

# State of Colorado Oil and Gas Conservation Commission

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Document Number:

402640155

Receive Date:

Report taken by:

## 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>		Phone: <u>(720) 354-4616</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>	Mobile: <u>(570) 932-0776</u>

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 13616Initial Form 27 Document #: 402047863

#### PURPOSE INFORMATION

- |                                                                                                    |                                                                                                            |
|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> 901.e. Sensitive Area Determination                                       | <input checked="" 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 checked="" type="checkbox"/> Other <u>Quarterly Groundwater Monitoring Report</u>                   |

#### SITE INFORMATION

Y Multiple Facilities ( in accordance with Rule 909.c. )

Facility Type: <u>TANK BATTERY</u>	Facility ID: <u>446538</u>	API #: <u></u>	County Name: <u>WELD</u>
Facility Name: <u>Hiner 36 Pad</u>		Latitude: <u>40.448781</u>	Longitude: <u>-104.719378</u>
		** correct Lat/Long if needed: Latitude: <u>40.449002</u>	Longitude: <u>-104.719763</u>
QtrQtr: <u>NENE</u>	Sec: <u>36</u>	Twp: <u>6N</u>	Range: <u>66W</u>
		Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>
Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>464520</u>	API #: <u></u>	County Name: <u>WELD</u>
Facility Name: <u>Hiner 36 Pad</u>		Latitude: <u>40.449002</u>	Longitude: <u>-104.719763</u>
		** correct Lat/Long if needed: Latitude: <u></u>	Longitude: <u></u>
QtrQtr: <u>NENE</u>	Sec: <u>36</u>	Twp: <u>6N</u>	Range: <u>66W</u>
		Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>

#### SITE CONDITIONS

General soil type - USCS Classifications GWMost Sensitive Adjacent Land Use Idle fieldIs domestic water well within 1/4 mile? YesIs surface water within 1/4 mile? YesIs groundwater less than 20 feet below ground surface? Yes

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

Wetlands 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 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	GROUNDWATER	Defined by MW01 and MW03	Laboratory analysis
No	SOILS	No impacts	Laboratory analysis
No	SURFACE WATER	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 has been prepared to support further remedial investigation of a reportable release related to a dump line failure reported via F19i (Document #402047844). Approximately four boreholes will be drilled to groundwater to delineate the extent of contamination: three downgradient of the spill source and one upgradient of the spill source. Field screening of collected soils will be conducted during drilling and samples will be collected for laboratory analysis. Soil samples will be collected and analyzed for BTEX and TPH, and groundwater samples will be collected and analyzed for BTEX to assure compliance with COGCC Table 910-1 allowable limits and to delineate the potential extent of impacts from the release. Additional step-out borings may be installed depending upon field screening results and site conditions.

## 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 support of remedial investigation, approximately four boreholes will be drilled to delineate the extent of impacts: three downgradient of the spill source and one upgradient of the spill source. When Photoionization Detector (PID) values indicate a need, one or more discrete grab soil samples will be collected from each borehole location and submitted for laboratory analysis of organic constituents (TPH and BTEX).

### Proposed Groundwater Sampling

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

One sample from each borehole will be collected and analyzed for BTEX.

### 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 12

Number of soil samples exceeding 910-1 0

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 0

### NA / ND

-- Highest concentration of TPH (mg/kg) 67

-- Highest concentration of SAR 0.407

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 0

### Groundwater

Number of groundwater samples collected 80

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 10'

Number of groundwater monitoring wells installed 13

Number of groundwater samples exceeding 910-1 25

-- Highest concentration of Benzene (µg/l) 700

-- Highest concentration of Toluene (µg/l) 130

-- Highest concentration of Ethylbenzene (µg/l) 39

-- Highest concentration of Xylene (µg/l) 150

ND Highest concentration of Methane (mg/l)

### Surface Water

9 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 that exceed COGCC Table 910-1 allowable limits were not encountered during site investigation; therefore, no source material has been removed or transported to date. Should site conditions change, contaminated or potentially contaminated soils and water may be removed and transported to a licensed disposal facility if traditional excavation is pursued. 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 proposals.

## 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.

On May 16, 2019, a dump line between the battery and separator set failed at the Hiner 36 production facility, resulting in a subsurface release of more than 1 barrel of produced water. Between June 10, 2019 and May 1, 2020, thirteen boreholes were drilled to delineate the extent of impacts. One or more discrete grab soil samples were collected from each borehole location and submitted for laboratory analysis of organic constituents (TPH and BTEX). All of the soil samples were either non-detect or below COGCC Table 910-1 allowable concentrations. To further delineate the initial plume, three surface water samples were collected from the Cache La Poudre River on August 8, 2019; August 19, 2020; and October 30, 2020 and submitted for laboratory analysis of BTEX. All surface water samples were non-detect for BTEX, indicating groundwater impacts have not traveled offsite. Analytical data from the groundwater samples collected August 21, 2020 through January 27, 2021 indicate that point of compliance (POC) has been achieved. Because POC has been achieved, surface water samples will no longer be collected.

## 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  
Yes \_\_\_\_\_ 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.

Four groundwater monitoring wells (MW01 - MW04) were installed in June 2019. Between July 2019 and May 2020, nine additional groundwater monitoring wells (MW05 – MW13) were installed in order to establish a downgradient point of compliance (POC). The groundwater samples were submitted for BTEX by United States Environmental Protection Agency Method 8260D through the October 2020 monitoring event. Per the January 15, 2021 rule changes, groundwater samples were submitted for the full list of analytes for groundwater in Table 915-1 as of the January 2021 monitoring event. Up/cross-gradient and historically compliant groundwater monitoring wells MW10, MW11, and MW13 were averaged to established representative background samples for calculating the inorganic parameters in Table 915-1. A groundwater elevation contour map from the January 27, 2021 sampling event is provided. Groundwater sample analytical results are summarized in the attached table, and the laboratory reports are provided in Attachment A.

Because inorganics from the January 27, 2021 sampling event are below 1.25 times the average of the representative background samples (MW10, MW11, MW13), future quarterly sampling events will suspend analysis of inorganics. Quarterly sampling will continue until organic concentrations (Benzene, Toluene, Ethylbenzene, total Xylenes, Naphthalene, 1,2,4-Trimethylbenzene, and 1,3,5-Trimethylbenzene) remain below COGCC Table 915 groundwater standards for four consecutive quarters.

## 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? \_\_\_\_\_

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? Yes \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? No \_\_\_\_\_

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? No \_\_\_\_\_

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

## 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.

No reclamation will be performed on the site unless the entire facility is removed from service. If this occurs, the disturbance will be reclaimed 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 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. 05/17/2019

Actual Spill or Release date, if known. 05/16/2019

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 05/17/2019

Date of commencement of Site Investigation. 06/10/2019

Date of completion of Site Investigation. 11/14/2019

### **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 06/10/2019

Date of completion of Remediation.

### **SITE RECLAMATION DATES**

Date of commencement of Reclamation.

Date of completion of Reclamation.

### **OPERATOR COMMENT**

This form serves as a quarterly update to the remediation activities performed at this site under Remediation Project # 13616. Quarterly sampling will continue until organic concentrations (Benzene, Toluene, Ethylbenzene, total Xylenes, Naphthalene, 1,2,4-Trimethylbenzene, and 1,3,5-Trimethylbenzene) remain below COGCC Table 915 groundwater standards for four consecutive quarters. Because POC has been achieved, subsequent Form 27 Supplemental documents will be submitted on an annual basis as a groundwater monitoring report update.

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:

Email: maggie.graham@apexc.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:

Date:

Remediation Project Number: 13616

### **COA Type**

### **Description**

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### **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**

402640209	OTHER
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Total Attach: 1 Files

### **General Comments**

### **User Group**

### **Comment**

### **Comment Date**

		Stamp Upon Approval
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Total: 0 comment(s)