



PO Box 301 | Lovington, NM 88260 | Phone 575.396.2378

**February 2, 2017**

**Attn. Mike Bratcher**  
NMOCD, District 2  
811 South First Street  
Artesia, NM 88210

**RE: Corrective Action Plan  
XTO Energy  
North Indian Flats 24 Federal 15  
UL/D Sec24, T21S R28E  
32.472117, -104.046462  
NMOCD Reference # 2RP – 3518**

Mr. Bratcher:

XTO Energy (XTO) has retained Basin Environmental Service Technologies (Basin) to address potential environmental concerns at the above-referenced site.

### **Background and Previous Work**

The site is located approximately eleven and four tenths (11.4) miles northeast of Carlsbad, New Mexico at Unit Letter D of Section 24 in Township 21 South of Range 28 East. (See Figure 1) This site is located in an area where groundwater can be anticipated to be found at a depth of over two-hundred feet (200') below ground surface (bgs) (See Figure 2).

On January 13<sup>th</sup>, 2016, XTO discovered a release of approximately five (5) barrels (bbls) of crude oil when the stuffing box packing on the well head failed. The pumping unit was shut down and packing was replaced. An estimated three (3) bbls of crude were recovered. An estimated one-thousand, two-hundred eighty-four square feet (1,284 ft<sup>2</sup>) of the gypsum (caliche) pad area was impacted. The New Mexico Oil Conservation Division (NMOCD) was notified of the release on January 26<sup>th</sup>, 2016. An initial Release Notification and Corrective Action form (C-141) was submitted to NMOCD on September 18<sup>th</sup>, 2017, for approval.

Basin personnel were on site beginning January 4<sup>th</sup>, 2017, to begin delineation activities. Three (3) soil sample points were established. The soil sample points, (SP 1, SP 2, SP 3) were advanced to one foot bgs. Discrete soil samples were retrieved at the surface and at one foot. The discrete soil samples were delivered to an NMOCD approved laboratory for concentration analysis of Benzene, Toluene, Ethyl-benzene, Xylenes (BTEX), Gasoline Range Organics (GRO), Diesel Range Organics (DRO), Oil Range Organics (ORO) [Total Petroleum Hydrocarbons (TPH)] and chloride concentrations. (See Soil Chemistry Table).

## **Corrective Action Plan**

The impacted area will be excavated to one foot bgs between SP 1 and SP 3 as shown on Figure 2. The contaminated soils will be removed and disposed of at an NMOCD approved facility. Floor soil samples will be retrieved at the completion of remediation to ensure the impacted soils have been removed from the release area. The excavated area will then be backfilled with clean, imported, non-impacted soils and contoured to the surrounding area.

The supporting documentation for this Corrective Action Plan is attached.

Basin appreciates the opportunity to work with you on this project. Please contact me if you have any questions or wish to discuss the site.

Sincerely,

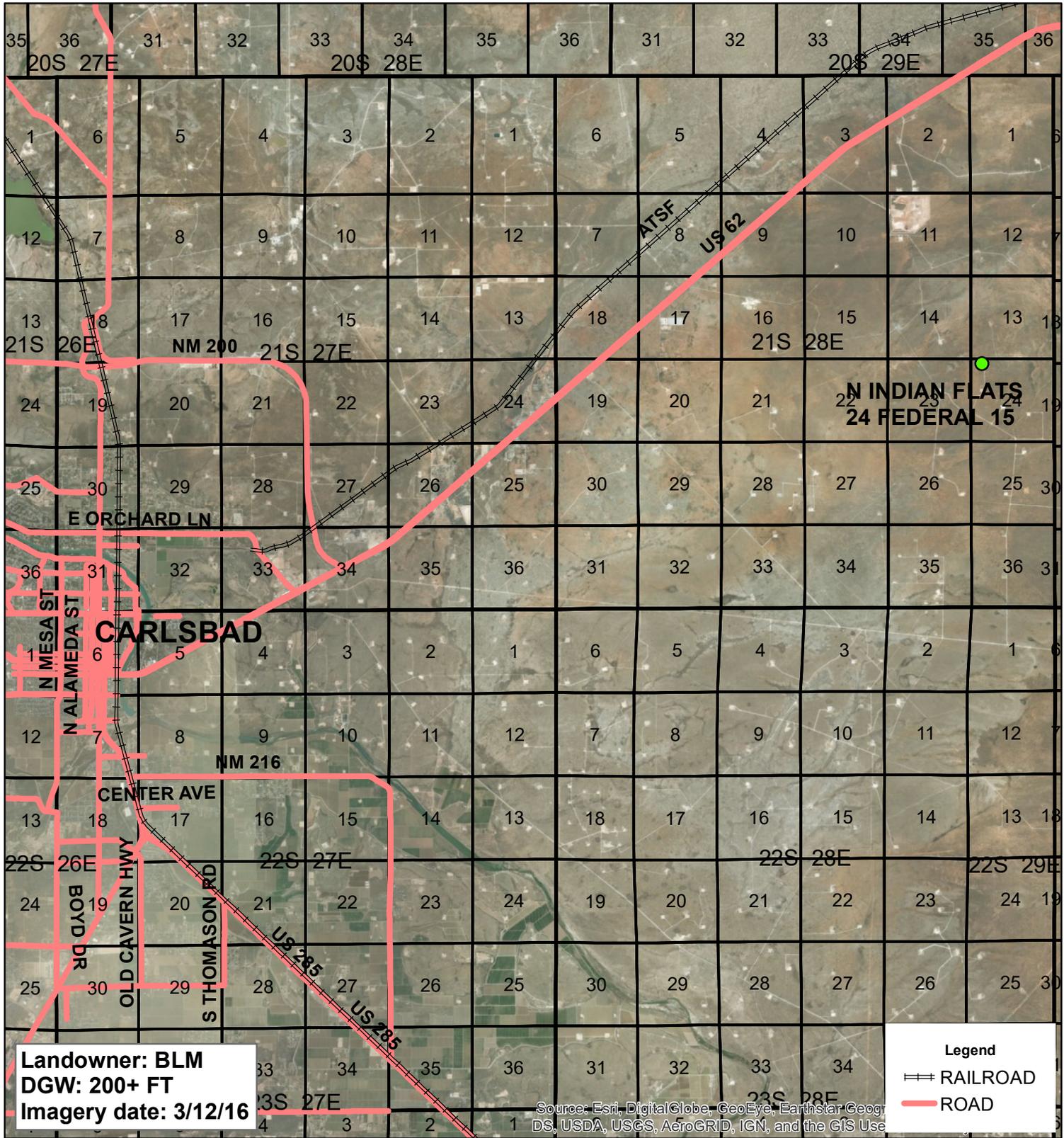


Robbie Runnels  
Project Manager  
Basin Environmental Service Technologies  
(575) 396-2378

### Attachments:

- Figure 1 – Site Location Map
- Figure 2 – Depth to Groundwater Map
- Figure 3 - Area Sampling and Proposed Excavation Map
- Figure 4 – Soil Chemistry Table
- Appendix A – Photo Documentation
- Appendix B – Initial C-141
- Appendix C - Analytical Report

# Geographic Location



**XTO**  
**NORTH INDIAN FLATS**  
**24 FEDERAL 15**

**UL D SECTION 24**  
**T-21-S R-28-E**  
**EDDY COUNTY, NM**

**GPS: 32.472126 -104.046437**

**Figure 1**

0 1 2  
 Miles

Drawing date: 1/31/18  
 Drafted by: T. Grieco



# Initial Sampling



Landowner: BLM  
DGW: 200+ FT  
Imagery date: 3/12/16

**Legend**

- ▲ SAMPLE POINT
- STAIN - 1,112 SQ FT
- ▨ PROPOSED EXCAVATION @ 1 FT - 708 SQ FT



**XTO**  
**NORTH INDIAN FLATS**  
**24 FEDERAL 15**

UL D SECTION 24  
T-21-S R-28-E  
EDDY COUNTY, NM

GPS: 32.472126 -104.046437

## Figure 3

0 25 50 Feet

Drawing date: 1/31/18  
Drafted by: T. Grieco

**FIGURE 4**  
**CONCENTRATIONS OF BENZENE, BTEX, TPH & CHLORIDE IN SOIL**  
**SOIL CHEMISTRY TABLE**  
**XTO Energy**  
**North Indian Flats 24 Federal #15**  
**EDDY COUNTY, NEW MEXICO**  
**Unit Letter D, Section 24, Township 21 South, Range 28 East**  
**NMOCD # - 2RP - 3518**

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030					METHOD: 8015M			TPH C <sub>6</sub> -C <sub>35</sub> (mg/Kg)	4500 Cl-B CHLORIDE (mg/Kg)
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL-BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO C <sub>6</sub> -C <sub>10</sub> (mg/Kg)	DRO C <sub>10</sub> -C <sub>28</sub> (mg/Kg)	ORO C <sub>28</sub> -C <sub>35</sub> (mg/Kg)		
SP 1 @ Surface	0'	1/4/2018	In-Situ	<0.050	<0.050	<0.050	<0.150	0.300	<10.0	<10.0	<10.0	<10.0	784
SP 1 @ 1'	1'	1/4/2018	In-Situ	<0.050	<0.050	<0.050	<0.150	0.300	<10.0	<10.0	<10.0	<10.0	320.0
SP 2 @ Surface	0'	1/4/2018	In-Situ	<0.050	<0.050	<0.050	<0.150	0.300	<10.0	<10.0	<10.0	<10.0	<16.0
SP 2 @ 1'	1'	1/4/2018	In-Situ	<0.050	<0.050	<0.050	<0.150	0.300	<10.0	<10.0	<10.0	<10.0	32.0
SP 3 @ Surface	0'	1/4/2018	In-Situ	<0.050	<0.050	<0.050	<0.150	0.300	<10.0	<10.0	<10.0	<10.0	928
SP 3 @ 1'	1'	1/4/2018	In-Situ	<0.050	<0.050	<0.050	<0.150	0.300	<10.0	<10.0	<10.0	<10.0	448
<b>NMOCD Recommended Remediation Action Level</b>				<b>10</b>				<b>50</b>				<b>5000</b>	<b>600</b>

NA = Not analyzed.

# XTO Energy – North Indian Flats 24 Federal 15

Unit Letter D of Section 24, T21S, R28E



Release area, facing northwest



Release area, facing north



Release area, facing northeast



Release area, facing south

**NM OIL CONSERVATION**  
ARTESIA DISTRICT

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

JAN 26 2016

Form C-141  
Revised August 8, 2011

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

**RECEIVED**

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report     Final Report

Name of Company: BOPCO, L.P. <i>210737</i>	Contact: Amy Ruth
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: North Indian Flats 24 Federal #015	Facility Type: Exploration and Production

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-39137
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**LOCATION OF RELEASE**

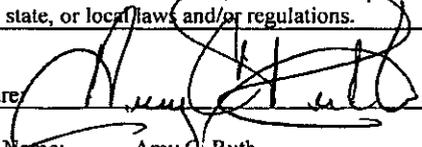
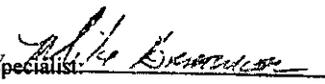
Unit Letter D	Section 24	Township 21S	Range 28E	Feet from the 330	North/South Line North	Feet from the 660	East/West Line West	County Eddy
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Latitude 32.472117°    Longitude -104.046462°

**NATURE OF RELEASE**

Type of Release Crude Oil	Volume of Release 5 bbls	Volume Recovered 3 bbls
Source of Release Stuffing Box	Date and Hour of Occurrence 1/13/2016 time unknown	Date and Hour of Discovery 1/13/2016 10 am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? N/A	
By Whom? N/A	Date and Hour N/A	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.* Stuffing box packing on the well head failed. The e-pot on the pumping unit shut down the well and the packing was replaced.		
Describe Area Affected and Cleanup Action Taken.* The leak affected 1284 ft <sup>2</sup> of well pad and vacuum trucks recovered standing fluids.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		

**OIL CONSERVATION DIVISION**

Signature: 	Approved by Environmental Specialist: 	
Printed Name: Amy C. Ruth	Approval Date: 1/26/16	Expiration Date: N/A
Title: EHS Remediation Specialist	Conditions of Approval: <b>Remediation per O.C.D. Rules &amp; Guidelines</b>	
E-mail Address: ACRuth@basspet.com	Attached <input type="checkbox"/>	
Date: 1/25/2016    Phone: 432-661-0571	SUBMIT REMEDIATION PROPOSAL NO LATER THAN: <u>2/27/16</u>	

\* Attach Additional Sheets If Necessary

2RP-3518



January 11, 2018

ROBBIE RUNNELS

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: NORTH INDIAN FLATS 24 FEDERAL #15

Enclosed are the results of analyses for samples received by the laboratory on 01/05/18 14:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 ROBBIE RUNNELS  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	01/05/2018	Sampling Date:	01/04/2018
Reported:	01/11/2018	Sampling Type:	Soil
Project Name:	NORTH INDIAN FLATS 24 FEDERAL #15	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	XTO ENERGY - EDDY CO NM		

**Sample ID: SP 1 @ SURFACE (H800045-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/09/2018	ND	1.98	99.2	2.00	3.50	
Toluene*	<0.050	0.050	01/09/2018	ND	1.97	98.5	2.00	4.24	
Ethylbenzene*	<0.050	0.050	01/09/2018	ND	1.97	98.5	2.00	4.48	
Total Xylenes*	<0.150	0.150	01/09/2018	ND	6.08	101	6.00	4.44	
Total BTEX	<0.300	0.300	01/09/2018	ND					

*Surrogate: 4-Bromofluorobenzene (PID) 102 % 72-148*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>784</b>	16.0	01/10/2018	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/10/2018	ND	200	99.8	200	8.76	
DRO >C10-C28*	<10.0	10.0	01/10/2018	ND	197	98.6	200	5.21	
EXT DRO >C28-C36	<10.0	10.0	01/10/2018	ND					

*Surrogate: 1-Chlorooctane 75.4 % 41-142*
*Surrogate: 1-Chlorooctadecane 74.8 % 37.6-147*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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 ROBBIE RUNNELS  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	01/05/2018	Sampling Date:	01/04/2018
Reported:	01/11/2018	Sampling Type:	Soil
Project Name:	NORTH INDIAN FLATS 24 FEDERAL #15	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	XTO ENERGY - EDDY CO NM		

**Sample ID: SP 1 @ 1' (H800045-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/09/2018	ND	1.98	99.2	2.00	3.50	
Toluene*	<0.050	0.050	01/09/2018	ND	1.97	98.5	2.00	4.24	
Ethylbenzene*	<0.050	0.050	01/09/2018	ND	1.97	98.5	2.00	4.48	
Total Xylenes*	<0.150	0.150	01/09/2018	ND	6.08	101	6.00	4.44	
Total BTEX	<0.300	0.300	01/09/2018	ND					

*Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>320</b>	16.0	01/10/2018	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/10/2018	ND	200	99.8	200	8.76	
DRO >C10-C28*	<10.0	10.0	01/10/2018	ND	197	98.6	200	5.21	
EXT DRO >C28-C36	<10.0	10.0	01/10/2018	ND					

*Surrogate: 1-Chlorooctane 74.3 % 41-142*
*Surrogate: 1-Chlorooctadecane 74.7 % 37.6-147*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 ROBBIE RUNNELS  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	01/05/2018	Sampling Date:	01/04/2018
Reported:	01/11/2018	Sampling Type:	Soil
Project Name:	NORTH INDIAN FLATS 24 FEDERAL #15	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	XTO ENERGY - EDDY CO NM		

**Sample ID: SP 2 @ SURFACE (H800045-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	01/09/2018	ND	1.98	99.2	2.00	3.50		
Toluene*	<0.050	0.050	01/09/2018	ND	1.97	98.5	2.00	4.24		
Ethylbenzene*	<0.050	0.050	01/09/2018	ND	1.97	98.5	2.00	4.48		
Total Xylenes*	<0.150	0.150	01/09/2018	ND	6.08	101	6.00	4.44		
Total BTEX	<0.300	0.300	01/09/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	01/10/2018	ND	432	108	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	01/10/2018	ND	200	99.8	200	8.76		
DRO >C10-C28*	<10.0	10.0	01/10/2018	ND	197	98.6	200	5.21		
EXT DRO >C28-C36	<10.0	10.0	01/10/2018	ND						

Surrogate: 1-Chlorooctane 64.1 % 41-142

Surrogate: 1-Chlorooctadecane 63.6 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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Project Name:	NORTH INDIAN FLATS 24 FEDERAL #15	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	XTO ENERGY - EDDY CO NM		

**Sample ID: SP 2 @ 1' (H800045-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/09/2018	ND	1.98	99.0	2.00	2.55	
Toluene*	<0.050	0.050	01/09/2018	ND	2.02	101	2.00	2.46	
Ethylbenzene*	<0.050	0.050	01/09/2018	ND	2.05	103	2.00	2.25	
Total Xylenes*	<0.150	0.150	01/09/2018	ND	6.09	102	6.00	2.02	
Total BTEX	<0.300	0.300	01/09/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>32.0</b>	16.0	01/10/2018	ND	432	108	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/10/2018	ND	200	99.8	200	8.76	
DRO >C10-C28*	<10.0	10.0	01/10/2018	ND	197	98.6	200	5.21	
EXT DRO >C28-C36	<10.0	10.0	01/10/2018	ND					

Surrogate: 1-Chlorooctane 74.1 % 41-142

Surrogate: 1-Chlorooctadecane 74.7 % 37.6-147

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Reported:	01/11/2018	Sampling Type:	Soil
Project Name:	NORTH INDIAN FLATS 24 FEDERAL #15	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	XTO ENERGY - EDDY CO NM		

**Sample ID: SP 3@ SURFACE (H800045-05)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/09/2018	ND	1.98	99.0	2.00	2.55	
Toluene*	<0.050	0.050	01/09/2018	ND	2.02	101	2.00	2.46	
Ethylbenzene*	<0.050	0.050	01/09/2018	ND	2.05	103	2.00	2.25	
Total Xylenes*	<0.150	0.150	01/09/2018	ND	6.09	102	6.00	2.02	
Total BTEX	<0.300	0.300	01/09/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>928</b>	16.0	01/10/2018	ND	432	108	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/10/2018	ND	201	100	200	11.8	
DRO >C10-C28*	<10.0	10.0	01/10/2018	ND	197	98.3	200	13.5	
EXT DRO >C28-C36	<10.0	10.0	01/10/2018	ND					

Surrogate: 1-Chlorooctane 85.8 % 41-142

Surrogate: 1-Chlorooctadecane 76.1 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 ROBBIE RUNNELS  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	01/05/2018	Sampling Date:	01/04/2018
Reported:	01/11/2018	Sampling Type:	Soil
Project Name:	NORTH INDIAN FLATS 24 FEDERAL #15	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	XTO ENERGY - EDDY CO NM		

**Sample ID: SP 3@ 1' (H800045-06)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/09/2018	ND	1.98	99.0	2.00	2.55	
Toluene*	<0.050	0.050	01/09/2018	ND	2.02	101	2.00	2.46	
Ethylbenzene*	<0.050	0.050	01/09/2018	ND	2.05	103	2.00	2.25	
Total Xylenes*	<0.150	0.150	01/09/2018	ND	6.09	102	6.00	2.02	
Total BTEX	<0.300	0.300	01/09/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>448</b>	16.0	01/10/2018	ND	432	108	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/10/2018	ND	201	100	200	11.8	
DRO >C10-C28*	<10.0	10.0	01/10/2018	ND	197	98.3	200	13.5	
EXT DRO >C28-C36	<10.0	10.0	01/10/2018	ND					

Surrogate: 1-Chlorooctane 75.2 % 41-142

Surrogate: 1-Chlorooctadecane 71.9 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report



