SITE INFORMATION

Report Type: Closure Report 1RP-3732

General Site Information:						
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:	**32.39337º N**			**103.68028º 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	5,000

TETRA TECH

June 26, 2018

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

Re: Closure Report 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 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 32.39337º, W 103.68028º. The site location is shown on Figures 1 and 2.

Background

The release occurred under Yates Petroleum Corporation, however the facility has since been acquired by EOG Resources, Inc. According to the State of New Mexico C-141 Initial Report, the leak was discovered on June 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.tetratech.com

TETRA TECH

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, dated August 13, 1993. 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 5,000 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.

Conclusion

Based on the laboratory results, EOG requests closure of this spill issue. The final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment or remediation activities for this site, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Clair Gonzales,
Project Manager

cc: Ryan Mann – NMSLO
James Kennedy - EOG

Figures

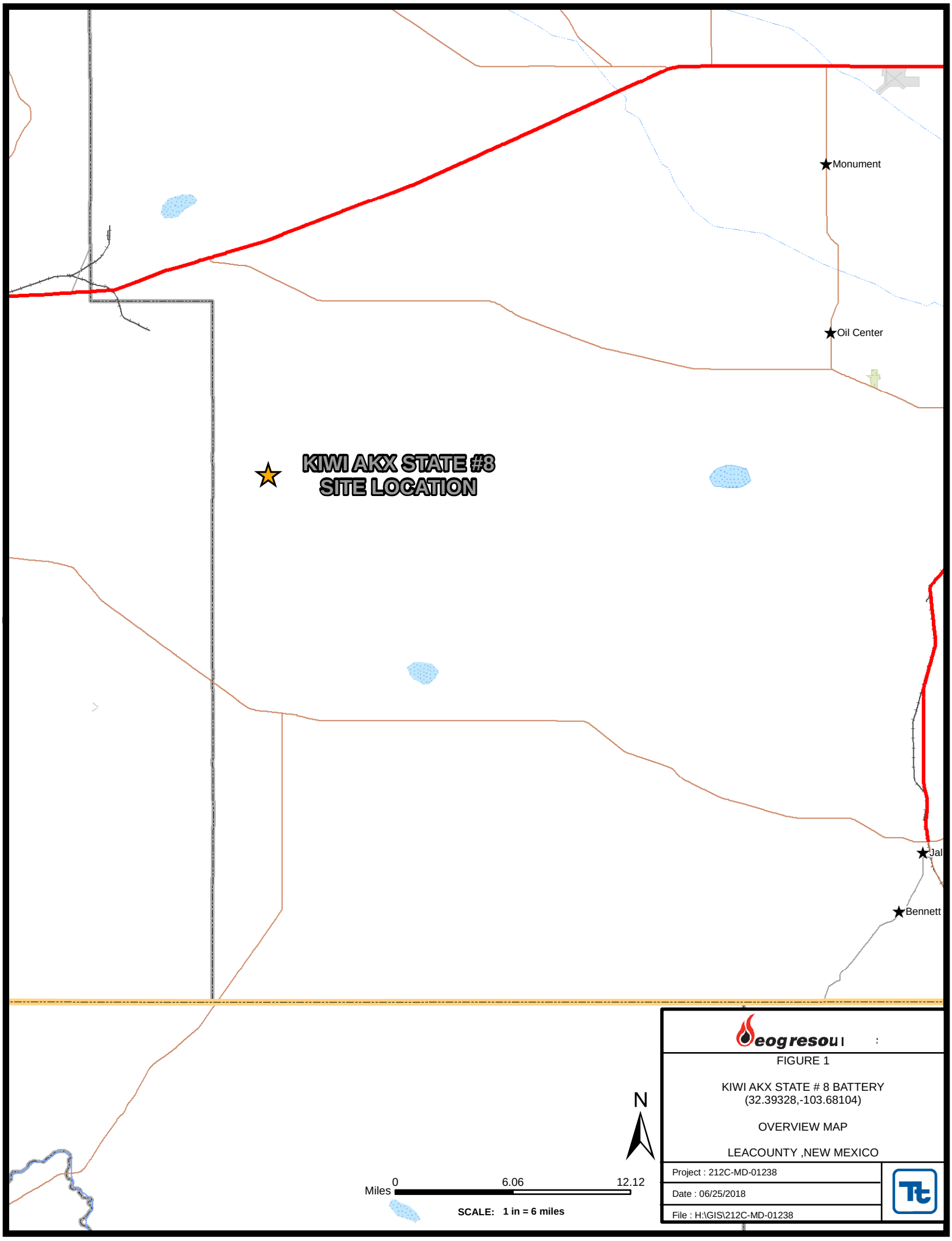

FIGURE 1

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	

Mapped By:MISTI MORGAN

Mapped By: MISTI MORGAN


AH-1
LEGEND
AUGER HOLE SAMPLE LOCATIONS
N
0
50
50
1"=100 FT
eog resources
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

Tables

Table 1
EOG Resources
Kiwi AKX State #1
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

(-) Not Analyzed

Photos

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

View North – Inside bermed facility

View North – Area of AH-1

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. 4th 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	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	16	22S	32E	1980	North	2310	West	Lea

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.	

If a Watercourse was Impacted, Describe Fully.*

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

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.

Signature:

Printed Name: Robert Asher

Title: NM Environmental Regulatory Supervisor

E-mail Address: boba@yatespetroleum.com

Date: July 14, 2015 Phone: 575-748-4217

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 07/15/2015 Expiration Date: 10/15/2015

Conditions of Approval:
2RP- Discrete site samples required. Delineate and remediate per NMOCD guidelines. Geotagged photos of remediation required.

Attached ☐
ogrid 25575 1RP-3732
nJXK1519647154
pJXK1519647450

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company **EOG Resources, Inc.**	Contact James Kennedy
Address **5509 Champions Drive, Midland, TX 79706**	Telephone No. **(432) 258-4346**
Facility Name Kiwi AKX State #8	Facility Type **Tank Battery**

Surface Owner: State	Mineral Owner: State	API No. 30-025-31889

LOCATION OF RELEASE

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

Latitude N 32.39337° **Longitude** W 103.68028°

NATURE OF RELEASE

Type of Release: Crude Oil and Produced Water	Volume of Release 2 bbls oil & 10 bbls produced water	Volume Recovered 0 bbls oil & 8 bbls produced water
Source of Release: Gun Barrel Fill Line	Date and Hour of Occurrence 06/28/15	Date and Hour of Discovery 06/28/15
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

The fill line going to the gun barrel failed, resulting in the release. An area measuring approximately 20' x 20' inside the bermed facility was impacted. Vacuum trucks were used to recover the freestanding fluids.

Describe Area Affected and Cleanup Action Taken.*
Released was contained inside earth berm and no fluids migrated out of containment. Tetra Tech inspected site and collected samples. The laboratory data did not show any TPH, benzene, or total BTEX concentrations above the RRALs. Additionally, no significant chloride concentrations were detected in the soils. Tetra Tech prepared closure report and submitted to NMOCD for review.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Clair Gonzales	OIL CONSERVATION DIVISION	
Printed Name: Clair Gonzales	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Clair.Gonzales@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 6/21/2018 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

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	16 630	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

21 South 33 East

6	5	4	3	2 79 107	1
7	8	9	10	11 150	12
18 143	17	16	15	14	13
19	20	21	22	23	24
30	29	28 179	27	26	25
31	32	33 180	34	35	36

22 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16 448	15	14	13
19	20 47	21	22	23	24
30	29 413	28 444	27	26	25
31	32	33 325	34	35	36

22 South 32 East

6	5	4	3	2	1
7 55	8	9	10	11	12
18	17	16	15	14 382 350	13
19 (S) 280	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	13 391
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South 31 East

6 85	5 354	4 168	3	2	1
7 140	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 32 East

6	5	4	3	2	1
7 639	8	9	10	11	12
18	17	16	15	14	13
19	20 713	21 400	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
7 475	8	9	10	11	12 325
18	17	16	15	14	13
19 400	20 400	21	22	23	24
30	29	28 400	27	26 225	25 225
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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twws	Rng	X	Y	Depth Well	Depth Water	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**

6/21/18 12:23 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

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

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

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

Analysis Requested												
	Lab Id:	586584-001		586584-002		586584-003		586584-004		586584-005		
	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)		
	Depth:											
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		
	Sampled:	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	***Extracted:***	May-23-18 08:00										
	Analyzed:	May-23-18 13:07										
	Units/RL:	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	***Extracted:***	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		
	Analyzed:	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		
	Units/RL:	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	***Extracted:***	May-18-18 14:00										
	Analyzed:	May-20-18 12:02										
	Units/RL:	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									

Kelsey Brooks
Project Manager

Flagging Criteria

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 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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,

Project ID: 212C-MD-01238

Lab Batch #: 3050664 **Sample:** 586189-001 SD / MSD **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 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
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 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
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*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(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*(C-A)/B

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

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

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.

Analysis Request of Chain of Custody Record

586584

Page 1 of 1

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:** James Kennedy
Project Name: Kiwi AKX state #1	
Project Location: (county, state) Lea County, New Mexico	**Project #:** 212C-MD-01238
Invoice to:	
Receiving Laboratory: XENCO	**Sampler Signature:** Halston Hunt

Comments:

* If BTEX exceeds 10 mg/kg or Total BTEX exceeds 50 mg/kg Run deeper Sample.

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 2018 DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None		# CONTAINERS	FILTERED (Y/N)
	AH-1 (0-1)	5/9/2018			x				x			1	N
	AH-1 (1-1.5)	5/9/2018			x				x			1	N
	AH-1 (2-2.5)	5/9/2018			x				x			1	N
	AH-1 (3-3.5)	5/9/2018			x				x			1	N
	AH-1 (4-4.5)	5/9/2018			x				x			1	N

ANALYSIS REQUEST
(Circle or Specify Method No.)

BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance				Hold
X		X												X							
														X							
														X							
														X							
														X							
														X							

Relinquished by: Date: 5/18/18 Time: 0900
Received by: Date: 5/14/18 Time: 0900

Relinquished by: Date: Time:
Received by: Date: 5/18/18 Time: 1430

Relinquished by: Date: Time:
Received by: Date: Time:

LAB USE ONLY

Sample Temperature 2.8 NR 0

REMARKS:

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

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

* If TPH exceeds 5,000 mg/kg run deeper Sample

ORIGINAL COPY

Final 1.000

Page 14 of 15

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 Date: 05/18/2018
Brianna Teel

Checklist reviewed by: Kelsey Brooks Date: 05/23/2018
Kelsey Brooks