

State of Colorado  
Oil and Gas Conservation Commission

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

OPERATOR INFORMATION

Name of Operator: <u>EXTRACTION OIL &amp; GAS INC</u>	Operator No: <u>10459</u>	<b>Phone Numbers</b>
Address: <u>370 17TH STREET SUITE 5200</u>		
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Nathan Bennett</u>	Email: <u>nbennett@extractionog.com</u>	
		Phone: <u>(720) 354-4616</u>
		Mobile: <u>(570) 932-0776</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 16496 Initial Form 27 Document #: 402580789

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: P&A well - Mary Miller #2-35 (API #05-013--06273)

SITE INFORMATION

No Multiple Facilities

Facility Type: <u>WELL</u>	Facility ID: _____	API #: <u>013-06273</u>	County Name: <u>BOULDER</u>
Facility Name: <u>MARY MILLER 2-35</u>	Latitude: <u>40.013040</u>	Longitude: <u>-105.076870</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NENE</u>	Sec: <u>35</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 cropland  
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**

None. There is an operating farm approximately 1350' to the north of this well. There is a residential development approximately 2000' west of this well. No High Priority Habitats were identified.

**SITE INVESTIGATION PLAN**

**TYPE OF WASTE:**

- E&P Waste**       **Other E&P Waste**       **Non-E&P Waste**
- Produced Water**       **Workover Fluids** \_\_\_\_\_
- Oil**       **Tank Bottoms**
- Condensate**       **Pigging Waste**
- Drilling Fluids**       **Rig Wash**
- Drill Cuttings**       **Spent Filters**
- Pit Bottoms**
- Other (as described by EPA)** \_\_\_\_\_

**DESCRIPTION OF IMPACT**

Impacted?	Impacted Media	Extent of Impact	How Determined
No	SOILS	No Impacts	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 27 is being filed to support the plugging and abandonment of an oil and gas well. A Form 6-Intent (Doc #402496989) has been filed and approved.

**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 ):

A soil sample will be taken after the well is plugged and prior to cutting and capping the casing stub. Any suspected impacts will be sampled and tested in accordance with Table 915-1.

**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

NA / ND

Number of soil samples collected 2  
 Number of soil samples exceeding 915-1 0  
 Was the areal and vertical extent of soil contamination delineated? Yes  
 Approximate areal extent (square feet) 0

ND Highest concentration of TPH (mg/kg) \_\_\_\_\_  
 -- Highest concentration of SAR 2.17  
 BTEX > 915-1 No  
 Vertical Extent > 915-1 (in feet) 0

**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 915-1 \_\_\_\_\_

Highest concentration of Benzene (µg/l) \_\_\_\_\_  
 Highest concentration of Toluene (µg/l) \_\_\_\_\_  
 Highest concentration of Ethylbenzene (µg/l) \_\_\_\_\_  
 Highest concentration of Xylene (µg/l) \_\_\_\_\_  
 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?  
 \_\_\_\_\_
- 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.

If a suspected release is identified and confirmed through soil screening and/or laboratory analysis during plugging and abandonment of this well, soils will be removed and transported to a licensed disposal facility. Transport and disposal records will be kept on file under usual and customary practice and are available upon request. If all source material cannot be removed during excavation activities, additional methodologies will be proposed in subsequent filings via Form 27-Subsequent.

**REMEDIATION 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 at the base and sidewalls of the excavation to cut and cap the plugged and abandoned wellhead. Samples were field screened using a photoionization detector (PID). There was no evidence of hydrocarbon impacts detected in any of the samples, therefore the base sample was submitted to a laboratory for analysis of Table 915-1 constituents. The base sample B01@7 exceeded Table 915-1 allowable limits for arsenic at 5.22 mg/kg. Background concentration of arsenic (BKG01@6") was 3.72mg/kg. These concentrations are not irregular for arsenic concentrations in this land use type with no reason to believe that arsenic containing materials may have been used at this site (Colorado Department of Public Health and Environment Arsenic Concentrations in Soil, July 2014 - see attached). Therefore, arsenic has not been considered a contaminant of concern at this Site. B01@7' exceeded Table 915-1 allowable limits for pH. Because there is no evidence of hydrocarbon impacts at this location, groundwater is estimated to be below 20ft bgs, and no other inorganic exceedances, those samples which exceed the protection of groundwater soil screening level concentrations risk based (R) or MCL based (M), are naturally occurring concentrations, and are not a threat to groundwater.

**Soil Remediation Summary**

In Situ

- \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )
- \_\_\_\_\_ Chemical oxidation
- \_\_\_\_\_ Air sparge / Soil vapor extraction
- \_\_\_\_\_ Natural Attenuation
- \_\_\_\_\_ Other \_\_\_\_\_

Ex Situ

- \_\_\_\_\_ Excavate and offsite disposal
- \_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_
- \_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_
- \_\_\_\_\_ Excavate and onsite remediation
- \_\_\_\_\_ 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.

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

### Approved Reporting Schedule:

Quarterly     Semi-Annually     Annually     Other   

### 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    Wellhead Closure: 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: \_\_\_\_\_

# REMEDIATION COMPLETION REPORT

## REMEDIATION 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? No \_\_\_\_\_

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.

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. \_\_\_\_\_

Actual Spill or Release date, or date of discovery. \_\_\_\_\_

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 01/27/2021

Proposed site investigation commencement. 01/27/2021

Proposed completion of site investigation. 02/24/2021

### REMEDIAL ACTION DATES

Proposed start date of Remediation. \_\_\_\_\_

Proposed date of completion of Remediation. \_\_\_\_\_

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 successful closure of the wellhead at this location. Residential screening levels were utilized at this location based on nearby water wells registering static water levels deeper than 20 feet below ground surface. Analytical data shows the analyzed sample is in exceedance of Table 915-1 residential screening levels for arsenic. However, a background sample collected from nearby, non-impacted native soils shows that elevated arsenic levels are naturally occurring in the native soils in the area. Analytical data also shows slightly elevated levels of pH of 8.53 in sample B01@7. The pH will be addressed during future site reclamation. Please find the attached Site Diagram, Topographic Map, Lab Results Summary Table, a copy of the laboratory results, photolog, and a reference related to arsenic concentrations in soil (Colorado Department of Public Health and Environment Arsenic Concentrations in Soil, July 2014).

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: 06/29/2021

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: 06/30/2021

Remediation Project Number: 16496

**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**

402727089	FORM 27-SUPPLEMENTAL-SUBMITTED
402732807	OTHER

Total Attach: 2 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)