE #8
(32.39328, -103.68104)

SPILL ASSESSMENT MAP
LEA COUNTY, NEW MEXICO

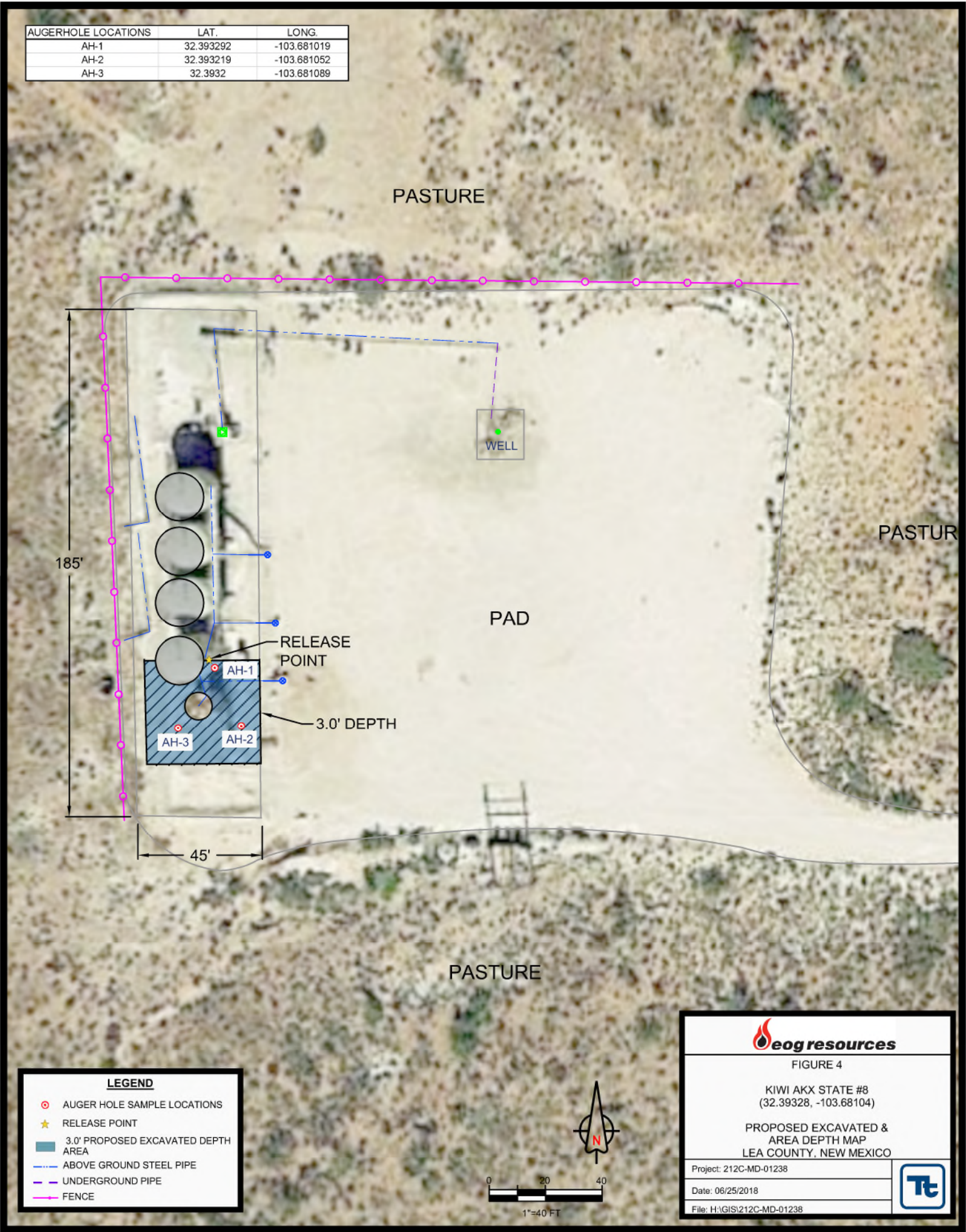
Project: 212C-MD-01238

Date: 06/25/2018

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



AUGERHOLE LOCATIONS	LAT.	LONG.
AH-1	32.393292	-103.681019
AH-2	32.393219	-103.681052
AH-3	32.3932	-103.681089



Tables

Table 1
EOG Resources
Kiwi AKX State #8
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)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	ORO	Total						
AH-1	5/9/2018	0-1	-	X		<15.0	1,290	55.5	1,350	<0.00341	<0.00341	<0.00341	<0.00341	<0.00341	178
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	-	312
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	5.12
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	-	13.9
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	-	145
AH-1	9/19/2018	0-1	-	X		<15.0	2,230	328	2,560	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	137
	"	1-1.5	-	X		<15.0	1,810	279	2,090	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	139
	"	2-2.5	-	X		<15.0	1,190	196	1,390	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	97.8
	"	3-3.5	-	X		<15.0	345	51.4	396	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	90.7
	"	4-4.5	-	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	155
	"	5-5.5	-	X		<14.9	86.5	<14.9	86.5	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	277
	"	6-6.5	-	X		<15.0	101	<15.0	101	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	307
	"	7-7.5	-	X		<15.0	77.3	<15.0	77.3	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	748
AH-2	9/19/2018	0-1	-	X		525	2,860	302.0	7,070	0.0220	0.3780	0.3200	0.9620	1.68	<5.00
	"	1-1.5	-	X		1,350	5,700	479	7,530	0.218	6.07	9.61	33.8	49.7	<4.98
	"	2-2.5	-	X		1,760	6,170	503	8,430	0.509	12.3	26.9	83.4	123	<4.95
	"	3-3.5	-	X		2,050	5,740	401	8,190	0.628	0.633	25.7	75.8	103	24.0
	"	4-4.5	-	X		32.2	80.1	<15.0	112	0.00774	0.00610	0.228	0.564	0.806	14.6
	"	5-5.5	-	X		20.1	124	<14.9	144	<0.00198	0.00326	0.0146	0.0259	0.0438	51.2
	"	6-6.5	-	X		42.0	208	15.5	266	<0.00201	0.0363	0.117	0.395	0.548	132
	"	7-7.5	-	X		42.0	208	15.5	266	<0.00201	0.0363	0.117	0.395	0.548	132
AH-3	9/19/2018	0-1	-	X		695	5,910	528	7,130	<0.200	2.15	1.09	8.91	12.2	<5.00
	"	1-1.5	-	X		751	5,640	431	6,820	<0.201	1.74	1.21	5.06	8.01	11.5
	"	2-2.5	-	X		539	5,080	454	6,070	<0.200	<0.200	0.557	9.60	10.2	17.9
	"	3-3.5	-	X		<15.0	133	<15.0	133	<0.00202	<0.00202	<0.00202	0.0219	0.0219	37.3
	"	4-4.5	-	X		<15.0	105	<15.0	105	<0.00200	<0.00200	0.00558	0.0167	0.0223	14.1
	"	5-5.5	-	X		<15.0	48.1	<15.0	48.1	<0.00199	<0.00199	<0.00199	0.00750	0.00750	32.4
	"	6-6.5	-	X		<15.0	<15.0	<15.0	<15.0	<0.00199	0.00222	<0.00199	<0.00199	0.00222	50.5
	"	7-7.5	-	X		<15.0	55.6	<15.0	55.6	<0.00202	<0.00202	<0.00202	0.03520	0.03520	87.9

(-)

Not Analyzed



Proposed Excavation Depths

Photos

EOG Resources
Kiwi AKX State #8
Lea County, New Mexico



TETRA TECH



View North – Inside bermed facility



View North – Area of AH-1



View West – Area of AH-2



View West – Area of AH_3

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	Contact Robert Asher	
Address 104 S. 4 th Street	Telephone No. 575-748-1471	
Facility Name Kiwi AKX State #8	Facility Type Battery	
Surface Owner State	Mineral Owner State	API No. 30-025-31889

LOCATION OF RELEASE

Unit Letter F	Section 16	Township 22S	Range 32E	Feet from the 1980	North/South Line North	Feet from the 2310	East/West Line West	County Lea
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Latitude 32.39337 Longitude 103.68028

NATURE OF RELEASE

Type of Release Crude Oil & Produced Water	Volume of Release 2 B/O & 10 B/PW	Volume Recovered 0 B/O & 8 B/PW
Source of Release Gun Barrel Fill Line	Date and Hour of Occurrence 6/28/2015; AM	Date and Hour of Discovery 6/28/2015; AM
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? N/A	
By Whom? N/A	Date and Hour N/A	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

RECEIVED

By OCD District 1 at 1:04 pm, Jul 15, 2015

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Fill line going to the gun barrel failed, causing the release. Vacuum truck(s) were called.

Describe Area Affected and Cleanup Action Taken.*
An approximate area of 20' x 20' within the bermed battery. Shut off manual valves. A vacuum truck recovered no crude oil and 80% of the released produced water. Vertical and horizontal delineation samples will be taken and analysis ran for TPH & BTEX (chlorides for documentation). If initial analytical results for TPH & BTEX are under RRAL's a Final Report, C-141 will be submitted to the OCD requesting closure. If the analytical results are above the RRAL's a work plan will be submitted to the OCD. Depth to Ground Water: >100' (approximately 300', per the ChevronTexaco Trend Map), Wellhead Protection Area: No, Distance to Surface Water Body: >1000', SITE RANKING IS 0.

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.

OIL CONSERVATION DIVISION

Signature: 	Approved by Environmental Specialist: 	
Printed Name: Robert Asher		
Title: NM Environmental Regulatory Supervisor	Approval Date: 07/15/2015	Expiration Date: 10/15/2015
E-mail Address: boba@yatespetroleum.com	Conditions of Approval:	
Date: July 14, 2015	2RP- Discrete site samples required. Delinate and remediate per NMOCD guidelines. Geotagged photos of remediation required.	Attached ☐ ogrid 25575 IRP-3732
Phone: 575-748-4217		

* Attach Additional Sheets If Necessary

nJXK1519647154
pJXK1519647450

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
EOG - Kiwi AKX State #8

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)
 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			

Average Depth to Water: **201 feet**

Minimum Depth: **49 feet**

Maximum Depth: **360 feet**

Record Count: 8

PLSS Search:

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

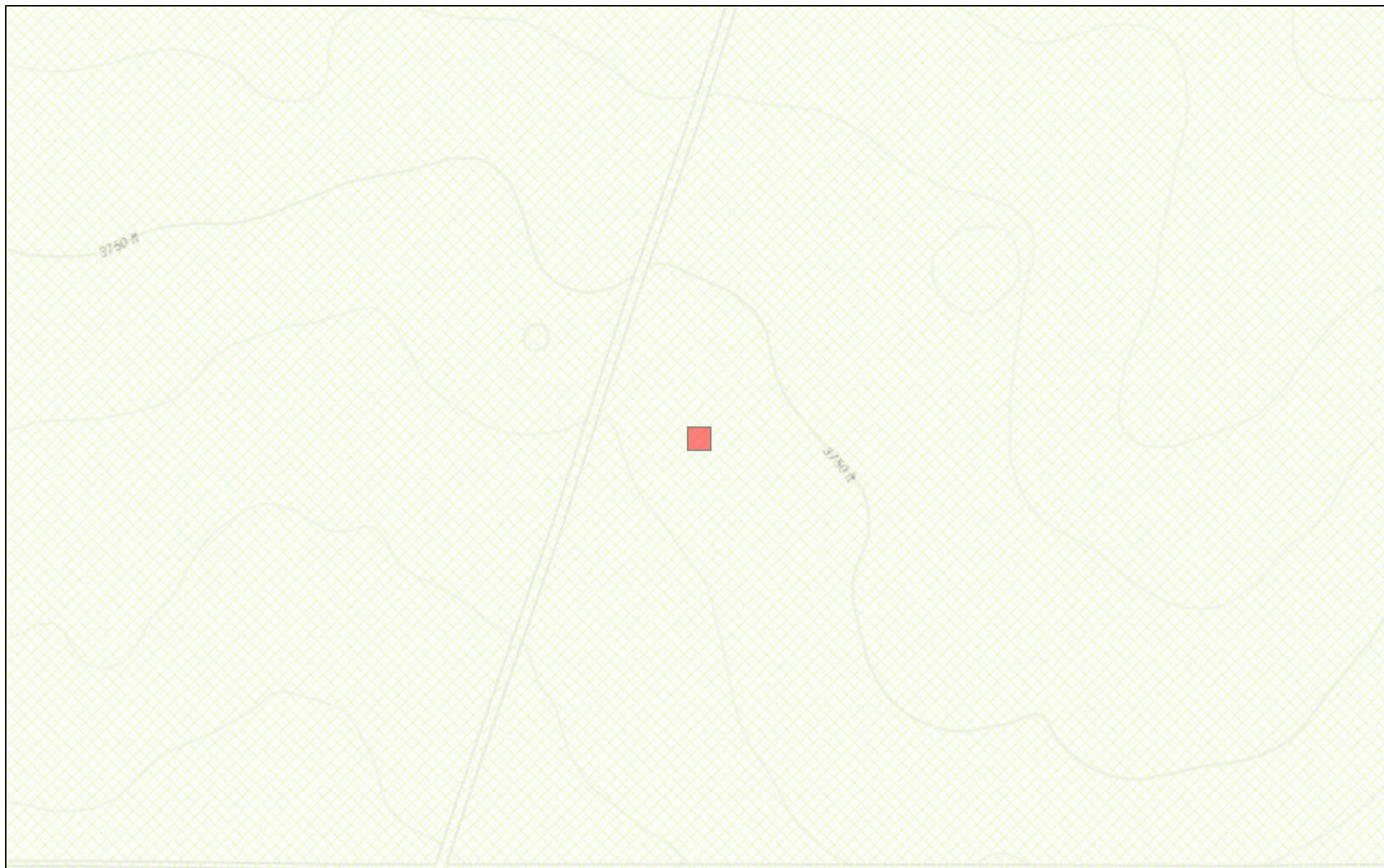
*UTM location was derived from PLSS - see Help

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.

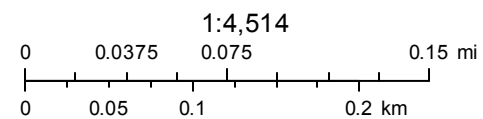
6/21/18 12:23 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

New Mexico NFHL Data



October 10, 2018



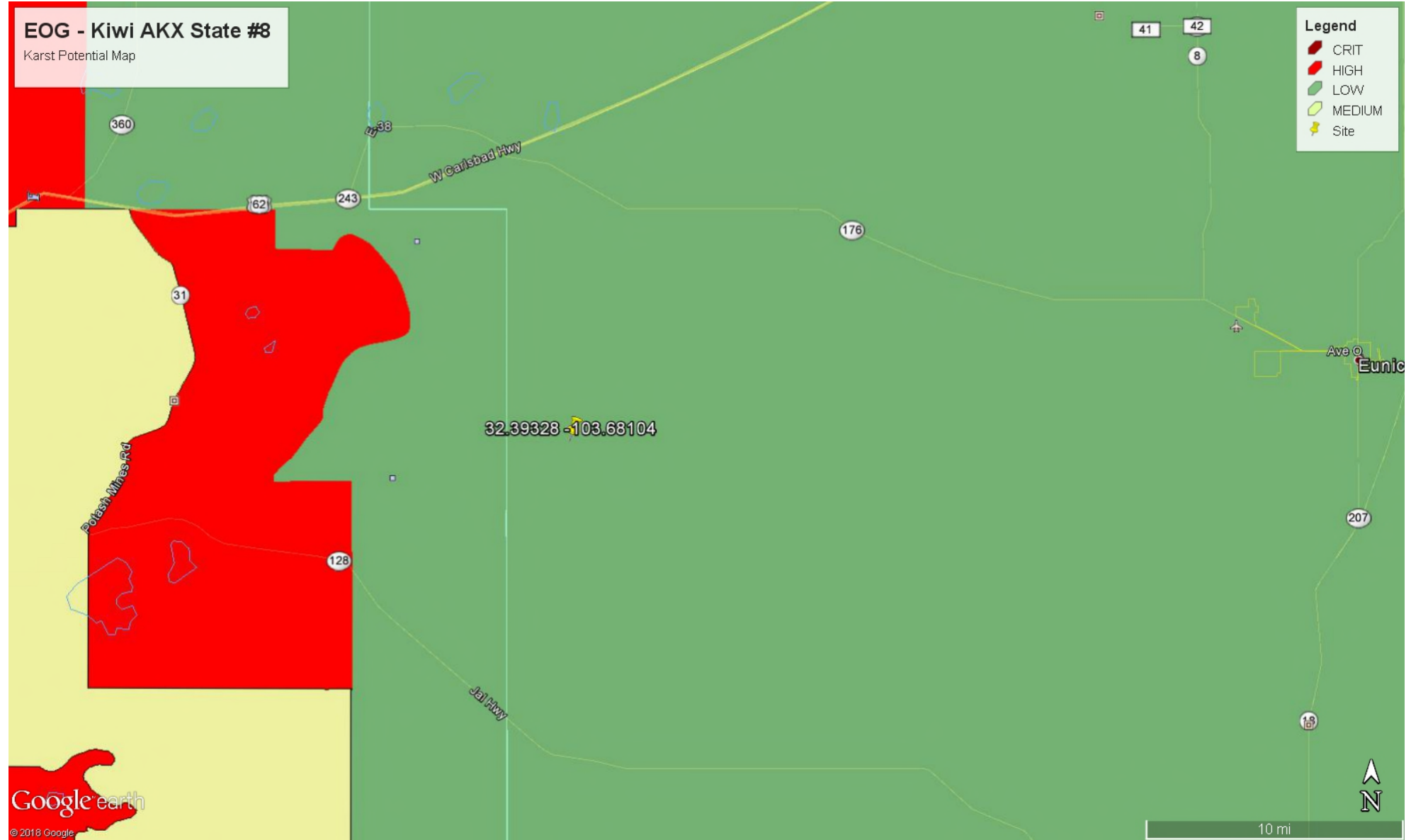
FEMA
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

EOG - Kiwi AKX State #8

Karst Potential Map

Legend

- CRIT
- HIGH
- LOW
- MEDIUM
- Site



Appendix C

Analytical Report 586584

for Tetra Tech- Midland

Project Manager: James Kennedy

EOG-Kiwi AKX State #1

212C-MD-01238

24-MAY-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-25), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)

Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-14)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)

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)



24-MAY-18

Project Manager: **James Kennedy**

Tetra Tech- Midland

4000 N. Big Spring Suite 401

Midland, TX 79705

Reference: XENCO Report No(s): **586584**

EOG-Kiwi AKX State #1

Project Address: Lea County, New Mexico

James Kennedy:

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) 586584. 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. 586584 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.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 586584



Tetra Tech- Midland, Midland, TX

EOG-Kiwi AKX State #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1 (0-1)	S	05-09-18 00:00		586584-001
AH-1 (1-1.5)	S	05-09-18 00:00		586584-002
AH-1 (2-2.5)	S	05-09-18 00:00		586584-003
AH-1 (3-3.5)	S	05-09-18 00:00		586584-004
AH-1 (4-4.5)	S	05-09-18 00:00		586584-005



CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: EOG-Kiwi AKX State #1

Project ID: 212C-MD-01238
Work Order Number(s): 586584

Report Date: 24-MAY-18
Date Received: 05/18/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3051136 BTEX by EPA 8021B

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



Certificate of Analysis Summary 586584

Tetra Tech- Midland, Midland, TX

Project Name: EOG-Kiwi AKX State #1



Project Id: 212C-MD-01238
Contact: James Kennedy
Project Location: Lea County, New Mexico

Date Received in Lab: Fri May-18-18 01:30 pm
Report Date: 24-MAY-18
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	586584-001	586584-002	586584-003	586584-004	586584-005	
	<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)	
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	
	<i>Sampled:</i>	May-09-18 00:00	May-09-18 00:00	May-09-18 00:00	May-09-18 00:00	May-09-18 00:00	
BTEX by EPA 8021B	<i>Extracted:</i>	May-23-18 08:00					
	<i>Analyzed:</i>	May-23-18 13:07					
	<i>Units/RL:</i>	mg/kg RL					
Benzene		<0.00341 0.00341					
Toluene		<0.00341 0.00341					
Ethylbenzene		<0.00341 0.00341					
m,p-Xylenes		<0.00683 0.00683					
o-Xylene		<0.00341 0.00341					
Total Xylenes		<0.00341 0.00341					
Total BTEX		<0.00341 0.00341					
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	May-22-18 17:00	May-22-18 17:00	May-22-18 17:00	May-22-18 17:00	May-22-18 17:00	
	<i>Analyzed:</i>	May-23-18 00:44	May-23-18 00:50	May-23-18 00:56	May-23-18 01:02	May-23-18 01:08	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		178 5.00	312 5.00	5.12 4.94	13.9 4.96	145 5.00	
TPH By SW8015 Mod	<i>Extracted:</i>	May-18-18 14:00					
	<i>Analyzed:</i>	May-20-18 12:02					
	<i>Units/RL:</i>	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0					
Diesel Range Organics (DRO)		1290 15.0					
Oil Range Hydrocarbons (ORO)		55.5 15.0					
Total TPH		1350 15.0					

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager

- 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



Form 2 - Surrogate Recoveries

Project Name: EOG-Kiwi AKX State #1

Work Orders : 586584,

Project ID: 212C-MD-01238

Lab Batch #: 3050664

Sample: 586584-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 05/20/18 12:02

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	106	99.9	106	70-135	
o-Terphenyl	55.4	50.0	111	70-135	

Lab Batch #: 3051136

Sample: 586584-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 05/23/18 13:07

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0298	0.0300	99	70-130	
4-Bromofluorobenzene	0.0235	0.0300	78	70-130	

Lab Batch #: 3050664

Sample: 7645050-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 05/20/18 02:38

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	97.2	100	97	70-135	
o-Terphenyl	50.5	50.0	101	70-135	

Lab Batch #: 3051136

Sample: 7645314-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 05/23/18 09:09

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0292	0.0300	97	70-130	
4-Bromofluorobenzene	0.0274	0.0300	91	70-130	

Lab Batch #: 3050664

Sample: 7645050-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 05/20/18 03:05

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	118	100	118	70-135	
o-Terphenyl	53.0	50.0	106	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: EOG-Kiwi AKX State #1

Work Orders : 586584,

Project ID: 212C-MD-01238

Lab Batch #: 3051136

Sample: 7645314-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 05/23/18 07:40

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0290	0.0300	97	70-130	
4-Bromofluorobenzene	0.0323	0.0300	108	70-130	

Lab Batch #: 3050664

Sample: 7645050-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 05/20/18 03:32

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	123	100	123	70-135	
o-Terphenyl	57.9	50.0	116	70-135	

Lab Batch #: 3051136

Sample: 7645314-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 05/23/18 07:58

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0305	0.0300	102	70-130	
4-Bromofluorobenzene	0.0306	0.0300	102	70-130	

Lab Batch #: 3050664

Sample: 586189-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 05/20/18 04:26

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	128	99.9	128	70-135	
o-Terphenyl	52.2	50.0	104	70-135	

Lab Batch #: 3051136

Sample: 586189-002 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 05/23/18 08:16

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0272	0.0300	91	70-130	
4-Bromofluorobenzene	0.0301	0.0300	100	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: EOG-Kiwi AKX State #1

Work Orders : 586584,

Lab Batch #: 3050664

Sample: 586189-001 SD / MSD

Project ID: 212C-MD-01238

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 05/20/18 04:53

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	99.8	118	70-135	
o-Terphenyl	48.9	49.9	98	70-135	

Lab Batch #: 3051136

Sample: 586189-002 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 05/23/18 08:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0244	0.0300	81	70-130	
4-Bromofluorobenzene	0.0262	0.0300	87	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



BS / BSD Recoveries



Project Name: EOG-Kiwi AKX State #1

Work Order #: 586584

Project ID: 212C-MD-01238

Analyst: ALJ

Date Prepared: 05/23/2018

Date Analyzed: 05/23/2018

Lab Batch ID: 3051136

Sample: 7645314-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.00202	0.101	0.0956	95	0.100	0.0870	87	9	70-130	35	
Toluene	<0.00202	0.101	0.0930	92	0.100	0.0847	85	9	70-130	35	
Ethylbenzene	<0.00202	0.101	0.0972	96	0.100	0.0907	91	7	70-130	35	
m,p-Xylenes	<0.00403	0.202	0.209	103	0.200	0.190	95	10	70-130	35	
o-Xylene	<0.00202	0.101	0.109	108	0.100	0.0999	100	9	70-130	35	

Analyst: SCM

Date Prepared: 05/22/2018

Date Analyzed: 05/22/2018

Lab Batch ID: 3051043

Sample: 7645263-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<5.00	250	225	90	250	231	92	3	90-110	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: EOG-Kiwi AKX State #1

Work Order #: 586584

Project ID: 212C-MD-01238

Analyst: ARM

Date Prepared: 05/18/2018

Date Analyzed: 05/20/2018

Lab Batch ID: 3050664

Sample: 7645050-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1000	100	1000	1030	103	3	70-135	20	
Diesel Range Organics (DRO)	<15.0	1000	1100	110	1000	1150	115	4	70-135	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: EOG-Kiwi AKX State #1

Work Order #: 586584

Project ID: 212C-MD-01238

Lab Batch ID: 3051136

QC- Sample ID: 586189-002 S

Batch #: 1 Matrix: Soil

Date Analyzed: 05/23/2018

Date Prepared: 05/23/2018

Analyst: ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.100	0.0501	50	0.101	0.0497	49	1	70-130	35	X
Toluene	<0.00200	0.100	0.0395	40	0.101	0.0364	36	8	70-130	35	X
Ethylbenzene	<0.00200	0.100	0.0294	29	0.101	0.0267	26	10	70-130	35	X
m,p-Xylenes	0.00572	0.200	0.0593	27	0.201	0.0531	24	11	70-130	35	X
o-Xylene	<0.00200	0.100	0.0318	32	0.101	0.0266	26	18	70-130	35	X

Lab Batch ID: 3051043

QC- Sample ID: 586576-002 S

Batch #: 1 Matrix: Soil

Date Analyzed: 05/22/2018

Date Prepared: 05/22/2018

Analyst: SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<4.98	249	240	96	249	238	96	1	90-110	20	

Lab Batch ID: 3051043

QC- Sample ID: 586760-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 05/22/2018

Date Prepared: 05/22/2018

Analyst: SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	98.2	249	350	101	249	370	109	6	90-110	20	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: EOG-Kiwi AKX State #1

Work Order # : 586584

Project ID: 212C-MD-01238

Lab Batch ID: 3050664

QC- Sample ID: 586189-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 05/20/2018

Date Prepared: 05/18/2018

Analyst: ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	999	1020	102	998	939	94	8	70-135	20	
Diesel Range Organics (DRO)	61.8	999	1220	116	998	1110	105	9	70-135	20	

Matrix Spike Percent Recovery [D] = $100 \times (C-A)/B$
Relative Percent Difference RPD = $200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery [G] = $100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

586584



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

James Kennedy

212C-MD-01238

Halston Hunt

If BTEX exceeds 10 mg/kg or Total BTEX exceeds 50 mg/kg in deeper Sample,

LAB USE
ONLY

[illegible]

Date: _____ Time: _____

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

~~Final 1,000~~



XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 05/18/2018 01:30:00 PM

Work Order #: 586584

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)?	2.8
#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: 05/18/2018

Checklist reviewed by:

Kelsey Brooks

Kelsey Brooks

Date: 05/23/2018



Certificate of Analysis Summary 599931

Tetra Tech- Midland, Midland, TX

Project Name: EOG- Kiwi AKX St #8



Project Id: 212C-MD-01238 Task 100

Contact: Clair Gonzales

Project Location: Lea Co.NM

Date Received in Lab: Fri Sep-21-18 01:15 pm

Report Date: 28-SEP-18

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	599931-001	599931-002	599931-003	599931-004	599931-005	599931-006
	Field Id:	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')
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00
BTEX by EPA 8021B	Extracted:	Sep-24-18 13:30	Sep-24-18 09:00	Sep-24-18 09:00	Sep-24-18 09:00	Sep-24-18 09:00	Sep-24-18 09:00
	Analyzed:	Sep-25-18 00:49	Sep-24-18 20:06	Sep-24-18 20:27	Sep-24-18 20:47	Sep-24-18 21:07	Sep-24-18 21:28
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00202 0.00202	<0.00199 0.00199	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201
Toluene		<0.00202 0.00202	<0.00199 0.00199	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201
Ethylbenzene		<0.00202 0.00202	<0.00199 0.00199	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201
m,p-Xylenes		<0.00403 0.00403	<0.00398 0.00398	<0.00403 0.00403	<0.00398 0.00398	<0.00402 0.00402	<0.00402 0.00402
o-Xylene		<0.00202 0.00202	<0.00199 0.00199	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201
Total Xylenes		<0.00202 0.00202	<0.00199 0.00199	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201
Total BTEX		<0.00202 0.00202	<0.00199 0.00199	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201
Chloride by EPA 300	Extracted:	Sep-25-18 17:00	Sep-25-18 17:00	Sep-25-18 17:00	Sep-25-18 17:00	Sep-25-18 17:00	Sep-25-18 17:00
	Analyzed:	Sep-26-18 00:21	Sep-26-18 00:27	Sep-26-18 00:32	Sep-26-18 00:55	Sep-26-18 01:01	Sep-26-18 01:18
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		137 5.02	139 4.96	97.8 4.99	90.7 5.02	155 4.98	277 5.03
TPH By SW8015 Mod	Extracted:	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00
	Analyzed:	Sep-23-18 14:01	Sep-23-18 14:20	Sep-23-18 14:39	Sep-23-18 14:58	Sep-23-18 15:17	Sep-23-18 16:13
	Units/RL:	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	<15.0 15.0	<14.9 14.9
Diesel Range Organics (DRO)		2230 15.0	1810 15.0	1190 15.0	345 15.0	<15.0 15.0	86.5 14.9
Motor Oil Range Hydrocarbons (MRO)		328 15.0	279 15.0	196 15.0	51.4 15.0	<15.0 15.0	<14.9 14.9
Total TPH		2560 15.0	2090 15.0	1390 15.0	396 15.0	<15.0 15.0	86.5 14.9

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 599931



Tetra Tech- Midland, Midland, TX

Project Name: EOG- Kiwi AKX St #8

Project Id: 212C-MD-01238 Task 100

Contact: Clair Gonzales

Project Location: Lea Co.NM

Date Received in Lab: Fri Sep-21-18 01:15 pm

Report Date: 28-SEP-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	599931-007	599931-008	599931-009	599931-010	599931-011	599931-012
	<i>Field Id:</i>	AH #1 (6-6.5')	AH #1 (7-7.5')	AH #2 (1-1.5')	AH #2 (1-1.5')	AH #2 (2-2.5')	AH #2 (3-3.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Sep-24-18 09:00	Sep-24-18 13:30	Sep-24-18 13:30	Sep-25-18 15:00	Sep-25-18 15:00	Sep-25-18 15:00
	<i>Analyzed:</i>	Sep-24-18 21:48	Sep-25-18 01:09	Sep-25-18 01:29	Sep-26-18 06:13	Sep-26-18 06:33	Sep-26-18 06:53
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00200 0.00200	0.0220 0.00200	0.218 0.199	0.509 0.201	0.628 0.202
Toluene		<0.00199 0.00199	<0.00200 0.00200	0.378 0.00200	6.07 0.199	12.3 0.201	0.633 0.202
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	0.320 0.00200	9.61 0.199	26.9 0.201	25.7 0.202
m,p-Xylenes		<0.00398 0.00398	<0.00401 0.00401	0.672 0.00399	24.4 0.398	58.7 0.402	56.0 0.404
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	0.290 0.00200	9.42 0.199	24.7 0.201	19.8 0.202
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	0.962 0.00200	33.8 0.199	83.4 0.201	75.8 0.202
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	1.68 0.00200	49.7 0.199	123 0.201	103 0.202
Chloride by EPA 300	<i>Extracted:</i>	Sep-25-18 17:00	Sep-25-18 17:00	Sep-25-18 17:00	Sep-25-18 17:00	Sep-25-18 17:00	Sep-25-18 17:00
	<i>Analyzed:</i>	Sep-26-18 01:23	Sep-26-18 01:29	Sep-26-18 01:35	Sep-26-18 01:40	Sep-26-18 01:46	Sep-26-18 01:52
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		307 4.95	748 5.02	<5.00 5.00	<4.98 4.98	<4.95 4.95	24.0 5.00
TPH By SW8015 Mod	<i>Extracted:</i>	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00
	<i>Analyzed:</i>	Sep-23-18 16:33	Sep-23-18 16:52	Sep-23-18 17:10	Sep-24-18 12:07	Sep-24-18 07:51	Sep-24-18 08:09
	<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)		<15.0 15.0	<15.0 15.0	525 15.0	1350 74.9	1760 74.8	2050 74.8
Diesel Range Organics (DRO)		101 15.0	77.3 15.0	2860 15.0	5700 74.9	6170 74.8	5740 74.8
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	302 15.0	479 74.9	503 74.8	401 74.8
Total TPH		101 15.0	77.3 15.0	7070 15.0	7530 74.9	8430 74.8	8190 74.8

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 599931

Tetra Tech- Midland, Midland, TX

Project Name: EOG- Kiwi AKX St #8



Project Id: 212C-MD-01238 Task 100

Contact: Clair Gonzales

Project Location: Lea Co.NM

Date Received in Lab: Fri Sep-21-18 01:15 pm

Report Date: 28-SEP-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	599931-013	599931-014	599931-015	599931-016	599931-017	599931-018
	<i>Field Id:</i>	AH #2 (4-4.5')	AH #2 (5-5.5')	AH #2 (6-6.5')	AH #3 (0-1')	AH #3 (1-1.5')	AH #3 (2-2.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Sep-24-18 13:30	Sep-24-18 13:30	Sep-24-18 13:30	Sep-25-18 15:00	Sep-25-18 15:00	Sep-25-18 15:00
	<i>Analyzed:</i>	Sep-25-18 03:52	Sep-25-18 03:32	Sep-25-18 03:11	Sep-26-18 07:14	Sep-26-18 07:34	Sep-26-18 07:54
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		0.00774 0.00199	<0.00198 0.00198	<0.00201 0.00201	<0.200 0.200	<0.201 0.201	<0.200 0.200
Toluene		0.00610 0.00199	0.00326 0.00198	0.0363 0.00201	2.15 0.200	1.74 0.201	<0.200 0.200
Ethylbenzene		0.228 0.00199	0.0146 0.00198	0.117 0.00201	1.09 0.200	1.21 0.201	0.557 0.200
m,p-Xylenes		0.523 0.00398	0.0210 0.00396	0.260 0.00402	6.74 0.399	3.97 0.402	7.13 0.401
o-Xylene		0.0410 0.00199	0.00493 0.00198	0.135 0.00201	2.17 0.200	1.09 0.201	2.47 0.200
Total Xylenes		0.564 0.00199	0.0259 0.00198	0.395 0.00201	8.91 0.200	5.06 0.201	9.60 0.200
Total BTEX		0.806 0.00199	0.0438 0.00198	0.548 0.00201	12.2 0.200	8.01 0.201	10.2 0.200
Chloride by EPA 300	<i>Extracted:</i>	Sep-26-18 09:00	Sep-26-18 09:00	Sep-26-18 09:00	Sep-26-18 09:00	Sep-26-18 09:00	Sep-26-18 09:00
	<i>Analyzed:</i>	Sep-26-18 11:42	Sep-26-18 11:48	Sep-26-18 11:54	Sep-26-18 11:59	Sep-26-18 12:16	Sep-26-18 12:22
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		14.6 4.97	51.2 4.95	132 5.00	<5.00 5.00	11.5 4.96	17.9 4.98
TPH By SW8015 Mod	<i>Extracted:</i>	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00	Sep-21-18 17:00
	<i>Analyzed:</i>	Sep-24-18 08:27	Sep-24-18 08:45	Sep-24-18 09:03	Sep-24-18 09:21	Sep-24-18 09:40	Sep-24-18 09:58
	<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)		32.2 15.0	20.1 14.9	42.0 15.0	695 74.9	751 74.8	539 74.9
Diesel Range Organics (DRO)		80.1 15.0	124 14.9	208 15.0	5910 74.9	5640 74.8	5080 74.9
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<14.9 14.9	15.5 15.0	528 74.9	431 74.8	454 74.9
Total TPH		112 15.0	144 14.9	266 15.0	7130 74.9	6820 74.8	6070 74.9

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 599931

Tetra Tech- Midland, Midland, TX

Project Name: EOG- Kiwi AKX St #8



Project Id: 212C-MD-01238 Task 100

Contact: Clair Gonzales

Project Location: Lea Co.NM

Date Received in Lab: Fri Sep-21-18 01:15 pm

Report Date: 28-SEP-18

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	599931-019	599931-020	599931-021	599931-022	599931-023	
	Field Id:	AH #3 (3-3.5')	AH #3 (4-4.5')	AH #3 (5-5.5')	AH #3 (6-6.5')	AH #3 (7-7.5')	
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	
	Sampled:	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	Sep-19-18 00:00	
BTEX by EPA 8021B	Extracted:	Sep-24-18 13:30	Sep-24-18 13:30	Sep-24-18 13:30	Sep-24-18 13:30	Sep-24-18 13:30	
	Analyzed:	Sep-25-18 05:11	Sep-25-18 02:51	Sep-25-18 02:30	Sep-25-18 02:10	Sep-25-18 01:50	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00202 0.00202	
Toluene		<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	0.00222 0.00199	<0.00202 0.00202	
Ethylbenzene		<0.00202 0.00202	0.00558 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00202 0.00202	
m,p-Xylenes		0.0187 0.00404	0.0145 0.00401	0.00481 0.00398	<0.00398 0.00398	<0.00403 0.00403	
o-Xylene		0.00315 0.00202	0.00221 0.00200	0.00269 0.00199	<0.00199 0.00199	0.0352 0.00202	
Total Xylenes		0.0219 0.00202	0.0167 0.00200	0.00750 0.00199	<0.00199 0.00199	0.0352 0.00202	
Total BTEX		0.0219 0.00202	0.0223 0.00200	0.00750 0.00199	0.00222 0.00199	0.0352 0.00202	
Chloride by EPA 300	Extracted:	Sep-26-18 09:00	Sep-26-18 09:00	Sep-26-18 09:00	Sep-26-18 09:00	Sep-26-18 09:00	
	Analyzed:	Sep-26-18 12:28	Sep-26-18 12:33	Sep-26-18 12:39	Sep-26-18 13:02	Sep-26-18 13:07	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		37.3 4.98	14.1 4.95	32.4 4.97	50.5 4.96	87.9 5.00	
TPH By SW8015 Mod	Extracted:	Sep-21-18 17:00	Sep-21-18 17:00	Sep-24-18 14:00	Sep-24-18 14:00	Sep-21-18 16:00	
	Analyzed:	Sep-24-18 10:16	Sep-24-18 10:35	Sep-25-18 13:57	Sep-25-18 14:15	Sep-23-18 00:01	
	Units/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	<15.0 15.0	
Diesel Range Organics (DRO)		133 15.0	105 15.0	48.1 15.0	<15.0 15.0	55.6 15.0	
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Total TPH		133 15.0	105 15.0	48.1 15.0	<15.0 15.0	55.6 15.0	

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Kelsey Brooks
Project Manager

Analytical Report 599931

for Tetra Tech- Midland

Project Manager: Clair Gonzales

EOG- Kiwi AKX St #8

212C-MD-01238 Task 100

28-SEP-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 (T104704400-18-16)

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)



28-SEP-18

Project Manager: **Clair Gonzales**
Tetra Tech- Midland
901 West Wall ST
Midland, TX 79701

Reference: XENCO Report No(s): **599931**
EOG- Kiwi AKX St #8
Project Address: Lea Co.NM

Clair Gonzales:

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) 599931. 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. 599931 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

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Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH #1 (0-1')	S	09-19-18 00:00		599931-001
AH #1 (1-1.5')	S	09-19-18 00:00		599931-002
AH #1 (2-2.5')	S	09-19-18 00:00		599931-003
AH #1 (3-3.5')	S	09-19-18 00:00		599931-004
AH #1 (4-4.5')	S	09-19-18 00:00		599931-005
AH #1 (5-5.5')	S	09-19-18 00:00		599931-006
AH #1 (6-6.5')	S	09-19-18 00:00		599931-007
AH #1 (7-7.5')	S	09-19-18 00:00		599931-008
AH #2 (1-1.5')	S	09-19-18 00:00		599931-009
AH #2 (1-1.5')	S	09-19-18 00:00		599931-010
AH #2 (2-2.5')	S	09-19-18 00:00		599931-011
AH #2 (3-3.5')	S	09-19-18 00:00		599931-012
AH #2 (4-4.5')	S	09-19-18 00:00		599931-013
AH #2 (5-5.5')	S	09-19-18 00:00		599931-014
AH #2 (6-6.5')	S	09-19-18 00:00		599931-015
AH #3 (0-1')	S	09-19-18 00:00		599931-016
AH #3 (1-1.5')	S	09-19-18 00:00		599931-017
AH #3 (2-2.5')	S	09-19-18 00:00		599931-018
AH #3 (3-3.5')	S	09-19-18 00:00		599931-019
AH #3 (4-4.5')	S	09-19-18 00:00		599931-020
AH #3 (5-5.5')	S	09-19-18 00:00		599931-021
AH #3 (6-6.5')	S	09-19-18 00:00		599931-022
AH #3 (7-7.5')	S	09-19-18 00:00		599931-023



CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: EOG- Kiwi AKX St #8

Project ID: 212C-MD-01238 Task 10
Work Order Number(s): 599931

Report Date: 28-SEP-18
Date Received: 09/21/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3064373 TPH By SW8015 Mod

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

Samples affected are: 599931-011,599931-012,599931-010,599931-017,599931-018,599931-016.

Batch: LBA-3064388 BTEX by EPA 8021B

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

Batch: LBA-3064389 BTEX by EPA 8021B

Ethylbenzene Relative Percent Difference (RPD) between matrix spike and duplicate was above quality control limits.

Samples in the analytical batch are: 599931-001, -008, -009, -013, -014, -015, -019, -020, -021, -022, -023

Lab Sample ID 599931-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 599931-001, -008, -009, -013, -014, -015, -019, -020, -021, -022, -023.

The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

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: 599931-009,599931-013,599931-023.

Batch: LBA-3064418 BTEX by EPA 8021B

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

Samples affected are: 599931-012,599931-011.

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

Dilution due to poor internal response caused by matrix interference.



CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: EOG- Kiwi AKX St #8

Project ID: 212C-MD-01238 Task 10(
Work Order Number(s): 599931

Report Date: 28-SEP-18
Date Received: 09/21/2018



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-001

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	137	5.02	mg/kg	09.26.18 00.21		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.23.18 14.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	2230	15.0	mg/kg	09.23.18 14.01		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	328	15.0	mg/kg	09.23.18 14.01		1
Total TPH	PHC635	2560	15.0	mg/kg	09.23.18 14.01		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	09.23.18 14.01	
o-Terphenyl	84-15-1	106	%	70-135	09.23.18 14.01	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-001

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 13.30

Basis: Wet Weight

Seq Number: 3064389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.25.18 00.49	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.25.18 00.49	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.25.18 00.49	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	09.25.18 00.49	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.25.18 00.49	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.25.18 00.49	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.25.18 00.49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	75	%	70-130	09.25.18 00.49		
1,4-Difluorobenzene	540-36-3	97	%	70-130	09.25.18 00.49		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-002

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	139	4.96	mg/kg	09.26.18 00.27		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.23.18 14.20	U	1
Diesel Range Organics (DRO)	C10C28DRO	1810	15.0	mg/kg	09.23.18 14.20		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	279	15.0	mg/kg	09.23.18 14.20		1
Total TPH	PHC635	2090	15.0	mg/kg	09.23.18 14.20		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	09.23.18 14.20	
o-Terphenyl	84-15-1	95	%	70-135	09.23.18 14.20	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-002

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 09.00

Basis: Wet Weight

Seq Number: 3064388

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.24.18 20.06	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.24.18 20.06	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.24.18 20.06	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.24.18 20.06	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.24.18 20.06	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.24.18 20.06	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.24.18 20.06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	95	%	70-130	09.24.18 20.06		
4-Bromofluorobenzene	460-00-4	101	%	70-130	09.24.18 20.06		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-003

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	97.8	4.99	mg/kg	09.26.18 00.32		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.23.18 14.39	U	1
Diesel Range Organics (DRO)	C10C28DRO	1190	15.0	mg/kg	09.23.18 14.39		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	196	15.0	mg/kg	09.23.18 14.39		1
Total TPH	PHC635	1390	15.0	mg/kg	09.23.18 14.39		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	09.23.18 14.39	
o-Terphenyl	84-15-1	105	%	70-135	09.23.18 14.39	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-003

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 09.00

Basis: Wet Weight

Seq Number: 3064388

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.24.18 20.27	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.24.18 20.27	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.24.18 20.27	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	09.24.18 20.27	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.24.18 20.27	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.24.18 20.27	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.24.18 20.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	70-130	09.24.18 20.27		
1,4-Difluorobenzene	540-36-3	95	%	70-130	09.24.18 20.27		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-004

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	90.7	5.02	mg/kg	09.26.18 00.55		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.23.18 14.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	345	15.0	mg/kg	09.23.18 14.58		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	51.4	15.0	mg/kg	09.23.18 14.58		1
Total TPH	PHC635	396	15.0	mg/kg	09.23.18 14.58		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	09.23.18 14.58	
o-Terphenyl	84-15-1	97	%	70-135	09.23.18 14.58	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-004

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 09.00

Basis: Wet Weight

Seq Number: 3064388

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.24.18 20.47	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.24.18 20.47	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.24.18 20.47	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.24.18 20.47	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.24.18 20.47	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.24.18 20.47	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.24.18 20.47	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	70-130	09.24.18 20.47		
1,4-Difluorobenzene	540-36-3	101	%	70-130	09.24.18 20.47		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-005

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	155	4.98	mg/kg	09.26.18 01.01		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.23.18 15.17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	09.23.18 15.17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.23.18 15.17	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.23.18 15.17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	09.23.18 15.17	
o-Terphenyl	84-15-1	89	%	70-135	09.23.18 15.17	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-005

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 09.00

Basis: Wet Weight

Seq Number: 3064388

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.24.18 21.07	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.24.18 21.07	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.24.18 21.07	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.24.18 21.07	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.24.18 21.07	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.24.18 21.07	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.24.18 21.07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	09.24.18 21.07		
4-Bromofluorobenzene	460-00-4	108	%	70-130	09.24.18 21.07		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-006

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	277	5.03	mg/kg	09.26.18 01.18		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	09.23.18 16.13	U	1
Diesel Range Organics (DRO)	C10C28DRO	86.5	14.9	mg/kg	09.23.18 16.13		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	09.23.18 16.13	U	1
Total TPH	PHC635	86.5	14.9	mg/kg	09.23.18 16.13		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	09.23.18 16.13	
o-Terphenyl	84-15-1	106	%	70-135	09.23.18 16.13	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-006

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 09.00

Basis: Wet Weight

Seq Number: 3064388

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.24.18 21.28	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.24.18 21.28	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.24.18 21.28	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.24.18 21.28	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.24.18 21.28	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.24.18 21.28	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.24.18 21.28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	70-130	09.24.18 21.28		
1,4-Difluorobenzene	540-36-3	104	%	70-130	09.24.18 21.28		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

Sample Id: AH #1 (6-6.5')

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-007

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	307	4.95	mg/kg	09.26.18 01.23		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.23.18 16.33	U	1
Diesel Range Organics (DRO)	C10C28DRO	101	15.0	mg/kg	09.23.18 16.33		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.23.18 16.33	U	1
Total TPH	PHC635	101	15.0	mg/kg	09.23.18 16.33		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	09.23.18 16.33	
o-Terphenyl	84-15-1	96	%	70-135	09.23.18 16.33	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

Sample Id: AH #1 (6-6.5')

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-007

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 09.00

Basis: Wet Weight

Seq Number: 3064388

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.24.18 21.48	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.24.18 21.48	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.24.18 21.48	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.24.18 21.48	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.24.18 21.48	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.24.18 21.48	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.24.18 21.48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	09.24.18 21.48		
4-Bromofluorobenzene	460-00-4	105	%	70-130	09.24.18 21.48		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

Sample Id: AH #1 (7-7.5')

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-008

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	748	5.02	mg/kg	09.26.18 01.29		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.23.18 16.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	77.3	15.0	mg/kg	09.23.18 16.52		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.23.18 16.52	U	1
Total TPH	PHC635	77.3	15.0	mg/kg	09.23.18 16.52		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	09.23.18 16.52	
o-Terphenyl	84-15-1	92	%	70-135	09.23.18 16.52	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

Sample Id: AH #1 (7-7.5')

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-008

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 13.30

Basis: Wet Weight

Seq Number: 3064389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.25.18 01.09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.25.18 01.09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.25.18 01.09	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	09.25.18 01.09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.25.18 01.09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.25.18 01.09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.25.18 01.09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	09.25.18 01.09		
4-Bromofluorobenzene	460-00-4	110	%	70-130	09.25.18 01.09		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-009

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	09.26.18 01.35	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	525	15.0	mg/kg	09.23.18 17.10		1
Diesel Range Organics (DRO)	C10C28DRO	2860	15.0	mg/kg	09.23.18 17.10		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	302	15.0	mg/kg	09.23.18 17.10		1
Total TPH	PHC635	7070	15.0	mg/kg	09.23.18 17.10		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	125	%	70-135	09.23.18 17.10	
o-Terphenyl	84-15-1	94	%	70-135	09.23.18 17.10	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-009

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 13.30

Basis: Wet Weight

Seq Number: 3064389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.0220	0.00200	mg/kg	09.25.18 01.29		1
Toluene	108-88-3	0.378	0.00200	mg/kg	09.25.18 01.29		1
Ethylbenzene	100-41-4	0.320	0.00200	mg/kg	09.25.18 01.29		1
m,p-Xylenes	179601-23-1	0.672	0.00399	mg/kg	09.25.18 01.29		1
o-Xylene	95-47-6	0.290	0.00200	mg/kg	09.25.18 01.29		1
Total Xylenes	1330-20-7	0.962	0.00200	mg/kg	09.25.18 01.29		1
Total BTEX		1.68	0.00200	mg/kg	09.25.18 01.29		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	87	%	70-130	09.25.18 01.29		
4-Bromofluorobenzene	460-00-4	167	%	70-130	09.25.18 01.29	**	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-010

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	09.26.18 01.40	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	1350	74.9	mg/kg	09.24.18 12.07		5
Diesel Range Organics (DRO)	C10C28DRO	5700	74.9	mg/kg	09.24.18 12.07		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	479	74.9	mg/kg	09.24.18 12.07		5
Total TPH	PHC635	7530	74.9	mg/kg	09.24.18 12.07		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	121	%	70-135	09.24.18 12.07		
o-Terphenyl	84-15-1	174	%	70-135	09.24.18 12.07	**	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-010

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.25.18 15.00

Basis: Wet Weight

Seq Number: 3064418

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.218	0.199	mg/kg	09.26.18 06.13		100
Toluene	108-88-3	6.07	0.199	mg/kg	09.26.18 06.13		100
Ethylbenzene	100-41-4	9.61	0.199	mg/kg	09.26.18 06.13		100
m,p-Xylenes	179601-23-1	24.4	0.398	mg/kg	09.26.18 06.13		100
o-Xylene	95-47-6	9.42	0.199	mg/kg	09.26.18 06.13		100
Total Xylenes	1330-20-7	33.8	0.199	mg/kg	09.26.18 06.13		100
Total BTEX		49.7	0.199	mg/kg	09.26.18 06.13		100
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	118	%	70-130	09.26.18 06.13		
4-Bromofluorobenzene	460-00-4	129	%	70-130	09.26.18 06.13		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-011

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	09.26.18 01.46	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	1760	74.8	mg/kg	09.24.18 07.51		5
Diesel Range Organics (DRO)	C10C28DRO	6170	74.8	mg/kg	09.24.18 07.51		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	503	74.8	mg/kg	09.24.18 07.51		5
Total TPH	PHC635	8430	74.8	mg/kg	09.24.18 07.51		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	125	%	70-135	09.24.18 07.51		
o-Terphenyl	84-15-1	183	%	70-135	09.24.18 07.51	**	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-011

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.25.18 15.00

Basis: Wet Weight

Seq Number: 3064418

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.509	0.201	mg/kg	09.26.18 06.33		100
Toluene	108-88-3	12.3	0.201	mg/kg	09.26.18 06.33		100
Ethylbenzene	100-41-4	26.9	0.201	mg/kg	09.26.18 06.33		100
m,p-Xylenes	179601-23-1	58.7	0.402	mg/kg	09.26.18 06.33		100
o-Xylene	95-47-6	24.7	0.201	mg/kg	09.26.18 06.33		100
Total Xylenes	1330-20-7	83.4	0.201	mg/kg	09.26.18 06.33		100
Total BTEX		123	0.201	mg/kg	09.26.18 06.33		100
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	620	%	70-130	09.26.18 06.33	**	
1,4-Difluorobenzene	540-36-3	99	%	70-130	09.26.18 06.33		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-012

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 09.25.18 17.00

Basis: Wet Weight

Seq Number: 3064434

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	24.0	5.00	mg/kg	09.26.18 01.52		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	2050	74.8	mg/kg	09.24.18 08.09		5
Diesel Range Organics (DRO)	C10C28DRO	5740	74.8	mg/kg	09.24.18 08.09		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	401	74.8	mg/kg	09.24.18 08.09		5
Total TPH	PHC635	8190	74.8	mg/kg	09.24.18 08.09		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	128	%	70-135	09.24.18 08.09		
o-Terphenyl	84-15-1	172	%	70-135	09.24.18 08.09	**	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-012

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.25.18 15.00

Basis: Wet Weight

Seq Number: 3064418

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.628	0.202	mg/kg	09.26.18 06.53		100
Toluene	108-88-3	0.633	0.202	mg/kg	09.26.18 06.53		100
Ethylbenzene	100-41-4	25.7	0.202	mg/kg	09.26.18 06.53		100
m,p-Xylenes	179601-23-1	56.0	0.404	mg/kg	09.26.18 06.53		100
o-Xylene	95-47-6	19.8	0.202	mg/kg	09.26.18 06.53		100
Total Xylenes	1330-20-7	75.8	0.202	mg/kg	09.26.18 06.53		100
Total BTEX		103	0.202	mg/kg	09.26.18 06.53		100
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	169	%	70-130	09.26.18 06.53	**	
1,4-Difluorobenzene	540-36-3	127	%	70-130	09.26.18 06.53		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-013

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 09.26.18 09.00

Basis: Wet Weight

Seq Number: 3064476

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.6	4.97	mg/kg	09.26.18 11.42		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	32.2	15.0	mg/kg	09.24.18 08.27		1
Diesel Range Organics (DRO)	C10C28DRO	80.1	15.0	mg/kg	09.24.18 08.27		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.24.18 08.27	U	1
Total TPH	PHC635	112	15.0	mg/kg	09.24.18 08.27		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	84	%	70-135	09.24.18 08.27		
o-Terphenyl	84-15-1	85	%	70-135	09.24.18 08.27		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-013

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 13.30

Basis: Wet Weight

Seq Number: 3064389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00774	0.00199	mg/kg	09.25.18 03.52		1
Toluene	108-88-3	0.00610	0.00199	mg/kg	09.25.18 03.52		1
Ethylbenzene	100-41-4	0.228	0.00199	mg/kg	09.25.18 03.52		1
m,p-Xylenes	179601-23-1	0.523	0.00398	mg/kg	09.25.18 03.52		1
o-Xylene	95-47-6	0.0410	0.00199	mg/kg	09.25.18 03.52		1
Total Xylenes	1330-20-7	0.564	0.00199	mg/kg	09.25.18 03.52		1
Total BTEX		0.806	0.00199	mg/kg	09.25.18 03.52		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	97	%	70-130	09.25.18 03.52		
4-Bromofluorobenzene	460-00-4	440	%	70-130	09.25.18 03.52	**	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-014

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 09.26.18 09.00

Basis: Wet Weight

Seq Number: 3064476

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	51.2	4.95	mg/kg	09.26.18 11.48		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	20.1	14.9	mg/kg	09.24.18 08.45		1
Diesel Range Organics (DRO)	C10C28DRO	124	14.9	mg/kg	09.24.18 08.45		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	09.24.18 08.45	U	1
Total TPH	PHC635	144	14.9	mg/kg	09.24.18 08.45		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	83	%	70-135	09.24.18 08.45		
o-Terphenyl	84-15-1	85	%	70-135	09.24.18 08.45		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-014

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 13.30

Basis: Wet Weight

Seq Number: 3064389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	09.25.18 03.32	U	1
Toluene	108-88-3	0.00326	0.00198	mg/kg	09.25.18 03.32		1
Ethylbenzene	100-41-4	0.0146	0.00198	mg/kg	09.25.18 03.32		1
m,p-Xylenes	179601-23-1	0.0210	0.00396	mg/kg	09.25.18 03.32		1
o-Xylene	95-47-6	0.00493	0.00198	mg/kg	09.25.18 03.32		1
Total Xylenes	1330-20-7	0.0259	0.00198	mg/kg	09.25.18 03.32		1
Total BTEX		0.0438	0.00198	mg/kg	09.25.18 03.32		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	89	%	70-130	09.25.18 03.32		
1,4-Difluorobenzene	540-36-3	125	%	70-130	09.25.18 03.32		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

Sample Id: AH #2 (6-6.5')

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-015

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 09.26.18 09.00

Basis: Wet Weight

Seq Number: 3064476

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	132	5.00	mg/kg	09.26.18 11.54		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	42.0	15.0	mg/kg	09.24.18 09.03		1
Diesel Range Organics (DRO)	C10C28DRO	208	15.0	mg/kg	09.24.18 09.03		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	15.5	15.0	mg/kg	09.24.18 09.03		1
Total TPH	PHC635	266	15.0	mg/kg	09.24.18 09.03		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	82	%	70-135	09.24.18 09.03	
o-Terphenyl	84-15-1	84	%	70-135	09.24.18 09.03	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

Sample Id: **AH #2 (6-6.5')**

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-015

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 13.30

Basis: Wet Weight

Seq Number: 3064389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.25.18 03.11	U	1
Toluene	108-88-3	0.0363	0.00201	mg/kg	09.25.18 03.11		1
Ethylbenzene	100-41-4	0.117	0.00201	mg/kg	09.25.18 03.11		1
m,p-Xylenes	179601-23-1	0.260	0.00402	mg/kg	09.25.18 03.11		1
o-Xylene	95-47-6	0.135	0.00201	mg/kg	09.25.18 03.11		1
Total Xylenes	1330-20-7	0.395	0.00201	mg/kg	09.25.18 03.11		1
Total BTEX		0.548	0.00201	mg/kg	09.25.18 03.11		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	89	%	70-130	09.25.18 03.11		
1,4-Difluorobenzene	540-36-3	97	%	70-130	09.25.18 03.11		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-016

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 09.26.18 09.00

Basis: Wet Weight

Seq Number: 3064476

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	09.26.18 11.59	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	695	74.9	mg/kg	09.24.18 09.21		5
Diesel Range Organics (DRO)	C10C28DRO	5910	74.9	mg/kg	09.24.18 09.21		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	528	74.9	mg/kg	09.24.18 09.21		5
Total TPH	PHC635	7130	74.9	mg/kg	09.24.18 09.21		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	110	%	70-135	09.24.18 09.21		
o-Terphenyl	84-15-1	177	%	70-135	09.24.18 09.21	**	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-016

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.25.18 15.00

Basis: Wet Weight

Seq Number: 3064418

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.200	0.200	mg/kg	09.26.18 07.14	U	100
Toluene	108-88-3	2.15	0.200	mg/kg	09.26.18 07.14		100
Ethylbenzene	100-41-4	1.09	0.200	mg/kg	09.26.18 07.14		100
m,p-Xylenes	179601-23-1	6.74	0.399	mg/kg	09.26.18 07.14		100
o-Xylene	95-47-6	2.17	0.200	mg/kg	09.26.18 07.14		100
Total Xylenes	1330-20-7	8.91	0.200	mg/kg	09.26.18 07.14		100
Total BTEX		12.2	0.200	mg/kg	09.26.18 07.14		100
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	100		%	70-130	09.26.18 07.14	
1,4-Difluorobenzene	540-36-3	84		%	70-130	09.26.18 07.14	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-017

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 09.26.18 09.00

Basis: Wet Weight

Seq Number: 3064476

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.5	4.96	mg/kg	09.26.18 12.16		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	751	74.8	mg/kg	09.24.18 09.40		5
Diesel Range Organics (DRO)	C10C28DRO	5640	74.8	mg/kg	09.24.18 09.40		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	431	74.8	mg/kg	09.24.18 09.40		5
Total TPH	PHC635	6820	74.8	mg/kg	09.24.18 09.40		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	09.24.18 09.40	
o-Terphenyl	84-15-1	172	%	70-135	09.24.18 09.40	**



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-017

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.25.18 15.00

Basis: Wet Weight

Seq Number: 3064418

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.201	0.201	mg/kg	09.26.18 07.34	U	100
Toluene	108-88-3	1.74	0.201	mg/kg	09.26.18 07.34		100
Ethylbenzene	100-41-4	1.21	0.201	mg/kg	09.26.18 07.34		100
m,p-Xylenes	179601-23-1	3.97	0.402	mg/kg	09.26.18 07.34		100
o-Xylene	95-47-6	1.09	0.201	mg/kg	09.26.18 07.34		100
Total Xylenes	1330-20-7	5.06	0.201	mg/kg	09.26.18 07.34		100
Total BTEX		8.01	0.201	mg/kg	09.26.18 07.34		100
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	127		%	70-130	09.26.18 07.34	
1,4-Difluorobenzene	540-36-3	94		%	70-130	09.26.18 07.34	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-018

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 09.26.18 09.00

Basis: Wet Weight

Seq Number: 3064476

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	17.9	4.98	mg/kg	09.26.18 12.22		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	539	74.9	mg/kg	09.24.18 09.58		5
Diesel Range Organics (DRO)	C10C28DRO	5080	74.9	mg/kg	09.24.18 09.58		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	454	74.9	mg/kg	09.24.18 09.58		5
Total TPH	PHC635	6070	74.9	mg/kg	09.24.18 09.58		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	111	%	70-135	09.24.18 09.58		
o-Terphenyl	84-15-1	163	%	70-135	09.24.18 09.58	**	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-018

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.25.18 15.00

Basis: Wet Weight

Seq Number: 3064418

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.200	0.200	mg/kg	09.26.18 07.54	U	100
Toluene	108-88-3	<0.200	0.200	mg/kg	09.26.18 07.54	U	100
Ethylbenzene	100-41-4	0.557	0.200	mg/kg	09.26.18 07.54		100
m,p-Xylenes	179601-23-1	7.13	0.401	mg/kg	09.26.18 07.54		100
o-Xylene	95-47-6	2.47	0.200	mg/kg	09.26.18 07.54		100
Total Xylenes	1330-20-7	9.60	0.200	mg/kg	09.26.18 07.54		100
Total BTEX		10.2	0.200	mg/kg	09.26.18 07.54		100
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	88		%	70-130	09.26.18 07.54	
4-Bromofluorobenzene	460-00-4	111		%	70-130	09.26.18 07.54	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-019

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 09.26.18 09.00

Basis: Wet Weight

Seq Number: 3064476

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	37.3	4.98	mg/kg	09.26.18 12.28		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.24.18 10.16	U	1
Diesel Range Organics (DRO)	C10C28DRO	133	15.0	mg/kg	09.24.18 10.16		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.24.18 10.16	U	1
Total TPH	PHC635	133	15.0	mg/kg	09.24.18 10.16		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	85	%	70-135	09.24.18 10.16		
o-Terphenyl	84-15-1	89	%	70-135	09.24.18 10.16		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-019

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 13.30

Basis: Wet Weight

Seq Number: 3064389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.25.18 05.11	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.25.18 05.11	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.25.18 05.11	U	1
m,p-Xylenes	179601-23-1	0.0187	0.00404	mg/kg	09.25.18 05.11		1
o-Xylene	95-47-6	0.00315	0.00202	mg/kg	09.25.18 05.11		1
Total Xylenes	1330-20-7	0.0219	0.00202	mg/kg	09.25.18 05.11		1
Total BTEX		0.0219	0.00202	mg/kg	09.25.18 05.11		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	128		%	70-130	09.25.18 05.11	
1,4-Difluorobenzene	540-36-3	80		%	70-130	09.25.18 05.11	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-020

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 09.26.18 09.00

Basis: Wet Weight

Seq Number: 3064476

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.1	4.95	mg/kg	09.26.18 12.33		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 17.00

Basis: Wet Weight

Seq Number: 3064373

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.24.18 10.35	U	1
Diesel Range Organics (DRO)	C10C28DRO	105	15.0	mg/kg	09.24.18 10.35		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.24.18 10.35	U	1
Total TPH	PHC635	105	15.0	mg/kg	09.24.18 10.35		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-135	09.24.18 10.35	
o-Terphenyl	84-15-1	83	%	70-135	09.24.18 10.35	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-020

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 13.30

Basis: Wet Weight

Seq Number: 3064389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.25.18 02.51	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.25.18 02.51	U	1
Ethylbenzene	100-41-4	0.00558	0.00200	mg/kg	09.25.18 02.51		1
m,p-Xylenes	179601-23-1	0.0145	0.00401	mg/kg	09.25.18 02.51		1
o-Xylene	95-47-6	0.00221	0.00200	mg/kg	09.25.18 02.51		1
Total Xylenes	1330-20-7	0.0167	0.00200	mg/kg	09.25.18 02.51		1
Total BTEX		0.0223	0.00200	mg/kg	09.25.18 02.51		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	76		%	70-130	09.25.18 02.51	
1,4-Difluorobenzene	540-36-3	93		%	70-130	09.25.18 02.51	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-021

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 09.26.18 09.00

Basis: Wet Weight

Seq Number: 3064476

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	32.4	4.97	mg/kg	09.26.18 12.39		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.24.18 14.00

Basis: Wet Weight

Seq Number: 3064381

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.25.18 13.57	U	1
Diesel Range Organics (DRO)	C10C28DRO	48.1	15.0	mg/kg	09.25.18 13.57		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.25.18 13.57	U	1
Total TPH	PHC635	48.1	15.0	mg/kg	09.25.18 13.57		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	09.25.18 13.57	
o-Terphenyl	84-15-1	98	%	70-135	09.25.18 13.57	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

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

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-021

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 13.30

Basis: Wet Weight

Seq Number: 3064389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.25.18 02.30	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.25.18 02.30	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.25.18 02.30	U	1
m,p-Xylenes	179601-23-1	0.00481	0.00398	mg/kg	09.25.18 02.30		1
o-Xylene	95-47-6	0.00269	0.00199	mg/kg	09.25.18 02.30		1
Total Xylenes	1330-20-7	0.00750	0.00199	mg/kg	09.25.18 02.30		1
Total BTEX		0.00750	0.00199	mg/kg	09.25.18 02.30		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	86		%	70-130	09.25.18 02.30	
4-Bromofluorobenzene	460-00-4	109		%	70-130	09.25.18 02.30	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

Sample Id: AH #3 (6-6.5')

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-022

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 09.26.18 09.00

Basis: Wet Weight

Seq Number: 3064476

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	50.5	4.96	mg/kg	09.26.18 13.02		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.24.18 14.00

Basis: Wet Weight

Seq Number: 3064381

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.25.18 14.15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	09.25.18 14.15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.25.18 14.15	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.25.18 14.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	99	%	70-135	09.25.18 14.15		
o-Terphenyl	84-15-1	104	%	70-135	09.25.18 14.15		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

Sample Id: **AH #3 (6-6.5')**

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-022

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 13.30

Basis: Wet Weight

Seq Number: 3064389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.25.18 02.10	U	1
Toluene	108-88-3	0.00222	0.00199	mg/kg	09.25.18 02.10		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.25.18 02.10	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.25.18 02.10	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.25.18 02.10	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.25.18 02.10	U	1
Total BTEX		0.00222	0.00199	mg/kg	09.25.18 02.10		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	09.25.18 02.10		
1,4-Difluorobenzene	540-36-3	96	%	70-130	09.25.18 02.10		



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

Sample Id: AH #3 (7-7.5')

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-023

Date Collected: 09.19.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 09.26.18 09.00

Basis: Wet Weight

Seq Number: 3064476

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	87.9	5.00	mg/kg	09.26.18 13.07		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.21.18 16.00

Basis: Wet Weight

Seq Number: 3064217

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.23.18 00.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	55.6	15.0	mg/kg	09.23.18 00.01		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.23.18 00.01	U	1
Total TPH	PHC635	55.6	15.0	mg/kg	09.23.18 00.01		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	09.23.18 00.01	
o-Terphenyl	84-15-1	96	%	70-135	09.23.18 00.01	



Certificate of Analytical Results 599931



Tetra Tech- Midland, Midland, TX

EOG- Kiwi AKX St #8

Sample Id: AH #3 (7-7.5')

Matrix: Soil

Date Received: 09.21.18 13.15

Lab Sample Id: 599931-023

Date Collected: 09.19.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.24.18 13.30

Basis: Wet Weight

Seq Number: 3064389

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.25.18 01.50	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.25.18 01.50	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.25.18 01.50	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	09.25.18 01.50	U	1
o-Xylene	95-47-6	0.0352	0.00202	mg/kg	09.25.18 01.50		1
Total Xylenes	1330-20-7	0.0352	0.00202	mg/kg	09.25.18 01.50		1
Total BTEX		0.0352	0.00202	mg/kg	09.25.18 01.50		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	813	%	70-130	09.25.18 01.50	**	
1,4-Difluorobenzene	540-36-3	98	%	70-130	09.25.18 01.50		

- 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- Kiwi AKX St #8

Analytical Method: Chloride by EPA 300

Seq Number: 3064434

MB Sample Id: 7663014-1-BLK

Matrix: Solid

LCS Sample Id: 7663014-1-BKS

Prep Method: E300P

Date Prep: 09.25.18

LCSD Sample Id: 7663014-1-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	258	103	257	103	90-110	0	20	mg/kg	09.25.18 23:07	

Analytical Method: Chloride by EPA 300

Seq Number: 3064476

MB Sample Id: 7663020-1-BLK

Matrix: Solid

LCS Sample Id: 7663020-1-BKS

Prep Method: E300P

Date Prep: 09.26.18

LCSD Sample Id: 7663020-1-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	251	100	252	101	90-110	0	20	mg/kg	09.26.18 11:05	

Analytical Method: Chloride by EPA 300

Seq Number: 3064434

Parent Sample Id: 600111-001

Matrix: Soil

MS Sample Id: 600111-001 S

Prep Method: E300P

Date Prep: 09.25.18

MSD Sample Id: 600111-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1240	312	1510	87	1500	83	90-110	1	20	mg/kg	09.26.18 00:44	X

Analytical Method: Chloride by EPA 300

Seq Number: 3064434

Parent Sample Id: 600177-001

Matrix: Soil

MS Sample Id: 600177-001 S

Prep Method: E300P

Date Prep: 09.25.18

MSD Sample Id: 600177-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	30.8	248	288	104	290	105	90-110	1	20	mg/kg	09.25.18 23:24	

Analytical Method: Chloride by EPA 300

Seq Number: 3064476

Parent Sample Id: 600016-013

Matrix: Soil

MS Sample Id: 600016-013 S

Prep Method: E300P

Date Prep: 09.26.18

MSD Sample Id: 600016-013 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	28.7	248	283	103	283	103	90-110	0	20	mg/kg	09.26.18 11:31	

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

Tetra Tech- Midland
EOG- Kiwi AKX St #8

Analytical Method: Chloride by EPA 300

Seq Number: 3064476

Parent Sample Id: 600018-013

Matrix: Soil

MS Sample Id: 600018-013 S

Prep Method: E300P

Date Prep: 09.26.18

MSD Sample Id: 600018-013 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	51.1	250	297	98	301	100	90-110	1	20	mg/kg	09.26.18 12:50	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3064217

MB Sample Id: 7662837-1-BLK

Matrix: Solid

LCS Sample Id: 7662837-1-BKS

Prep Method: TX1005P

Date Prep: 09.21.18

LCSD Sample Id: 7662837-1-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	954	95	1020	102	70-135	7	20	mg/kg	09.22.18 19:59	
Diesel Range Organics (DRO)	<8.13	1000	996	100	1060	106	70-135	6	20	mg/kg	09.22.18 19:59	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	99		120		127		70-135	%	09.22.18 19:59
o-Terphenyl	103		124		119		70-135	%	09.22.18 19:59

Analytical Method: TPH By SW8015 Mod

Seq Number: 3064373

MB Sample Id: 7662841-1-BLK

Matrix: Solid

LCS Sample Id: 7662841-1-BKS

Prep Method: TX1005P

Date Prep: 09.21.18

LCSD Sample Id: 7662841-1-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	929	93	985	99	70-135	6	20	mg/kg	09.23.18 13:24	
Diesel Range Organics (DRO)	<8.13	1000	998	100	1120	112	70-135	12	20	mg/kg	09.23.18 13:24	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		121		128		70-135	%	09.23.18 13:24
o-Terphenyl	96		113		125		70-135	%	09.23.18 13:24

Analytical Method: TPH By SW8015 Mod

Seq Number: 3064381

MB Sample Id: 7662957-1-BLK

Matrix: Solid

LCS Sample Id: 7662957-1-BKS

Prep Method: TX1005P

Date Prep: 09.24.18

LCSD Sample Id: 7662957-1-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	967	97	1020	102	70-135	5	20	mg/kg	09.24.18 23:21	
Diesel Range Organics (DRO)	<8.13	1000	993	99	1060	106	70-135	7	20	mg/kg	09.24.18 23:21	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	102		122		128		70-135	%	09.24.18 23:21
o-Terphenyl	109		115		126		70-135	%	09.24.18 23:21

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 599931

Tetra Tech- Midland EOG- Kiwi AKX St #8

Analytical Method: TPH By SW8015 Mod

Seq Number: 3064217

Parent Sample Id: 599886-001

Matrix: Soil

MS Sample Id: 599886-001 S

Prep Method: TX1005P

Date Prep: 09.21.18

MSD Sample Id: 599886-001 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)	<7.99	999	866	87	875	88	70-135	1	20	mg/kg	09.22.18 20:55	
Diesel Range Organics (DRO)	21.5	999	896	88	920	90	70-135	3	20	mg/kg	09.22.18 20:55	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	124		127		70-135	%	09.22.18 20:55
o-Terphenyl	121		123		70-135	%	09.22.18 20:55

Analytical Method: TPH By SW8015 Mod

Seq Number: 3064373

Parent Sample Id: 599931-005

Matrix: Soil

MS Sample Id: 599931-005 S

Prep Method: TX1005P

Date Prep: 09.21.18

MSD Sample Id: 599931-005 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)	13.2	998	839	83	878	87	70-135	5	20	mg/kg	09.23.18 15:36	
Diesel Range Organics (DRO)	9.71	998	871	86	897	89	70-135	3	20	mg/kg	09.23.18 15:36	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	118		124		70-135	%	09.23.18 15:36
o-Terphenyl	111		121		70-135	%	09.23.18 15:36

Analytical Method: TPH By SW8015 Mod

Seq Number: 3064381

Parent Sample Id: 599985-021

Matrix: Soil

MS Sample Id: 599985-021 S

Prep Method: TX1005P

Date Prep: 09.24.18

MSD Sample Id: 599985-021 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)	<7.98	997	925	93	916	92	70-135	1	20	mg/kg	09.25.18 00:18	
Diesel Range Organics (DRO)	<8.10	997	951	95	937	94	70-135	1	20	mg/kg	09.25.18 00:18	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	117		114		70-135	%	09.25.18 00:18
o-Terphenyl	109		111		70-135	%	09.25.18 00:18

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

Tetra Tech- Midland
EOG- Kiwi AKX St #8

Analytical Method: BTEX by EPA 8021B

Seq Number: 3064388

MB Sample Id: 7662979-1-BLK

Matrix: Solid

LCS Sample Id: 7662979-1-BKS

Prep Method: SW5030B

Date Prep: 09.24.18

LCSD Sample Id: 7662979-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.116	116	0.111	111	70-130	4	35	mg/kg	09.24.18 12:22	
Toluene	<0.00199	0.0996	0.109	109	0.105	105	70-130	4	35	mg/kg	09.24.18 12:22	
Ethylbenzene	<0.00199	0.0996	0.107	107	0.102	102	70-130	5	35	mg/kg	09.24.18 12:22	
m,p-Xylenes	<0.00398	0.199	0.212	107	0.202	101	70-130	5	35	mg/kg	09.24.18 12:22	
o-Xylene	<0.00199	0.0996	0.0967	97	0.0943	94	70-130	3	35	mg/kg	09.24.18 12:22	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits			Units	Analysis Date	
1,4-Difluorobenzene	98		98		95		70-130			%	09.24.18 12:22	
4-Bromofluorobenzene	99		114		83		70-130			%	09.24.18 12:22	

Analytical Method: BTEX by EPA 8021B

Seq Number: 3064389

MB Sample Id: 7662980-1-BLK

Matrix: Solid

LCS Sample Id: 7662980-1-BKS

Prep Method: SW5030B

Date Prep: 09.24.18

LCSD Sample Id: 7662980-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.118	117	0.0946	95	70-130	22	35	mg/kg	09.24.18 22:48	
Toluene	<0.00202	0.101	0.108	107	0.0996	100	70-130	8	35	mg/kg	09.24.18 22:48	
Ethylbenzene	<0.00202	0.101	0.104	103	0.0980	98	70-130	6	35	mg/kg	09.24.18 22:48	
m,p-Xylenes	<0.00403	0.202	0.204	101	0.198	99	70-130	3	35	mg/kg	09.24.18 22:48	
o-Xylene	<0.00202	0.101	0.0987	98	0.0954	95	70-130	3	35	mg/kg	09.24.18 22:48	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date	Flag		
1,4-Difluorobenzene	98		98		92		70-130	%	09.24.18 22:48			
4-Bromofluorobenzene	90		87		91		70-130	%	09.24.18 22:48			

Analytical Method: BTEX by EPA 8021B

Seq Number: 3064418

MB Sample Id: 7662991-1-BLK

Matrix: Solid

LCS Sample Id: 7662991-1-BKS

Prep Method: SW5030B

Date Prep: 09.25.18

LCSD Sample Id: 7662991-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.104	103	0.0992	99	70-130	5	35	mg/kg	09.25.18 22:34	
Toluene	<0.00202	0.101	0.104	103	0.0976	98	70-130	6	35	mg/kg	09.25.18 22:34	
Ethylbenzene	<0.00202	0.101	0.103	102	0.0974	97	70-130	6	35	mg/kg	09.25.18 22:34	
m,p-Xylenes	<0.00403	0.202	0.207	102	0.196	98	70-130	5	35	mg/kg	09.25.18 22:34	
o-Xylene	<0.00202	0.101	0.100	99	0.0948	95	70-130	5	35	mg/kg	09.25.18 22:34	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date	Flag		
1,4-Difluorobenzene	97		93		90		70-130	%	09.25.18 22:34			
4-Bromofluorobenzene	89		93		92		70-130	%	09.25.18 22:34			

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

Tetra Tech- Midland
EOG- Kiwi AKX St #8

Analytical Method: BTEX by EPA 8021B

Seq Number: 3064388

Parent Sample Id: 599932-001

Matrix: Soil

MS Sample Id: 599932-001 S

Prep Method: SW5030B

Date Prep: 09.24.18

MSD Sample Id: 599932-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0604	61	0.0659	66	70-130	9	35	mg/kg	09.24.18 13:03	X
Toluene	<0.00200	0.0998	0.0517	52	0.0619	62	70-130	18	35	mg/kg	09.24.18 13:03	X
Ethylbenzene	<0.00200	0.0998	0.0429	43	0.0513	51	70-130	18	35	mg/kg	09.24.18 13:03	X
m,p-Xylenes	<0.00399	0.200	0.0838	42	0.102	51	70-130	20	35	mg/kg	09.24.18 13:03	X
o-Xylene	<0.00200	0.0998	0.0411	41	0.0491	49	70-130	18	35	mg/kg	09.24.18 13:03	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	94		87		70-130	%	09.24.18 13:03
4-Bromofluorobenzene	90		92		70-130	%	09.24.18 13:03

Analytical Method: BTEX by EPA 8021B

Seq Number: 3064389

Parent Sample Id: 599931-001

Matrix: Soil

MS Sample Id: 599931-001 S

Prep Method: SW5030B

Date Prep: 09.24.18

MSD Sample Id: 599931-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0321	32	0.0263	26	70-130	20	35	mg/kg	09.24.18 23:29	X
Toluene	<0.00199	0.0994	0.0122	12	0.00938	9	70-130	26	35	mg/kg	09.24.18 23:29	X
Ethylbenzene	<0.00199	0.0994	0.00666	7	0.00424	4	70-130	44	35	mg/kg	09.24.18 23:29	XF
m,p-Xylenes	<0.00398	0.199	0.0139	7	0.0120	6	70-130	15	35	mg/kg	09.24.18 23:29	X
o-Xylene	<0.00199	0.0994	0.00649	7	0.00606	6	70-130	7	35	mg/kg	09.24.18 23:29	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	96		95		70-130	%	09.24.18 23:29
4-Bromofluorobenzene	102		118		70-130	%	09.24.18 23:29

Analytical Method: BTEX by EPA 8021B

Seq Number: 3064418

Parent Sample Id: 599985-001

Matrix: Soil

MS Sample Id: 599985-001 S

Prep Method: SW5030B

Date Prep: 09.25.18

MSD Sample Id: 599985-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.104	104	0.100	100	70-130	4	35	mg/kg	09.25.18 23:14	
Toluene	<0.00199	0.0996	0.0923	93	0.0910	91	70-130	1	35	mg/kg	09.25.18 23:14	
Ethylbenzene	<0.00199	0.0996	0.0848	85	0.0790	79	70-130	7	35	mg/kg	09.25.18 23:14	
m,p-Xylenes	<0.00398	0.199	0.167	84	0.155	78	70-130	7	35	mg/kg	09.25.18 23:14	
o-Xylene	<0.00199	0.0996	0.0838	84	0.0757	76	70-130	10	35	mg/kg	09.25.18 23:14	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	90		89		70-130	%	09.25.18 23:14
4-Bromofluorobenzene	93		89		70-130	%	09.25.18 23:14

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

Page 1 of 3



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

599931

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Analysis Request of Custody Record



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:

Clair Gonzales

Project Name:

Kiwi AKX St #8

Project Location:

Lea CO. NM

Project #:

212C-MD-01238 Task 100

Invoice to:

EOG James Kennedy

Receiving Laboratory:

Xenco

Sampler Signature:

Conner Moehring

Comments:

LAB #
(LAB USE ONLY)

SAMPLE IDENTIFICATION

SAMPLING
YEAR: 2018
DATE
TIME

MATRIX
WATER
SOIL
HCL
HNO₃
ICE
None

PRESERVATIVE METHOD
CONTAINERS
FILTERED (Y/N)

AH #2 (2-2.5)	9/19/2018		X							1 N	X
AH #2 (3-3.5)	9/19/2018		X							1 N	X
AH #2 (4-4.5)	9/19/2018		X							1 N	X
AH #2 (5-5.5)	9/19/2018		X							1 N	X
AH #2 (6-6.5)	9/19/2018		X							1 N	X
AH #3 (0-1')	9/19/2018		X							1 N	X
AH #3 (1-1.5')	9/19/2018		X							1 N	X
AH #3 (2-2.5')	9/19/2018		X							1 N	X
AH #3 (3-3.5')	9/19/2018		X							1 N	X
AH #3 (4-4.5')	9/19/2018		X							1 N	X

Relinquished by:

Carmin m... 9/21/18

Received by:

9/21/18 1315

Relinquished by:

Received by:

Relinquished by:

Received by:

Date: Time:

Date: Time:

LAB USE ONLY

REMARKS:
☒ STANDARD
☐ RUSH: Same Day 24 hr 48 hr 72 hr
☐ Rush Charges Authorized
☐ Special Report Limits or TRRP Report

ANALYSIS REQUEST
(Circle or Specify Method No.)

599931

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

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

Analysis Request of Custody Record

Page 3 of 3

**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:

Clair Gonzales

Project Name:

Kiwi AKX St #8

Project Location:
(county, state)

Lea CO. NM

Project #:

212C-MD-01238 Task 100

Invoice to:

EOG James Kennedy

Receiving Laboratory:

Xenco

Sampler Signature:

Conner Moehring

Comments:

SAMPLE IDENTIFICATION

LAB #
(LAB USE ONLY)SAMPLING
YEAR: 2018
DATE
TIMEMATRIX
PRESERVATIVE METHODWATER
SOIL
HCL
HNO₃
ICE
None# CONTAINERS
FILTERED (Y/N)

Hold

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
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NORM
PLM (Asbestos)
Chloride
Chloride Sulfate TDS
General Water Chemistry (see attached list)
Anion/Cation BalanceANALYSIS REQUEST
(Circle or Specify Method No.)

599931

Relinquished by:

Date: Time:

Received by:

Date: Time:

Relinquished by:

Date: Time:

Received by:

Date: Time:

Relinquished by:

Date: Time:

Received by:

Date: Time:

LAB USE ONLY

REMARKS:

☒ STANDARD☐ RUSH: Same Day 24 hr 48 hr 72 hr☐ Rush Charges Authorized☐ Special Report Limits or TRRP Report

Sample Temperature

C. 71.00
NE

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

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XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 09/21/2018 01:15:00 PM

Work Order #: 599931

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)?	.2
#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)?	No
#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:

Shawnee Gomez

Date: 09/21/2018

Checklist reviewed by:

Kelsey Brooks

Date: 09/24/2018