

## SITE INFORMATION

### Report Type: Closure Report 2RP-0697

#### General Site Information:

Site:	Koonunga Hills BGX Federal #1 Water Line					
Company:	EOG Resources					
Section, Township and Range	Unit P	Sec 03	T 22S	R 24E		
Lease Number:	API No. 30-015-34380					
County:	Eddy County					
GPS:	32.41249° N			104.479278° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of HWY 285 and 137 travel southwest on 137 for approximately 13.1 mi, turn east onto lease road for 1.6 miles, turn north onto lease road and continue for approximately 2 miles to location.					

#### Release Data:

Date Released:	1/15/2009
Type Release:	Produced Water
Source of Contamination:	Water Gathering Line
Fluid Released:	Unknown
Fluids Recovered:	660 bbls

#### 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:	<a href="mailto:James_Kennedy@eogresources.com">James_Kennedy@eogresources.com</a>		<a href="mailto:Clair.Gonzales@tetrattech.com">Clair.Gonzales@tetrattech.com</a>

#### Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft High Karst Area	20	75'-100'
50-99 ft	10	
>100 ft.	0	
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
<b>Total Ranking Score:</b>		<b>20</b>

Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	100



September 27, 2018

Mr. Mike Bratcher  
Environmental Engineer Specialist  
Oil Conservation Division, District 2  
811 South First Street  
Artesia, New Mexico 88210

**Re: Closure Report for the EOG Resources, Koonunga Hills BGX Federal #1 Water Line, Unit P, Section 03, Township 22 South, Range 24 East, Eddy County, New Mexico.  
2RP-0697**

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by EOG Resources to assess a release that occurred at the Koonunga Hills BGX Federal #1 Water Line, Unit P, Section 03, Township 22 South, Range 25 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.41249, W 104.47927 °. 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. The facility is located in Section 19, Township 22 South, Range 25 East, however the release occurred in Unit P, Section 03, Township 22 South, Range 24 East. According to the State of New Mexico C-141 Initial Report, the leak was discovered on January 15, 2009, and released an unknown amount of produced water due to a water gathering line leak. Vacuum trucks were used to remove all freestanding fluids, recovering approximately 660 barrels of produced water. The release occurred in a dry canyon bottom. The initial C-141 Form is included in Appendix A.

## **Groundwater**

No water wells were listed within Section 03 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 15, approximately 1.2 miles south of the site, and has a reported depth to groundwater of 100' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is between 75' and 100' below surface, however the site is located in a high karst area. 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](http://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 high karst area, the proposed RRAL for TPH is 100 mg/kg (GRO + DRO + ORO). Additionally, based on the reported depth to groundwater in the area, the proposed RRAL for chlorides is 600 mg/kg.

## Soil Assessment and Analytical Results

On August 30, 2018, Tetra Tech personnel were onsite to evaluate and sample the release area. Four (4) auger holes (AH-1, AH-2, AH-3, and AH-4) were installed in the release area to total depths of 0-6" 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, none of the samples collected showed TPH, benzene, or total BTEX concentrations above the laboratory reporting limits. Additionally, the samples collected at auger holes (AH-2, AH-3, and AH-4) showed non-detect chloride concentrations. The area of auger hole (AH-1) showed a chloride of 16.5 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.

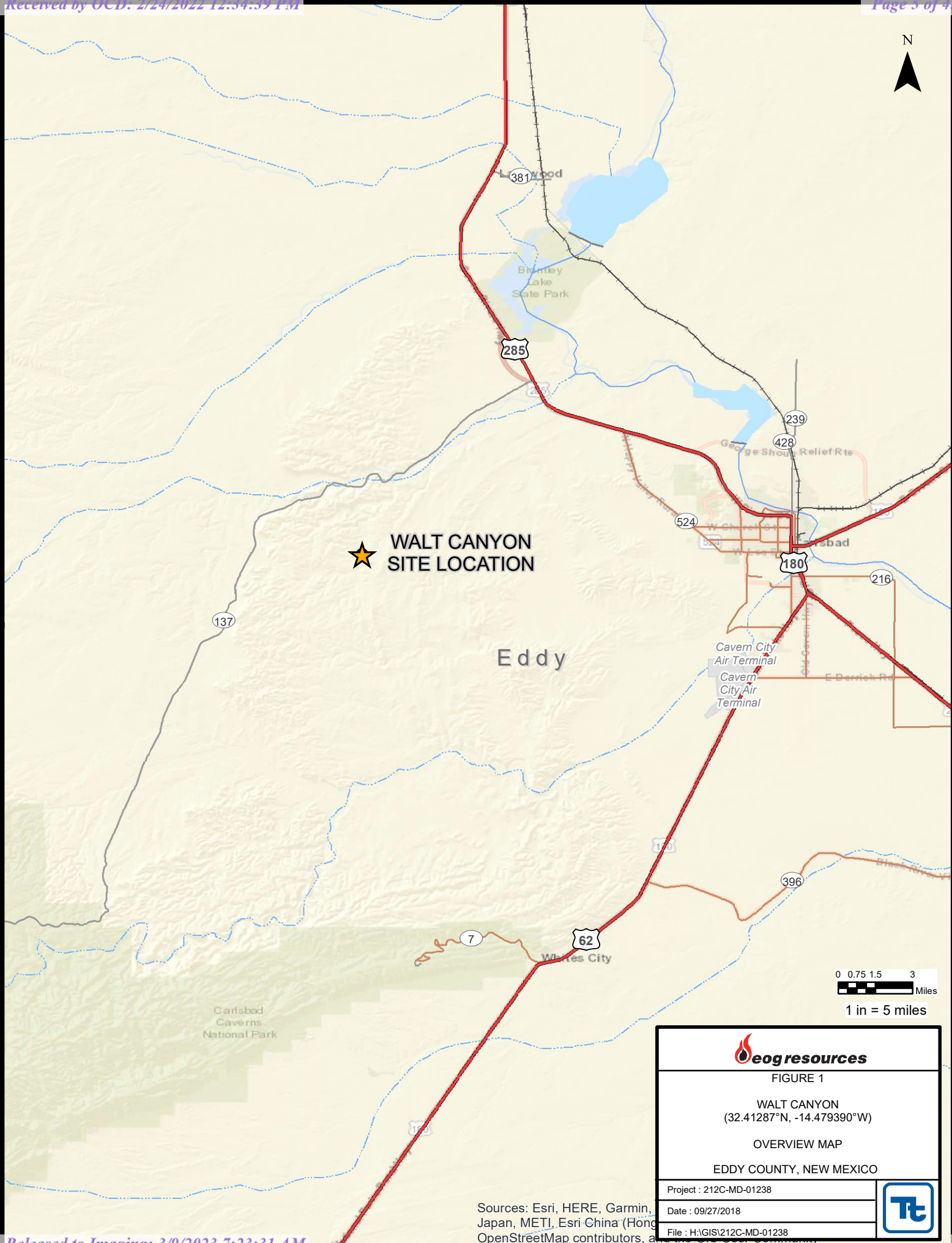
Respectfully submitted,  
TETRA TECH


A handwritten signature in blue ink that reads 'Clair Gonzales'.

Clair Gonzales,  
Project Manager

cc: Ryan Mann – NMSLO  
James Kennedy - EOG

## Figures






**FIGURE 1**

**WALT CANYON**  
(32.41287°N, -14.479390°W)

**OVERVIEW MAP**

**EDDY COUNTY, NEW MEXICO**

Project : 212C-MD-01238	
Date : 09/27/2018	
File : H:\GIS\212C-MD-01238	

Sources: Esri, HERE, Garmin, Japan, METI, Esri China (Hong Kong), Swatch, Bing, OpenStreetMap contributors, and the



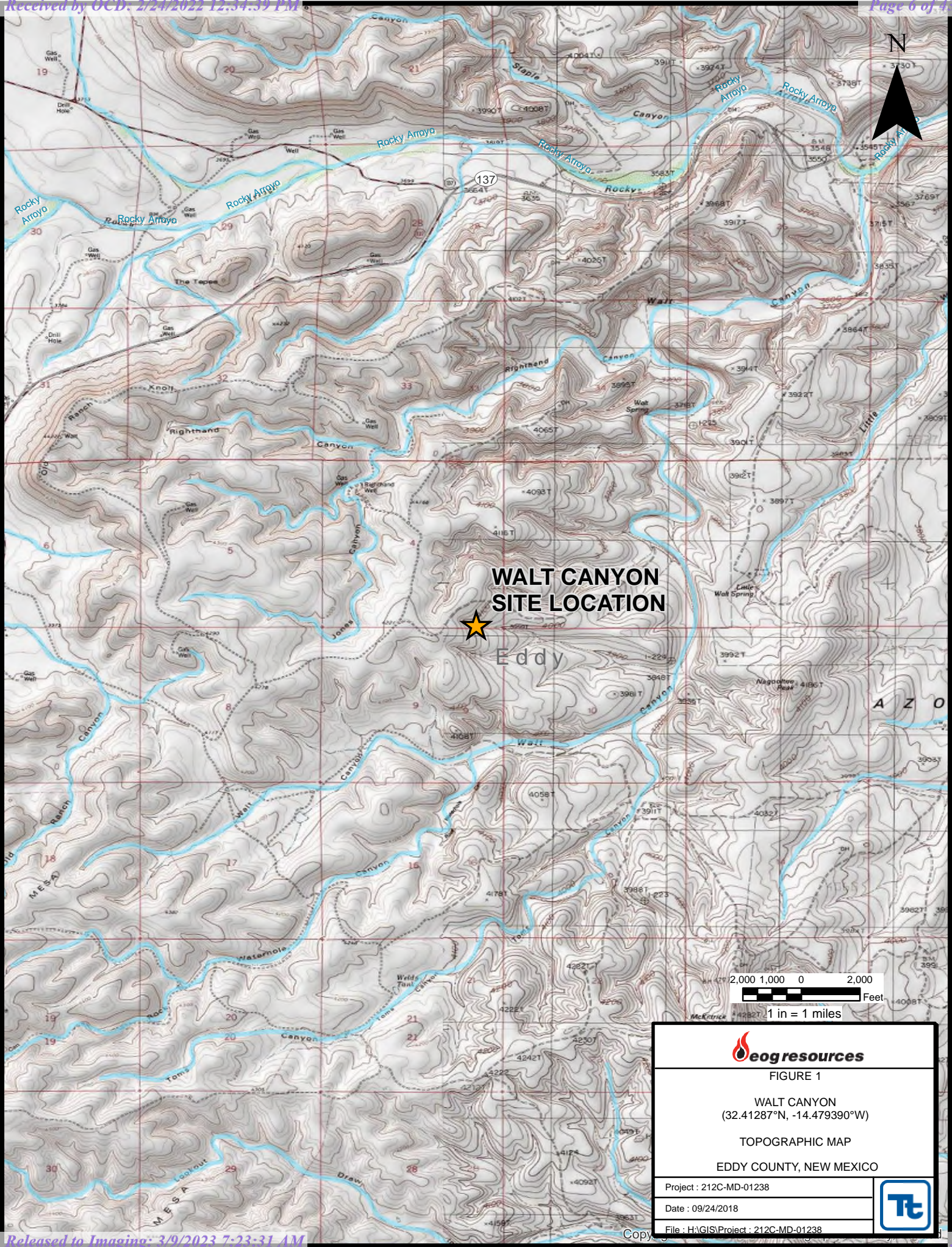


FIGURE 1

WALT CANYON  
(32.41287°N, -14.479390°W)

TOPOGRAPHIC MAP

EDDY COUNTY, NEW MEXICO

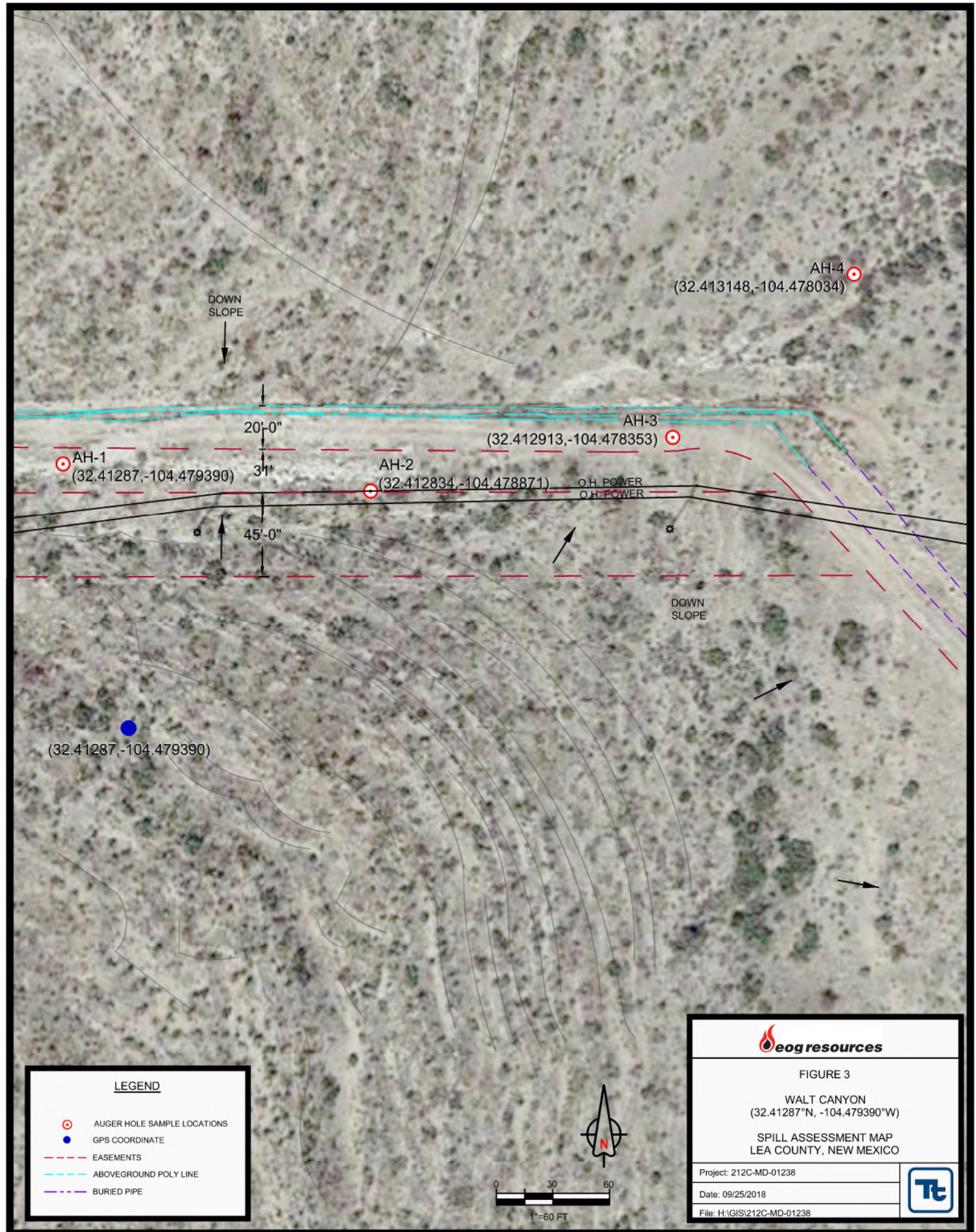
Project : 212C-MD-01238

Date : 09/24/2018

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







## Tables



**Table 1**  
**EOG Resources**  
**Koonunga Hill BGX Federal #1**  
**Eddy 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	8/30/2018	0-5	-	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	16.5
AH-2	8/30/2018	0-5	-	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<4.95
AH-3	8/30/2018	0-5	-	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<4.99
AH-4	8/30/2018	0-5	-	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<4.99

( - ) Not Analyzed

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

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

### Location of Release Source

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☐ Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

## Initial Response

*The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury*

<input type="checkbox"/> The source of the release has been stopped.	
<input type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: _____	Title: _____
Signature: <u>James Kennedy</u>	Date: _____
email: _____	Telephone: _____
<b><u>OCD Only</u></b>	
Received by: _____	Date: _____



Incident ID	
District RP	
Facility ID	
Application ID	

## Site Assessment/Characterization

*This information must be provided to the appropriate district office no later than 90 days after the release discovery date.*

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

### **Characterization Report Checklist:** *Each of the following items must be included in the report.*

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☐ Data table of soil contaminant concentration data
- ☐ Depth to water determination
- ☐ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☐ Topographic/Aerial maps
- ☐ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico  
Oil Conservation Division

Page 4

Incident ID	
District RP	
Facility ID	
Application ID	

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

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: James Kennedy Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_



Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

**Closure Report Attachment Checklist:** *Each of the following items must be included in the closure report.*

- ☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: James Kennedy Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

### OCD Only

Received by: \_\_\_\_\_ OCD \_\_\_\_\_ Date: 2/24/2022 \_\_\_\_\_

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Ashley Maxwell Date: 3/9/2023

Printed Name: Ashley Maxwell Title: Environmental Specialist

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

JAN 30 2009 Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

### Release Notification and Corrective Action

*nmw 1109449451* OPERATOR X Initial Report Final Report

Name of Company Yates Petroleum Corporation	Contact Mike Stubblefield
Address 105 South 4 <sup>th</sup> Street, Artesia, N.M. 88210	Telephone No. 505-748-4500 505-513-1712
Facility Name Koonunga Hills BGX Federal #1 Wtr line 30-015-34380	Facility Type Producing Oil well.

Surface Owner Federal	Mineral Owner.	Lease No.
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### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	19	22s	25e	1838'	FNL	1072'	FWL	Eddy

Latitude 32.41249 Longitude 104.47927

### NATURE OF RELEASE

Type of Release Produced water.	Volume of Release Unknown	Volume Recovered 660 bbls Produced Water.
Source of Release. Water gathering line.	Date and Hour of Occurrence 1/15/2009 4:00pm	Date and Hour of Discovery same
Was Immediate Notice Given? Yes X No Not Required	If YES, To Whom? Mike Bratcher	
By Whom? Jerry Fanning	Date and Hour 1/16/2009 9:15am follow up with E-mail.	
Was a Watercourse Reached? X Yes No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

The produced water gathering line coming from the Koonunga Hills BGX Fed. #1 was found to be leaking. The well was immediately shut-in. Vacuum trucks were called to the release area and the free waters recovered. The line was replaced with a new flow line which was constructed above grade.

Describe Area Affected and Cleanup Action Taken.

The impacted area was located in Walt Canyon at Lat. 32.41249 Long 104.47927. The impacted area is located in the dry canyon bottom. The canyon bottom consists of bed rock which acted as a caught basin for the release waters. A Water sample were taken on 1/16/2009 from the standing water in the area of the release. The Water sample taken were submitted to Cardinal Lab. The water sample was analyzed for Chlorides using EPA method 4500 CL-B. Analytical results dated 1/26/2009 received from Cardinal Lab reported the Chlorides to be 1500 mg/kg in the release waters. The recovery of free waters will be continued until all recoverable waters have been vacuumed and hauled to SWD. The impacted area will be treated with Micro blaze & Kenaf. When recovery of free standing waters and the treatment of the area using Micro blaze & Kenaf has been concluded, Yates Petroleum Corporation will submit a final C-141 form requesting closure for the release that occurred on 1/15/2009. Analytical results attached.

Site ranking Depth to ground water - >100', Wellhead protection area - > 1000', Distance to surface water body - > 1000' site ranking score - 20

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: <i>Mike Stubblefield</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Mike Stubblefield	Signed By <i>Mike Bratcher</i>	
Title: Environmental Regulatory Agent	Approved by District Supervisor:	Approval Date: 4/4/11 Expiration Date:
E-mail Address: mikes@ypcnm.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 1/27/2009 Phone: 505-748-4500	REMEDATION per OCD Rules and Guidelines. <u>SUBMIT REMEDIATION</u> PROPOSAL BY: <i>5/4/11</i>	

\* Attach Additional Sheets If Necessary

2RP-697



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
YATES PETROLEUM CORPORATION  
ATTN: MIKE STUBBLEFIELD  
105 SOUTH 4TH STREET  
ARTESIA, NM 88210  
FAX TO: (575) 748-4635

Receiving Date: 01/23/09  
Reporting Date: 01/26/09  
Project Number: NOT GIVEN  
Project Name: KOONUNGA HILLS BGX FED. #1 WTR LINE  
Project Location: SEC. 10-22S-24E

Analysis Date: 01/26/09  
Sampling Date: 01/16/09  
Sample Type: WASTEWATER  
Sample Condition: INTACT  
Sample Received By: ML  
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Cl <sup>-</sup> (mg/L)
H16755-1	01 POOLING AREA, WATER SAMPLE	1,500
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		< 0.1

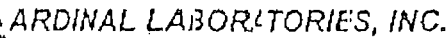
METHOD: Standard Methods	4500-CIB
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*Chad S. Keene*  
Chemist

Date 01/26/09

H16755 YATES

PLEASE NOTE: **Liability and Damages.** **Cardinal's** liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by **Cardinal** within thirty (30) days after completion of the applicable service. In no event shall **Cardinal** be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by **Cardinal**, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



{325} 673-7001 Fax {325} 673-7020 (505) 393-2326 Fax (505) 393-2476

Page 1 of 1

† Cardinal cannot accept verbal changes, please fax written changes to (325) 673-7020.



District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
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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 <b>EOG Resources, Inc.</b>	Contact <b>James Kennedy</b>
Address <b>5509 Champions Drive, Midland, TX 79706</b>	Telephone No. <b>(432) 258-4346</b>
Facility Name <b>Koonunga Hills BGX Federal #1 Water Line</b>	Facility Type <b>Well</b>
Surface Owner: <b>Federal</b>	Mineral Owner:
API No. <b>30-015-34380</b>	

### LOCATION OF RELEASE

Unit Letter <b>P</b>	Section <b>03</b>	Township <b>22S</b>	Range <b>24E</b>	Feet from the	North/South Line	Feet from the	East/West Line	County <b>Eddy</b>
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Latitude N 32.41249° Longitude W 104.47927°

### NATURE OF RELEASE

Type of Release: <b>Produced Water</b>	Volume of Release <b>Unknown</b>	Volume Recovered <b>660 bbls</b>
Source of Release: <b>Water Gathering Line</b>	Date and Hour of Occurrence <b>01/15/2009 4:00pm</b>	Date and Hour of Discovery <b>01/15/2009 4:00pm</b>
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? <b>Mike Bratcher</b>	
By Whom? <b>Jerry Fanning</b>	Date and Hour <b>01/16/2009 9:15am</b>	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. <b>N/A</b>	
If a Watercourse was Impacted, Describe Fully.* <b>N/A</b>		
Describe Cause of Problem and Remedial Action Taken.*  The produced water gathering line from the Koonunga Hills BGX Fed #1 developed a leak. The well was shut-in and vacuum trucks were used to recover all freestanding fluids. The release occurred in a dry canyon bottom. The released water was sampled for chlorides and showed a chloride concentration of 1,500 mg/kg.		
Describe Area Affected and Cleanup Action Taken.*  Tetra Tech inspected the site and collected samples. The laboratory data did not show any TPH, benzene, total BTEX, or chlorides above the RRALs. Tetra Tech prepared a closure report and submitted to the 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: 		<b>OIL CONSERVATION DIVISION</b>
Printed Name: <b>Clair Gonzales</b>		Approved by District Supervisor:
Title: <b>Project Manager</b>	Approval Date:	Expiration Date:
E-mail Address: <b>Clair.Gonzales@TetraTech.com</b>	Conditions of Approval:	
Date: <b>09/14/2018</b> Phone: <b>(432) 682-4559</b>	Attached <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary

## Appendix B

**Water Well Data**  
**Average Depth to Groundwater (ft)**  
**EOG - Koonunga Hills BGX Federal #1**

21 South			23 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			24 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			25 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			23 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			24 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			25 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			23 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			24 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			25 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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
<a href="#">C 01403</a>		C	ED	3	2	1	24	22S	24E	551238	3582798*	238	213	25
<a href="#">C 01879</a>		C	ED	3	2	3	26	22S	24E	549635	3580374*	770	500	270
<a href="#">C 02351</a>		CUB	ED	3	2	2	15	22S	24E	548817	3584393*	120	100	20
<a href="#">C 02352</a>		CUB	ED	2	1	3	21	22S	24E	546212	3582164*	432	400	32
<a href="#">C 02353</a>		CUB	ED	2	1	4	27	22S	24E	548630	3580568*	250	22	228
<a href="#">C 02354</a>		CUB	ED	2	3	4	27	22S	24E	548631	3580165*	120	22	98
<a href="#">C 02355</a>		CUB	ED	1	1	4	32	22S	24E	545220	3578941*	280	245	35
<a href="#">C 02356</a>		CUB	ED	4	1	3	36	22S	24E	551046	3578772*	42	22	20
<a href="#">C 02357</a>		CUB	ED	4	3	3	19	22S	24E	543063	3581542*	278	218	60
<a href="#">C 02358</a>		CUB	ED	2	1	3	21	22S	24E	546212	3582164*	432	400	32
<a href="#">C 02359</a>		CUB	ED	2	4	1	31	22S	24E	543411	3579333*	270	240	30
<a href="#">C 02360</a>		CUB	ED	1	1	4	32	22S	24E	545220	3578941*	280	245	35
<a href="#">C 02384</a>		CUB	ED	3	2	2	15	22S	24E	548817	3584393*	120	100	20
<a href="#">C 02406</a>		C	ED			3	08	22S	24E	544703	3585071*	155		
<a href="#">C 02428</a>		CUB	ED	4	2	1	12	22S	24E	551426	3586017*	450	400	50

Average Depth to Water: **223 feet**

Minimum Depth: **22 feet**

Maximum Depth: **500 feet**

**Record Count:** 15

**PLSS Search:**

**Township:** 22S **Range:** 24E

\*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.

9/12/18 9:17 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER



## Appendix C



# Certificate of Analysis Summary 597793

Tetra Tech- Midland, Midland, TX

Project Name: EOG-Koonunga Hills BGX Federal 1 WRT Line



**Project Id:** 212C-MD-01238-400  
**Contact:** Clair Gonzales  
**Project Location:** Eddy CO., NM

**Date Received in Lab:** Fri Aug-31-18 02:24 pm  
**Report Date:** 12-SEP-18  
**Project Manager:** Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	597793-001	597793-002	597793-003	597793-004		
	<i>Field Id:</i>	AH #1 (0-6")	AH #2 (0-6")	AH #3 (0-6")	AH #4 (0-6")		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Aug-30-18 00:00	Aug-30-18 00:00	Aug-30-18 00:00	Aug-30-18 00:00		
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Sep-09-18 10:15	Sep-09-18 10:15	Sep-09-18 10:15	Sep-09-18 10:15		
	<i>Analyzed:</i>	Sep-09-18 17:15	Sep-09-18 17:36	Sep-09-18 17:57	Sep-09-18 18:19		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199		
Toluene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199		
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199		
m,p-Xylenes		<0.00399 0.00399	<0.00402 0.00402	<0.00398 0.00398	<0.00398 0.00398		
o-Xylene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199		
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199		
Total BTEX		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00199 0.00199		
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Sep-04-18 16:00	Sep-04-18 16:00	Sep-04-18 16:00	Sep-04-18 16:00		
	<i>Analyzed:</i>	Sep-04-18 20:53	Sep-04-18 20:10	Sep-04-18 20:26	Sep-04-18 20:31		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		16.5 4.99	<4.95 4.95	<4.99 4.99	<4.99 4.99		
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	Aug-31-18 17:00	Aug-31-18 17:00	Aug-31-18 17:00	Sep-05-18 13:00		
	<i>Analyzed:</i>	Sep-01-18 19:19	Sep-01-18 19:38	Sep-01-18 19:58	Sep-05-18 16:00		
	<i>Units/RL:</i>	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		
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 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

# Analytical Report 597793

## for Tetra Tech- Midland

**Project Manager: Clair Gonzales**

**EOG-Koonunga Hills BGX Federal 1 WRT Line**

**212C-MD-01238-400**

**12-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)



12-SEP-18

Project Manager: **Clair Gonzales**

**Tetra Tech- Midland**

4000 N. Big Spring Suite 401

Midland, TX 79705

Reference: XENCO Report No(s): **597793**

**EOG-Koonunga Hills BGX Federal 1 WRT Line**

Project Address: Eddy 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) 597793. 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. 597793 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,

A handwritten signature in black ink, appearing to read 'Kelsey Brooks', written over a horizontal line.

**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 597793****Tetra Tech- Midland, Midland, TX**

EOG-Koonunga Hills BGX Federal 1 WRT Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH #1 (0-6")	S	08-30-18 00:00		597793-001
AH #2 (0-6")	S	08-30-18 00:00		597793-002
AH #3 (0-6")	S	08-30-18 00:00		597793-003
AH #4 (0-6")	S	08-30-18 00:00		597793-004



## CASE NARRATIVE

**Client Name: Tetra Tech- Midland**

**Project Name: EOG-Koonunga Hills BGX Federal 1 WRT Line**

Project ID: 212C-MD-01238-400  
Work Order Number(s): 597793

Report Date: 12-SEP-18  
Date Received: 08/31/2018

---

**Sample receipt non conformances and comments:**

None

---

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3062607 BTEX by EPA 8021B

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



# Certificate of Analytical Results 597793



## Tetra Tech- Midland, Midland, TX EOG-Koonunga Hills BGX Federal 1 WRT Line

Sample Id: **AH #1 (0-6")**

Matrix: Soil

Date Received: 08.31.18 14.24

Lab Sample Id: 597793-001

Date Collected: 08.30.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.04.18 16.00

Basis: Wet Weight

Seq Number: 3062122

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.5	4.99	mg/kg	09.04.18 20.53		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 08.31.18 17.00

Basis: Wet Weight

Seq Number: 3061970

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.01.18 19.19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	09.01.18 19.19	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	09.01.18 19.19	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.01.18 19.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	09.01.18 19.19	
o-Terphenyl	84-15-1	93	%	70-135	09.01.18 19.19	



# Certificate of Analytical Results 597793

## Tetra Tech- Midland, Midland, TX

### EOG-Koonunga Hills BGX Federal 1 WRT Line

Sample Id: **AH #1 (0-6")**

Matrix: Soil

Date Received: 08.31.18 14.24

Lab Sample Id: 597793-001

Date Collected: 08.30.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.09.18 10.15

Basis: Wet Weight

Seq Number: 3062607

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.09.18 17.15	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.09.18 17.15	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.09.18 17.15	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.09.18 17.15	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.09.18 17.15	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.09.18 17.15	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.09.18 17.15	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	124	%	70-130	09.09.18 17.15		
4-Bromofluorobenzene	460-00-4	91	%	70-130	09.09.18 17.15		





# Certificate of Analytical Results 597793



## Tetra Tech- Midland, Midland, TX EOG-Koonunga Hills BGX Federal 1 WRT Line

Sample Id: **AH #2 (0-6")**

Matrix: Soil

Date Received: 08.31.18 14.24

Lab Sample Id: 597793-002

Date Collected: 08.30.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.04.18 16.00

Basis: Wet Weight

Seq Number: 3062122

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	09.04.18 20.10	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 08.31.18 17.00

Basis: Wet Weight

Seq Number: 3061970

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.01.18 19.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	09.01.18 19.38	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	09.01.18 19.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.01.18 19.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	09.01.18 19.38	
o-Terphenyl	84-15-1	90	%	70-135	09.01.18 19.38	



# Certificate of Analytical Results 597793

## Tetra Tech- Midland, Midland, TX

### EOG-Koonunga Hills BGX Federal 1 WRT Line

Sample Id: **AH #2 (0-6")**

Matrix: Soil

Date Received: 08.31.18 14.24

Lab Sample Id: 597793-002

Date Collected: 08.30.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.09.18 10.15

Basis: Wet Weight

Seq Number: 3062607

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.09.18 17.36	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.09.18 17.36	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.09.18 17.36	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.09.18 17.36	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.09.18 17.36	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.09.18 17.36	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.09.18 17.36	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	85	%	70-130	09.09.18 17.36		
1,4-Difluorobenzene	540-36-3	122	%	70-130	09.09.18 17.36		



# Certificate of Analytical Results 597793



## Tetra Tech- Midland, Midland, TX EOG-Koonunga Hills BGX Federal 1 WRT Line

Sample Id: **AH #3 (0-6")**

Matrix: Soil

Date Received: 08.31.18 14.24

Lab Sample Id: 597793-003

Date Collected: 08.30.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.04.18 16.00

Basis: Wet Weight

Seq Number: 3062122

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	09.04.18 20.26	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 08.31.18 17.00

Basis: Wet Weight

Seq Number: 3061970

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.01.18 19.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	09.01.18 19.58	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	09.01.18 19.58	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.01.18 19.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	09.01.18 19.58	
o-Terphenyl	84-15-1	92	%	70-135	09.01.18 19.58	



# Certificate of Analytical Results 597793

## Tetra Tech- Midland, Midland, TX EOG-Koonunga Hills BGX Federal 1 WRT Line

Sample Id: **AH #3 (0-6")**

Matrix: Soil

Date Received: 08.31.18 14.24

Lab Sample Id: 597793-003

Date Collected: 08.30.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.09.18 10.15

Basis: Wet Weight

Seq Number: 3062607

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.09.18 17.57	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.09.18 17.57	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.09.18 17.57	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.09.18 17.57	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.09.18 17.57	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.09.18 17.57	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.09.18 17.57	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	94	%	70-130	09.09.18 17.57		
1,4-Difluorobenzene	540-36-3	126	%	70-130	09.09.18 17.57		



# Certificate of Analytical Results 597793



## Tetra Tech- Midland, Midland, TX EOG-Koonunga Hills BGX Federal 1 WRT Line

Sample Id: **AH #4 (0-6")**

Matrix: Soil

Date Received: 08.31.18 14.24

Lab Sample Id: 597793-004

Date Collected: 08.30.18 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.04.18 16.00

Basis: Wet Weight

Seq Number: 3062122

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	09.04.18 20.31	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.05.18 13.00

Basis: Wet Weight

Seq Number: 3062279

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	09.05.18 16.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	09.05.18 16.00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.05.18 16.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.05.18 16.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	09.05.18 16.00	
o-Terphenyl	84-15-1	97	%	70-135	09.05.18 16.00	





# Certificate of Analytical Results 597793

## Tetra Tech- Midland, Midland, TX

### EOG-Koonunga Hills BGX Federal 1 WRT Line

Sample Id: **AH #4 (0-6")**

Matrix: Soil

Date Received: 08.31.18 14.24

Lab Sample Id: 597793-004

Date Collected: 08.30.18 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.09.18 10.15

Basis: Wet Weight

Seq Number: 3062607

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.09.18 18.19	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.09.18 18.19	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.09.18 18.19	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.09.18 18.19	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.09.18 18.19	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.09.18 18.19	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.09.18 18.19	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	125	%	70-130	09.09.18 18.19		
4-Bromofluorobenzene	460-00-4	94	%	70-130	09.09.18 18.19		



## 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



**Tetra Tech- Midland**  
EOG-Koonunga Hills BGX Federal 1 WRT Line

**Analytical Method: Chloride by EPA 300**

Seq Number: 3062122

MB Sample Id: 7661639-1-BLK

Matrix: Solid

LCS Sample Id: 7661639-1-BKS

Prep Method: E300P

Date Prep: 09.04.18

LCSD Sample Id: 7661639-1-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	272	109	272	109	90-110	0	20	mg/kg	09.04.18 19:28	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3062122

Parent Sample Id: 597791-007

Matrix: Soil

MS Sample Id: 597791-007 S

Prep Method: E300P

Date Prep: 09.04.18

MSD Sample Id: 597791-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.860	251	256	102	256	102	90-110	0	20	mg/kg	09.04.18 19:44	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3062122

Parent Sample Id: 597793-001

Matrix: Soil

MS Sample Id: 597793-001 S

Prep Method: E300P

Date Prep: 09.04.18

MSD Sample Id: 597793-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	16.5	250	266	100	266	100	90-110	0	20	mg/kg	09.04.18 20:58	

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3061970

MB Sample Id: 7661565-1-BLK

Matrix: Solid

LCS Sample Id: 7661565-1-BKS

Prep Method: TX1005P

Date Prep: 08.31.18

LCSD Sample Id: 7661565-1-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	918	92	917	92	70-135	0	20	mg/kg	09.01.18 11:45	
Diesel Range Organics (DRO)	<8.13	1000	925	93	911	91	70-135	2	20	mg/kg	09.01.18 11:45	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		125		127		70-135	%	09.01.18 11:45
o-Terphenyl	95		95		92		70-135	%	09.01.18 11:45

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-Koonunga Hills BGX Federal 1 WRT Line

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3062279

MB Sample Id: 7661747-1-BLK

Matrix: Solid

LCS Sample Id: 7661747-1-BKS

Prep Method: TX1005P

Date Prep: 09.05.18

LCSD Sample Id: 7661747-1-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	919	92	878	88	70-135	5	20	mg/kg	09.05.18 15:20	
Diesel Range Organics (DRO)	<8.13	1000	962	96	925	93	70-135	4	20	mg/kg	09.05.18 15:20	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	98		117		118		70-135	%	09.05.18 15:20			
o-Terphenyl	108		103		101		70-135	%	09.05.18 15:20			

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3061970

Parent Sample Id: 597741-007

Matrix: Soil

MS Sample Id: 597741-007 S

Prep Method: TX1005P

Date Prep: 08.31.18

MSD Sample Id: 597741-007 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)	9.03	997	876	87	889	88	70-135	1	20	mg/kg	09.01.18 12:45	
Diesel Range Organics (DRO)	<8.10	997	909	91	925	93	70-135	2	20	mg/kg	09.01.18 12:45	
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane			114		124		70-135	%	09.01.18 12:45			
o-Terphenyl			88		92		70-135	%	09.01.18 12:45			

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3062279

Parent Sample Id: 597793-004

Matrix: Soil

MS Sample Id: 597793-004 S

Prep Method: TX1005P

Date Prep: 09.05.18

MSD Sample Id: 597793-004 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	858	86	829	83	70-135	3	20	mg/kg	09.05.18 16:20	
Diesel Range Organics (DRO)	<8.10	997	921	92	898	90	70-135	3	20	mg/kg	09.05.18 16:20	
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane			125		110		70-135	%	09.05.18 16:20			
o-Terphenyl			98		95		70-135	%	09.05.18 16:20			

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-Koonunga Hills BGX Federal 1 WRT Line

Analytical Method: BTEX by EPA 8021B

Seq Number: 3062607

MB Sample Id: 7661932-1-BLK

Matrix: Solid

LCS Sample Id: 7661932-1-BKS

Prep Method: SW5030B

Date Prep: 09.09.18

LCSD Sample Id: 7661932-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0727	73	0.102	101	70-130	34	35	mg/kg	09.09.18 14:47	
Toluene	0.000778	0.100	0.0952	95	0.0753	75	70-130	23	35	mg/kg	09.09.18 14:47	
Ethylbenzene	<0.000566	0.100	0.109	109	0.0859	85	70-130	24	35	mg/kg	09.09.18 14:47	
m,p-Xylenes	<0.00102	0.200	0.210	105	0.166	83	70-130	23	35	mg/kg	09.09.18 14:47	
o-Xylene	0.000509	0.100	0.102	102	0.0814	81	70-130	22	35	mg/kg	09.09.18 14:47	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	120		108		89		70-130	%	09.09.18 14:47
4-Bromofluorobenzene	90		102		85		70-130	%	09.09.18 14:47

Analytical Method: BTEX by EPA 8021B

Seq Number: 3062607

Parent Sample Id: 597744-007

Matrix: Soil

MS Sample Id: 597744-007 S

Prep Method: SW5030B

Date Prep: 09.09.18

MSD Sample Id: 597744-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.163	161	0.149	148	70-130	9	35	mg/kg	09.09.18 15:29	X
Toluene	<0.000459	0.101	0.120	119	0.108	107	70-130	11	35	mg/kg	09.09.18 15:29	
Ethylbenzene	<0.00202	0.101	0.133	132	0.122	121	70-130	9	35	mg/kg	09.09.18 15:29	X
m,p-Xylenes	<0.00102	0.202	0.260	129	0.234	116	70-130	11	35	mg/kg	09.09.18 15:29	
o-Xylene	<0.00202	0.101	0.127	126	0.113	112	70-130	12	35	mg/kg	09.09.18 15:29	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	80		83		70-130	%	09.09.18 15:29
4-Bromofluorobenzene	85		78		70-130	%	09.09.18 15:29

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

$[D] = 100 * (C - A) / B$   
 $RPD = 200 * |(C - E) / (C + E)|$   
 $[D] = 100 * (C) / [B]$   
 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



## Page 1 of 1



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

**ANALYSIS REQUEST**  
(Circle or Specify Method No.)

Final 1.000



# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 08/31/2018 02:24:00 PM

Work Order #: 597793

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)?	3.2
#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)?	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: 08/31/2018

Checklist reviewed by:

Kelsey Brooks

Date: 09/04/2018

**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico  
Energy, Minerals and Natural Resources  
Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505

CONDITIONS  
  
Action 83994

CONDITIONS

Operator: EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702	OGRID: 7377
	Action Number: 83994
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	None	3/9/2023