

State of Colorado  
Oil and Gas Conservation Commission

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402876310  
Receive Date:  
12/10/2021

Report taken by:  
CHRIS CANFIELD

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.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

|  |                           |   |
|--|---------------------------|---|
| Name of Operator: <u>EXTRACTION OIL &amp; GAS INC</u>                              | Operator No: <u>10459</u> | <b>Phone Numbers</b><br>Phone: <u>(303) 774-4017</u><br>Mobile: <u>(720) 925-1820</u> |
| Address: <u>370 17TH STREET SUITE 5200</u>   |                           |   |
| City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u>                             |                           |   |
| Contact Person: <u>Schuyler Hamilton</u> Email: <u>shamilton@civiresources.com</u> |                           |   |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 17262 Initial Form 27 Document #: 402617994

PURPOSE INFORMATION

- Rule 913.c.(1): Pit or Cuttings Trench closure.
- Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- Rule 913.g: Changes of Operator.
- Rule 915.b: Request to leave elevated inorganics in situ.
- Other: NFA Request

SITE INFORMATION

Yes  Multiple Facilities

|   |                            |                               |   |
|---|----------------------------|-------------------------------|---|
| Facility Type: <u>WELL</u>                                | Facility ID: _____         | API #: <u>013-06247</u>       | County Name: <u>BOULDER</u>                                     |
| Facility Name: <u>DONLEY 2-36</u>                         | Latitude: <u>40.004330</u> | Longitude: <u>-105.059790</u> |   |
| ** correct Lat/Long if needed: Latitude: _____            |                            | Longitude: _____              |   |
| QtrQtr: <u>NESE</u>                                       | Sec: <u>36</u>             | Twp: <u>1N</u>                | Range: <u>69W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u> |
| Facility Type: <u>LOCATION</u>                            | Facility ID: <u>321345</u> | API #: _____                  | County Name: <u>BOULDER</u>                                     |
| Facility Name: <u>DONLEY-61N69W 36NESE</u>                | Latitude: <u>40.004330</u> | Longitude: <u>-105.059790</u> |   |
| ** correct Lat/Long if needed: Latitude: <u>40.003867</u> |                            | Longitude: <u>-105.060069</u> |   |
| QtrQtr: <u>NESE</u>                                       | Sec: <u>36</u>             | Twp: <u>1N</u>                | Range: <u>69W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u> |

## **SITE CONDITIONS**

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Non-cropland.

Is domestic water well within 1/4 mile? Yes

Is surface water within 1/4 mile? Yes

Is groundwater less than 20 feet below ground surface? Yes

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

Aquatic Native Species Conservation Waters and occupied structures.

# 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 checked="" type="checkbox"/> Oil            | <input type="checkbox"/> Tank Bottoms                |  |
| <input checked="" 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       | GROUNDWATER    | Defined by 11/9/21 samples | Laboratory Analysis |
| Yes       | SOILS          | See Figure                 | 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.

This form has been prepared to support removal of the production equipment associated with this location. In accordance with COGCC Rule 911 and Rule 915, initial representative soil samples will be collected beneath the following equipment, if present onsite: wellheads, separators, above ground surface tanks, and produced water vessels. Initial laboratory soil analysis will include only BTEX, 1,2,4 and 1,3,5 Trimethylbenzene, naphthalene, TPH, pH, EC, SAR and boron. Other equipment such as the ECDs, meter sheds, or other qualifying equipment will be field screened, and a lab analysis submitted if impacts are identified. Groundwater, if present, will also be collected and analyzed. Identified impacts will be reported as required for each discovery, and a Form 19 will be submitted, and remedial investigation will be conducted with excavation equipment.

## 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 ):

In accordance with COGCC Rule 911 and Rule 915 soil samples will be collected during closure of each qualifying equipment type and/or field screened as described in the Initial Action Summary. Initial laboratory analysis will include only BTEX, 1,2,4 and 1,3,5 Trimethylbenzene, naphthalene, TPH, pH, EC, SAR and boron. If impacts are confirmed, the full Table 915-1 list of analysis will be tested for and additional excavation effort may be conducted to delineate horizontal and vertical extents. Overburden stockpiles, if present, will be sampled prior to use as backfill with a frequency of 1 composite sample per 500 cubic yards of material and submitted for analysis of VOCs.

### Proposed Groundwater Sampling

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

If groundwater is encountered during excavation activities, one sample will be collected and analyzed for Table 915-1 groundwater constituents.

### 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

NA / ND

Number of soil samples collected 65 -- Highest concentration of TPH (mg/kg) 749  
 Number of soil samples exceeding 915-1 3 -- Highest concentration of SAR 44.9  
 Was the areal and vertical extent of soil contamination delineated? Yes BTEX > 915-1 Yes  
 Approximate areal extent (square feet) 4575 Vertical Extent > 915-1 (in feet) 5

**Groundwater**

Number of groundwater samples collected 6 -- Highest concentration of Benzene (µg/l) 5.64  
 Was extent of groundwater contaminated delineated? Yes -- Highest concentration of Toluene (µg/l) 32.9  
 Depth to groundwater (below ground surface, in feet) 6` -- Highest concentration of Ethylbenzene (µg/l) 8.48  
 Number of groundwater monitoring wells installed 0 -- Highest concentration of Xylene (µg/l) 59.2  
 Number of groundwater samples exceeding 915-1 1 NA Highest concentration of Methane (mg/l) \_\_\_\_\_

**Surface Water**

0 Number of surface water samples collected  
         Number of surface water samples exceeding 915-1  
 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?

Twenty background soil samples were collected from an area within native soils undisturbed by oil and gas activities. Background soil samples were analyzed for soil suitability and 915-1 Metals and the results were used to generate baseline levels for native soil conditions. Sample depths ranged from 4 feet to 7 feet. EC was reported with concentrations ranging from 0.812 to 19.5 mmhos/cm. SAR was reported with values ranging from 6.42 to 52.5. pH was reported values ranging from 7.84 to 8.71. Boron was reported with concentrations ranging from 0.38 to 6.37 mg/L. Background samples also indicated that Arsenic, Barium, Lead, and Selenium were present in elevated concentrations. Elevated levels of soil suitability parameters are attributed to proximity to a salty marshland. Visible salt deposits were evident in all excavations on site, including background sample excavations.

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.

Once evidence of historical release was discovered during the closure of the produced-water vessel, the separator, and the wellhead, additional excavations were conducted and impacted soil and groundwater were removed and transported to a disposal facility. The pH exceedance is located below the root zone and will not affect revegetation during reclamation. A total of approximately 840 cubic yards of soil and 200 barrels of water were disposed of at the Front Range Landfill and NGL South weld, respectively in Erie and Weld County, Colorado. Transport and disposal records will be kept on file under usual and customary practice and are available upon request. Soil samples were collected and analyzed for Table 915-1 constituents until the horizontal and vertical extents of the excavation were within COGCC Table 915-1 allowable limits. Confirmation water samples were collected following the removal of impacted material. Laboratory results indicated all final groundwater samples were non-detect for BTEX, Naphthalene, 1,2,4-Trimethylbenzene, and 1,3,5-Trimethylbenzene.

**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.

In accordance with COGCC Rule 911 and Rule 915, representative surface soil samples were collected beneath the separator, above-ground storage tanks (AST), and excavation samples were collected from the partially-buried produced water vessel (PWV). Other equipment, such as the meter shed and flowlines, were field screened using a photoionization detector (PID). Background soil samples were analyzed for soil suitability and 915-1 Metals and the results were used to generate baseline levels for native soil conditions. Results indicated that all analytes for Soil Suitability for Reclamation are naturally elevated, likely due to proximity to salty marshlands. EC was reported with concentrations ranging from 0.812 to 19.5 mmhos/cm. SAR was reported with values ranging from 6.42 to 52.5. pH was reported values ranging from 7.84 to 8.71. Boron was reported with concentrations ranging from 0.38 to 6.37 mg/L. Background samples also indicated that Arsenic, Barium, Lead, and Selenium were present in elevated concentrations.

**Soil Remediation Summary**

In Situ

Ex Situ

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

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

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

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 840

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

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

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

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

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

\_\_\_\_\_ Land Treatment

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

\_\_\_\_\_ 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.

Initial groundwater samples were collected from each of the three excavations following the discovery of impacted soils, and were analyzed for BTEX, Naphthalene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, TDS, chloride, and sulfate. One sample (GW01@5'), collected from the wellhead excavation exceeded regulatory limits for benzene. Following the removal and confirmation sampling of soil impacts from all three excavations, confirmation groundwater samples were collected and analyzed for BTEX, Naphthalene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene and were reported with no Table 915 exceedances.

# REMEDATION PROGRESS UPDATE

## PERIODIC REPORTING

### Approved Reporting Schedule:

Quarterly     Semi-Annually     Annually     Other    Final Report

### Request Alternative Reporting Schedule:

Semi-Annually     Annually     Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

**Report Type:**     Groundwater Monitoring     Land Treatment Progress Report     O&M Report  
 Other    NFA Request

## WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? \_\_\_\_\_

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: \_\_\_\_\_

# REMEDATION COMPLETION REPORT

## REMEDATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes \_\_\_\_\_

If YES:

- Compliant with Rule 913.h.(1).
- Compliant with Rule 913.h.(2).
- Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards? Yes \_\_\_\_\_

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

Does Groundwater meet Table 915-1 standards? Yes \_\_\_\_\_

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

Operator shall comply with the COGCC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

# 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.

Reclamation activities will be completed in accordance with 1000 Series Rules, in collaboration with the landowner, and reported in a Form 4 (Sundry Notice) with proper documentation to demonstrate compliance with requirements for final reclamation. After all road base or other material is removed for reclamation, Operator may submit samples for laboratory analysis for soil suitability in compliance with 915.b if impacts from inorganic constituents are indicated.

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 provide the seed mix? \_\_\_\_\_

If YES, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

Did the local soil conservation district provide the seed mix? \_\_\_\_\_

## SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. \_\_\_\_\_

Proposed date of completion of Reclamation. \_\_\_\_\_

## IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

### PRIOR DATES

Date of Surface Owner notification/consultation, if required. 03/05/2021

Actual Spill or Release date, or date of discovery. 07/27/2021

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/04/2021

Proposed site investigation commencement. 07/26/2021

Proposed completion of site investigation. 11/15/2021

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 07/27/2021

Proposed date of completion of Remediation. 11/08/2021

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

## OPERATOR COMMENT

This form has been prepared to document the successful removal of the production equipment and spill/release remediation associated with this location. Groundwater Protection Standard screening levels were utilized at this location based on groundwater encountered in the excavations. Analytical data was reported with soil samples in exceedance of Table 915-1 groundwater protection screening levels for arsenic, barium, and selenium. Background samples collected from nearby, non-impacted native soils indicate that elevated arsenic, barium, and selenium concentrations are naturally occurring in the native soils in the area. Elevated EC and SAR levels reported in numerous samples are attributed to proximity to a salty marshland. Analytical data was also reported with slightly elevated values of pH ranging from 7.52 to 9.12 in the PWV samples when compared with background values. Any remaining shallow pH exceedances will be addressed during future site reclamation. Initial samples of groundwater reported a Table 915-1 exceedance of benzene. Following removal of impacted soils and groundwater, confirmation groundwater samples report no exceedances of Table 915-1 for organic constituents. Please find the attached Topographic Map, Site Diagram, Lab Results Summary Table, photolog, and a copy of the laboratory results.

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

Signed: Maggie Graham

Title: Senior Project Manager

Submit Date: 12/10/2021

Email: Maggie.Graham@apexcos.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: CHRIS CANFIELD

Date: 12/16/2021

Remediation Project Number: 17262

## Condition of Approval

### COA Type

### Description

|        |   |
|--------|---|
|        | Based on the information presented, it appears that no further action is necessary at this time and the COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if groundwater is found to be impacted, then further investigation and/or remediation activities may be required. |
|        | The surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules. For locations with active ongoing oil and gas operations, comply with Rule 1003 interim reclamation requirements and for locations that will no longer have active oil and gas operations, comply with Rule 1004 Final Reclamation requirements.      |
| 2 COAs |   |

## 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

|           |                                |
|-----------|--------------------------------|
| 402876310 | FORM 27-SUPPLEMENTAL-SUBMITTED |
| 402895978 | OTHER                          |

Total Attach: 2 Files

## General Comments

### User Group

### Comment

### Comment Date

|  |  |                     |
|--|--|---------------------|
|  |  | Stamp Upon Approval |
|--|--|---------------------|

Total: 0 comment(s)