

State of Colorado  
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



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Report taken by:  
John Heil

Site Investigation and Remediation Workplan (Supplemental Form)

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. However, this shall not preclude the Operator from taking immediate action to protect public health or safety, the environment, wildlife, or livestock.

This Form 27 describes site conditions as currently understood by the Operator; approval of this Form 27 by COGCC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27.

This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.

Refer to Rules 340, 905, 906, 907, 908, 909, and 910

OPERATOR INFORMATION

Name of Operator: XTO ENERGY INC	Operator No: 100264	<b>Phone Numbers</b>
Address: 110 W 7TH STREET		Phone: (970) 675-4089
City: FORT WORTH State: TX Zip: 76102		Mobile: (970) 250-4867
Contact Person: Natalie Steiner	Email: natalie_steiner@xtoenergy.com	

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**  
Remediation Project #: 9186 Initial Form 27 Document #: 2495192

**PURPOSE INFORMATION**

<input type="checkbox"/> 901.e. Sensitive Area Determination	<input type="checkbox"/> 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
<input type="checkbox"/> 909.c.(1), Rule 905: Pit or PW vessel closure	<input type="checkbox"/> Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
<input checked="" type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation	<input type="checkbox"/> Rule 909.e.(2)B.: Closure of remediation project
<input type="checkbox"/> 909.c.(3), Rule 907.e.: Land treatment of oily waste	<input type="checkbox"/> Rule 906.c.: Director request
<input type="checkbox"/> 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure	<input type="checkbox"/> Other _____

**SITE INFORMATION**      N      Multiple Facilities ( in accordance with Rule 909.c. )

Facility Type: WELL	Facility ID: _____	API #: 103-08340	County Name: RIO BLANCO
Facility Name: PICEANCE CREEK UNIT F23-18G	Latitude: 39.876360	Longitude: -108.212270	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NESW	Sec: 18	Twp: 2S	Range: 96W Meridian: 6 Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications SC      Most Sensitive Adjacent Land Use non crop land

Is domestic water well within 1/4 mile? No      Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? No

**Other Potential Receptors within 1/4 mile**

Nearest surface water is > 1/4 mile, nearest water well >1/2 mile.

# SITE INVESTIGATION PLAN

## TYPE OF WASTE:

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste      | <input type="checkbox"/> Other E&P Waste             | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids             | _____                                  |
| <input type="checkbox"/> Oil                       | <input type="checkbox"/> Tank Bottoms                |  |
| <input type="checkbox"/> Condensate                | <input type="checkbox"/> Pigging Waste               |  |
| <input type="checkbox"/> Drilling Fluids           | <input type="checkbox"/> Rig Wash                    |  |
| <input type="checkbox"/> Drill Cuttings            | <input type="checkbox"/> Spent Filters               |  |
|  | <input type="checkbox"/> Pit Bottoms                 |  |
|  | <input type="checkbox"/> Other (as described by EPA) | _____                                  |

## DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	30' x 50' x 30'	LABORATORY ANALYSIS

## INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

Initial spill was reported on January 9, 2015 via Form 19 Doc #400767949. A line malfunction was isolated and the line removed from service. Initial samples were collected to assess the level of impacts and to identify constituents of concern. Please refer to the tables (Table 1) and figures (Figures 1-3) attached.

## PROPOSED SAMPLING PLAN

### Proposed Soil Sampling

Will soil samples be collected as part of this investigation? ( Number, type (grab/composite), analyses, and locations of samples ):

On 7/15/19, a truck-mounted drill rig equipped with hollow stem auger was used to advance three soil borings within the release area to assess remediation progress. The soil borings were logged by a geologist who inspected the soil for the presence of petroleum hydrocarbon odor and/or staining. The soil was characterized by visually inspecting the soil samples and field screened the soil headspace using a photo-ionization detector (PID) to monitor for the presence of volatile organic vapors. Five (5) soils samples were collected. Three of the five samples were above the Table 910-1 standards (Table 1). A Site Map depicting soil boring locations is included as an attachment (Figure 2). Laboratory analytical results are included as an attachment. Two of the soil borings were converted to soil vapor extraction (SVE) wells and were installed into the current SVE system piping (Figure 3). Over the course of the remediation activities, VOC measurements will be collected and monitored.

### Proposed Groundwater Sampling

Will groundwater samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

### Proposed Surface Water Sampling

Will surface water samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

### Additional Investigative Actions

Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 5  
Number of soil samples exceeding 910-1 3  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 1500

### NA / ND

-- Highest concentration of TPH (mg/kg) 2470  
-- Highest concentration of SAR 4.1  
BTEX > 910-1 Yes  
Vertical Extent > 910-1 (in feet) 30

### Groundwater

Number of groundwater samples collected 0  
Was extent of groundwater contaminated delineated? No  
Depth to groundwater (below ground surface, in feet) \  
Number of groundwater monitoring wells installed           
Number of groundwater samples exceeding 910-1         

NA Highest concentration of Benzene (µg/l)           
NA Highest concentration of Toluene (µg/l)           
NA Highest concentration of Ethylbenzene (µg/l)           
NA Highest concentration of Xylene (µg/l)           
NA Highest concentration of Methane (mg/l)         

### Surface Water

0 Number of surface water samples collected  
0 Number of surface water samples exceeding 910-1  
If surface water is impacted, other agency notification may be required.

## OTHER INVESTIGATION INFORMATION

Were impacts to adjacent property or offsite impacts identified?

Were background samples collected as part of this site investigation?

Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards)               Volume of liquid waste (barrels)         

Is further site investigation required?

# REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? No \_\_\_\_\_

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Impacted soils above Table 910-1 Concentration Levels will be treated in-situ using a SVE system. At the completion of the project, appropriate confirmation sampling will be conducted to assure soils are below Table 910-1 Concentration Levels.

## REMEDICATION SUMMARY

Describe how remediation of existing impacts to soil and groundwater is to be accomplished (i.e. summarize remedial action plan). Provide a brief narrative description including: technical justification, schedule for implementation, estimated time to attain NFA status, plus plans and specifications for the selected remedial action technology.

Since system startup on 9/26/2016, the SVE system has been running 24 hours per day with the exception of a shutdown in the winter of 2016 due to condensation in the SVE lines. The lines were cleaned out and additional knockout pots were added to the system.

On 11/21/2019, the system was shut off again to install two SVE wells (SVE-06 and SVE-07) into the existing system piping. The wells were connected using a hydrovac truck to trench in the piping (Figure 3). After the new wells were connected, some system wells (SVE-01, SVE-02, SVE-03, and SVE-05) were bypassed due to their locations outside of the impacted area. The system was then restarted and it continues to operate 24 hours a day.

As part of system O&M activities, volatile organic compounds (VOC) measurements have been collected quarterly per Initial Form 27 Document #2495192. Over the course of these remediation activities, VOC measurements have been steadily decreasing, indicating the removal of hydrocarbons from the impacted subsurface. Since the initial startup phase, PID measurements have been reduced from 536 ppm to 339 ppm, which is slightly higher than last quarter but expected when adding a previously untreated area to the system. Flame ionization detector (FID) measurements have been reduced from 7,620 ppm to 127 ppm. XTO believes that this data does not indicate COGCC Table 910-1 compliance; and therefore, will continue to operate the SVE system, removing hydrocarbons from the subsurface until VOC measurements indicate COGCC Table 910-1 compliance. At that time, soil confirmation samples will be collected from within the release area to confirm remedial activities.

## Soil Remediation Summary

In Situ

Ex Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

Yes \_\_\_\_\_ Excavate and offsite disposal

\_\_\_\_\_ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 75

Yes \_\_\_\_\_ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_

\_\_\_\_\_ Natural Attenuation

\_\_\_\_\_ Excavate and onsite remediation

\_\_\_\_\_ Other \_\_\_\_\_

No \_\_\_\_\_ Land Treatment

No \_\_\_\_\_ Bioremediation (or enhanced bioremediation)

No \_\_\_\_\_ Chemical oxidation

\_\_\_\_\_ Other \_\_\_\_\_

## Groundwater Remediation Summary

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

\_\_\_\_\_ Chemical oxidation

\_\_\_\_\_ Air sparge / Soil vapor extraction

\_\_\_\_\_ Natural Attenuation

\_\_\_\_\_ Other \_\_\_\_\_

## GROUNDWATER MONITORING

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

Frequency:  Quarterly  Semi-Annually  Annually  Other \_\_\_\_\_

Report Type:  Groundwater Monitoring  Land Treatment Progress Report  O&M Report

Other \_\_\_\_\_

## WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_

E&P waste (solid) description \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: \_\_\_\_\_

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_

E&P waste (liquid) description \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: \_\_\_\_\_

## REMEDIATION COMPLETION REPORT

### REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No

Do all soils meet Table 910-1 standards? \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? \_\_\_\_\_

Are the only residual soil impacts pH, SAR, or EC at depths greater than 3 feet below ground surface? \_\_\_\_\_

Does Groundwater meet Table 910-1 standards? \_\_\_\_\_

Is additional groundwater monitoring to be conducted? \_\_\_\_\_

## RECLAMATION PLAN

### RECLAMATION PLANNING

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing.

Following completion of remediation activities and confirmation soil sampling all disturbances will be restored to preexisting conditions.

Is the described reclamation complete? No

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

Interim?  Final?

Did the Surface Owner approve the seed mix? \_\_\_\_\_

If NO, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

# IMPLEMENTATION SCHEDULE

## **PRIOR DATES**

Date of Surface Owner notification/consultation, if required. 01/09/2015

Actual Spill or Release date, if known. 01/08/2015

## **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 01/15/2015

Date of commencement of Site Investigation. 08/14/2015

Date of completion of Site Investigation. 08/24/2016

## **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 09/26/2016

Date of completion of Remediation. \_\_\_\_\_

## **SITE RECLAMATION DATES**

Date of commencement of Reclamation. \_\_\_\_\_

Date of completion of Reclamation. \_\_\_\_\_

**OPERATOR COMMENT**

For Review by John Heil

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: ` Natalie Steiner

Title: SSHE Technician

Submit Date: ` 03/02/2020

Email: natalie\_steiner@xtoenergy.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: John Heil

Date: 03/10/2020

Remediation Project Number: 9186

**COA Type****Description**

	Operator shall provide the approximate depth of groundwater.
	Operator shall provide information on how vertical and horizontal delineation was achieved.
	Operator shall provide boring logs in accordance with standard environmental practices. This includes at a minimum; lithology description, USCS classifications, PID readings, sample collection depths, depth to water, and well construction.
	Operator shall provide all sampling logs of the SVE system.

**Attachment Check List**

Upon approval, the approved Form 27 and all listed attachments will be indexed to the Remediation Project file. Only the approved Form 27 will also be indexed to the related Facilities.

**Att Doc Num****Name**

402311323	FORM 27-SUPPLEMENTAL-SUBMITTED
402312280	ANALYTICAL RESULTS
402312283	SITE MAP
402312287	SOIL SAMPLE LOCATION MAP
402318239	SITE MAP

Total Attach: 5 Files

**General Comments****User Group****Comment****Comment Date**

		Stamp Upon Approval
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Total: 0 comment(s)