**APPROVED**
**By Olivia Yu at 11:44 am, Jul 24, 2018**

NMOCD approves of the proposed delineation for 1RP-5033. Modify RRALs to 50-99 ft. bgs.

# 1RP-5033
# DELINEATION PLAN
# AGU #247
## Lea County, New Mexico

Latitude: 32.382797° North
Longitude: -103.20827° West

LAI Project No. 18-0145-01

June 7, 2018

Prepared for:
XTO Energy, Inc.
6401 Holiday Hill Road, Building 5
Midland, Texas 79707

Prepared by:
Larson & Associates, Inc.
507 North Marienfeld Street, Suite 205
Midland, Texas 79701

Mark J. Larson, P.G.
Certified Professional Geologist #10490

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**Table of Contents**



**Figures**



**Appendices**

# 1.0 INTRODUCTION

Larson & Associates, Inc., (LAI) has prepared this delineation plan on behalf of XTO Energy, Inc. (XTO) for submittal to the New Mexico Oil Conservation Division (OCD) District 1 for a produced water spill at the Arrowhead Grayburg Unit (AGU) Well #247 (Site) located in Unit D (NW/4, NW/4), Section 19, Township 22 South, Range 37 East in Lea County, New Mexico. The geodetic position is North 32.382797° and West -103.20827 gure 1 presents a topographic map.

## *1.1 Background*

The spill was reported to the OCD on April 12, 2018, was due to a failed clamp on the steel flow line just below the surface near the wellhead releasing approximately 0.13 barrels (bbl) of oil and 8.82 bbl of produced water. Approximately 0.1 bbl of oil and 8.90 bbl of produced water were recovered. Released fluids was contained to the location and pooled in a low area about 90 feet northeast of the well. The affected area measures approximately 1,645 square feet. XTO replaced the failed clamp. The initial C-141 was submitted to OCD District 1 on April 16, 2018, and approved on April 27, 2018. OCD assigned the release remediation permit number 1RP-5033. Appendix A presents the approved initial C-141.

## *1.2 Physical Setting*

The Physical Setting is as follows:

- The surface elevation is approximately 3,430 feet above mean sea level (msl);
- The topography slopes gently to the southeast;
- The nearest surface water feature is greater than 10,00 feet from the Site;
- The soils are designated as “Pyote and maljamar fine sands”, consisting of fine sand to about 30 inches below ground surface (bgs) and fine sandy loam to about 60 inches bgs;
- The surface geology is designated as eolian and piedmont deposits (Holocene to middle Pleistocene) interbedded eolian sands and piedmont-slope deposits;
- The U.S. Geological Survey (USGS) reports a water well in Unit F (SE/4, NW/4), Section 19, Township 22 South, Range 37 East, about 1,850 feet southeast of the Site, with groundwater reported at approximately 109 feet bgs (1970);
- .

## *1.3 Recommended Remediation Action Levels*

Recommended remediation action levels (RRAL) were calculated for benzene, BTEX and TPH based on the following criteria established by the OCD in *“Guidelines for Remediation of Leaks, Spills and Releases, pp. 6-7, August 13, 1993”:*

| *Criteria* | *Result* | *Score* |
|---|---|---|
| Depth-to-Groundwater | >100 Feet | 0 |
| Wellhead Protection Area | No | 0 |
| Distance to Surface Water Body | >1,000 Horizontal Feet | 0 |

The following RRAL apply to the release for ranking score: 0

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 5,000 mg/Kg

Depth to groundwater greater than 100 feet bgs requires vertical delineation for chloride to 600 milligrams per kilogram (mg/Kg) and maintained to a minimum 5 feet farther in depth.

## 2.0 DELINEATION PLAN

LAI proposes to collect soil samples at four (4) locations within the spill area for vertical delineation and four (4) soil samples in each cardinal direction (north, south, east and west) for horizontal delineation. The samples will be collected at 1 foot intervals to a depth of approximately 4 feet bgs and at 2 foot intervals to a depth of approximately 12 feet bgs with direct push technology (DPT) depending on subsurface conditions. The soil samples will be delivered under chain of custody and preservation to a National Environmental Laboratory Accreditation Program (NLAP) accredited laboratory. The laboratory will analyze the upper (0 to 1 foot) sample from each location for benzene, toluene, ethylbenzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH), including gasoline range organics (C6-C12), diesel range organics (>C12-C28) and oil range organics (>C28-C35) EPA SW-846 Methods 8021B and 8015M. All samples will be analyzed for chloride by EPA Method E300. Pending laboratory results, further delineation may be required to achieve the RRAAL for benzene, BTEX and TPH or delineation limit. Figure 3 presents an aerial map showing the proposed soil sample locations. Appendix B presents photographs.

## 3.0 REMEDIATION PLAN

XTO will submit a remediation plan to the OCD upon completion of the delineation.

# Figures

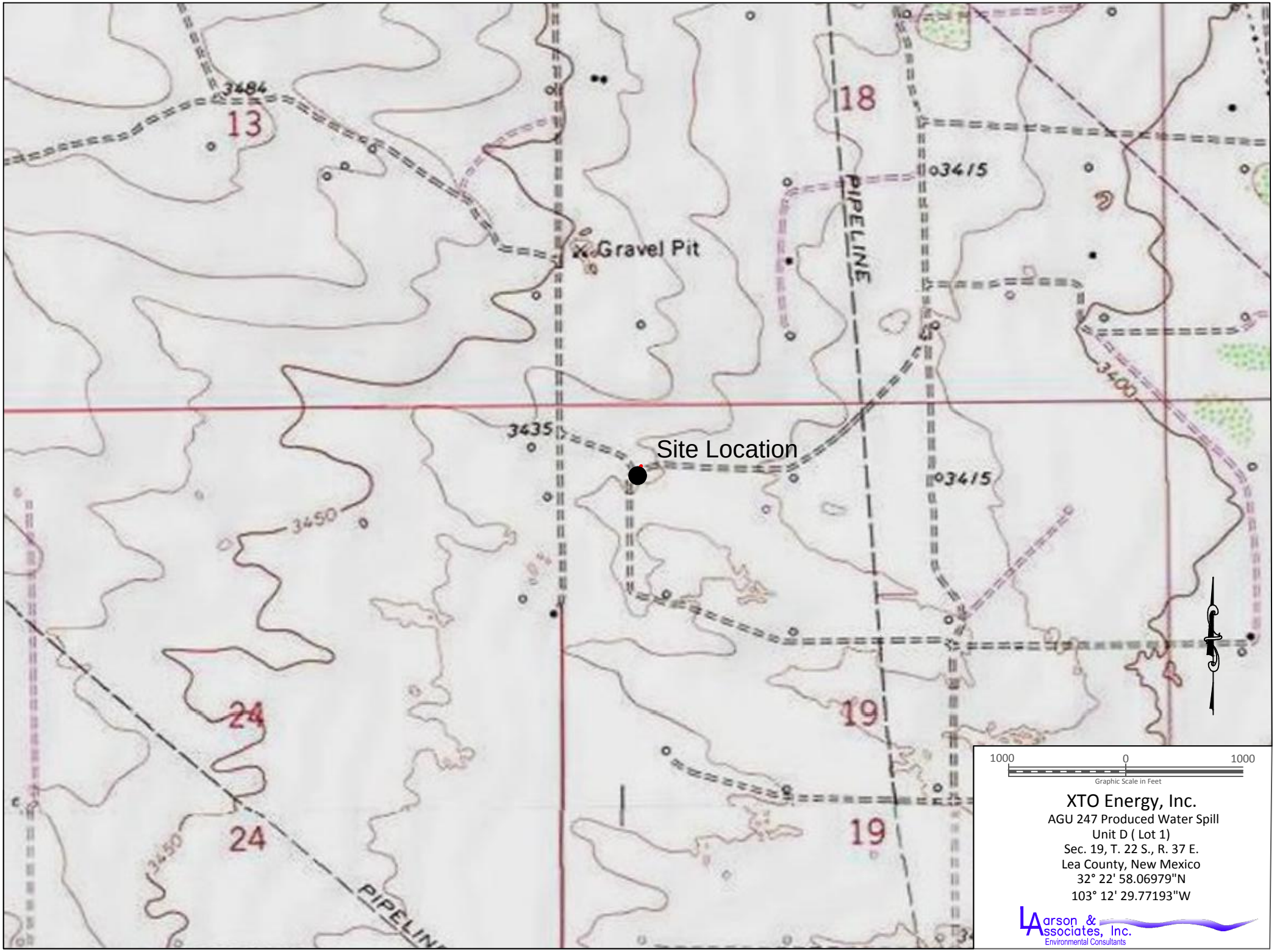


Figure 1 - Topographic Map

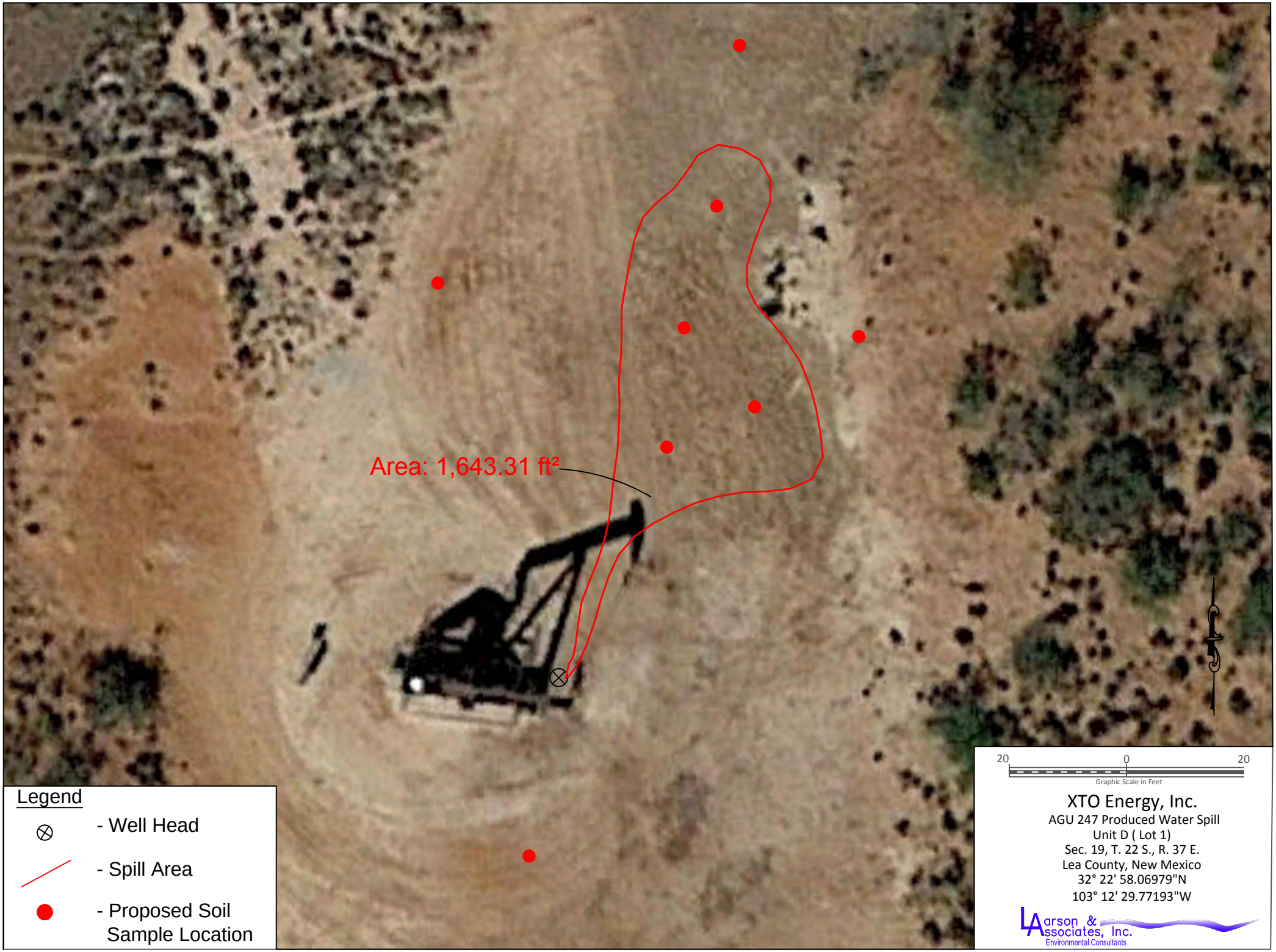


Figure 2 - Aerial Map Showing Proposed Soil Sample Locations

# Appendix A

# Initial C-141

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 April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

# Release Notification and Corrective Action

## OPERATOR

X Initial Report ☐ Final Report

| | |
|---|---|
| Name of Company XTO Energy | Contact Scott Kaufman |
| Address 6401 Holiday Hill Rd. Building 5 Midland TX 79707 | Telephone No. 432-234-3054 |
| Facility Name AGU #247 | Facility Type Location/ Well Head area |

| | | | | |
|---|---|---|---|---|
| Surface Owner State arry Strain | | Mineral Owner State | Larry Strain | API No. 3002510362 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| D | 19 | 22 | 37 | | | | | Lea |

Latitude 32.38278 2"N Longitude -103.2081985 NAD83

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release Produced Oil and Water | Volume of Release 0.13 bbls Oil, 8.82 bbls Prod water | Volume Recovered 0.10 bbls Oil, 6.90 bbls Prod water |
| Source of Release Well Head/ Flowline | Date and Hour of Occurrence | Date and Hour of Discovery |
| Was Immediate Notice Given? X Yes ☐ No ☐ Not Required | If YES, To Whom? Land Owner Verbal & E-mail to Olvia Yu, NMOCD | |
| By Whom? Scott Kaufman | Date and Hour 4/12/2018 1:30pm MT | |
| Was a Watercourse Reached? ☐ Yes X No | If YES, Volume Impacting the Watercourse. | |

If a Watercourse was Impacted, Describe Fully.*

N/A

**RECEIVED**
**By Olivia Yu at 12:05 pm, Apr 27, 2018**

Describe Cause of Problem and Remedial Action Taken.*

It was discovered that bolts closing a Victaulic clamp had become aged and corroded just under surface on flow line from wellhead and failed.

Describe Area Affected and Cleanup Action Taken.*

2,180 ft² was affected and picked up by Vac truck. Once RP# is given final clean up measures will be taken by XTO Energy to complete remediation.

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: Scott Kaufman

Title: Oil Center Production Foreman

E-mail Address: scott_kaufman@xtoenergy.com

Date: 4/16/2018 Phone: 432-234-3054

**OIL CONSERVATION DIVISION**

Approved by Environmental Specialist: Oy

Approval Date: 4/27/2018 Expiration Date:

Conditions of Approval: see attached directive

Attached ☑

* Attach Additional Sheets If Necessary

1RP-5033 nOY1811743481

pOY1811744016

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _4/27/2018_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-5033__ has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _5/27/2018_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

● Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; $C_6$ thru $C_{36}$), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

● Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; $C_6$ thru $C_{36}$), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

● Nominal detection limits for field and laboratory analyses must be provided.

● Composite sampling is not generally allowed.

● Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

●Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

● If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

● Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

**Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.**

**Jim Griswold**
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

| | |
|---|---|
| **From:** | Kaufman, Scott |
| **To:** | Yu, Olivia, EMNRD |
| **Cc:** | Williams, Luke; Parks, Doug; Meadows, Derrick; Donald, Patricia; Kemp, Deeann; Espino, Fernando |
| **Subject:** | XTO Energy AGU #247 Release |
| **Date:** | Thursday, April 12, 2018 12:32:50 PM |
| **Attachments:** | image001.png<br>AGU #247 Spill Calc.png |

Good afternoon Mrs. Yu,

I'm notifying you of a small release that XTO Energy had on 4/11/2018 of both oil & produced water from Well Location AGU #247. Due to bolts closing a Victaulic clamp had become aged and corroded just under surface on flow line from wellhead and failed.
Approx. release total was 8.95 bbls ( 0.13 bbls Oil and 8.82 bbls Produced water). We recovered 7.00 bbls total ( 0.10 Oil and 6.90 bbls Produced water) I have attached Spill calc for you as well.

I have contacted Private Land owner at the leak did stay on XTO location owned by Private, we will be remediating when approved and following up with a C-141 soon.

If you should have any further questions or need anything please feel free to contact me as always….E-mail address above and cell 432-234-3054.

Thank you,

*Scott Kaufman*

***Production Foreman***
*Permian Division*
*Eunice & Oil Center NM, EMSU & AGU Leases*
XTO ENERGY a subsidiary of ExxonMobil

| | | |
|---|---|---|
| Volume Picked up | 7.00 | bbls |

## TOTAL VOLUME OF LEAK (SOAK AND RECOVERED)

| | | |
|---|---|---|
| Total Oil= | 0.13 | barrels |
| Total Produced Water= | 8.82 | barrels |

## TOTAL VOLUME RECOVERED

| | | |
|---|---|---|
| Total Oil= | 0.10 | barrels |
| Total Produced Water= | 6.90 | barrels |

# Appendix B

# Photographs

AGU Well #247 Viewing South, May 30, 2018


Spill Area Viewing Northeast, May 30, 2018

Spill Area Viewing Southwest, May 30, 2018