

State of Colorado Oil and Gas Conservation Commission

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Document Number:

402674232

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 & GAS INC</u> | Operator No: <u>10459</u> | Phone Numbers |
| Address: <u>370 17TH STREET SUITE 5200</u> | | Phone: <u>(570) 932-0776</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>()</u> |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 13928Initial Form 27 Document #: 402125173

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 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>Investigation of groundwater and soil vapor following mechanical integrity test failure</u> |

SITE INFORMATION

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

| | | | |
|---------------------------------------|--------------------|--|-------------------------------|
| Facility Type: <u>WELL</u> | Facility ID: _____ | API #: <u>123-24211</u> | County Name: <u>WELD</u> |
| Facility Name: <u>DISTRICT SIX C6</u> | | Latitude: <u>40.391330</u> | Longitude: <u>-104.681822</u> |
| | | ** correct Lat/Long if needed: Latitude: _____ | Longitude: _____ |
| QtrQtr: <u>NENE</u> | Sec: <u>20</u> | Twp: <u>5N</u> | Range: <u>65W</u> |
| | | Meridian: <u>6</u> | Sensitive Area? <u>Yes</u> |

SITE CONDITIONS

General soil type - USCS Classifications SMMost Sensitive Adjacent Land Use Non-croplandIs 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

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) stray gas

DESCRIPTION OF IMPACT

| Impacted? | Impacted Media | Extent of Impact | How Determined |
|-----------|----------------|-------------------------------|------------------------|
| Yes | GROUNDWATER | Pending further investigation | Groundwater monitoring |

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 investigation of plugged and abandoned well District Six C6 associated with this location following mechanical integrity test failure. Per conversation with Jon Axelson, XOG proposes to collect groundwater and soil vapor samples to evaluate potential impacts resulting from a breach identified in the well casing between approximately 60 and 75 feet below ground surface. This form also serves as an update by providing the 2021 Q1 sampling results. Laboratory data from the sample event have been uploaded into the Colorado Environmental database and are attached as a hard copy (pdf) to this form.

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):

Proposed Groundwater Sampling

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

Eight groundwater samples were be collected from the recently the groundwater monitoring wells. Results have been provided in this supplemental Form 27. Per discussions with N. Graber and P. Guintatas on August 31, 2020, additional monitoring wells were drilled up-gradient of MW05 and one down-gradient of MW04 and the MW02 for further site investigations during Q4 2020. Monitoring well installation, development, and sampling activities were completed following procedures defined in the approved action plan. Extraction has also identified DWR water sources for inclusion into a one-time upcoming sample event (see attached list) and is gathering research for a systematic review of regional groundwater data in the area surrounding District Six C6.

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):

Soil vapor will be tested at dual-nested soil vapor sample points SVP-1 through SVP-4 a 4-gas meter calibrated for methane (parts per million [ppm]), carbon monoxide (ppm), hydrogen sulfide (ppm), and oxygen (%). A summary table of soil vapor data from the sample events is attached as a pdf to this form.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 0
Number of soil samples exceeding 910-1
Was the areal and vertical extent of soil contamination delineated?
Approximate areal extent (square feet)

NA / ND

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

Groundwater

Number of groundwater samples collected 27
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 39'
Number of groundwater monitoring wells installed 8
Number of groundwater samples exceeding 910-1 6

-- Highest concentration of Benzene (µg/l) 460
-- Highest concentration of Toluene (µg/l) 58
-- Highest concentration of Ethylbenzene (µg/l) 54
-- Highest concentration of Xylene (µg/l) 130
-- Highest concentration of Methane (mg/l) 29

Surface Water

0 Number of surface water samples collected
 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?

See Action Plan (document 402332199) for approved further investigation. Per discussions with N. Graber and P. Guintatas on August 31, 2020, additional monitoring wells were drilled up-gradient of MW05 and one down-gradient of MW04 and the MW02 for further site investigations during Q4 2020. The monitoring well installation, development, and sampling activities were completed following procedures defined in the aforementioned action plan. Extraction has also identified DWR water sources for inclusion into a one-time upcoming sample event (see attached list) and is gathering research for a systematic review of regional groundwater data in the area surrounding District Six C6.

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.

No near-surface release was identified in association with this remediation project. The production well was plugged and abandoned on July 18, 2019.

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.

The production well was plugged and abandoned on July 18, 2019. To evaluate the effectiveness of the plugging and abandonment, a revised action plan was approved for Q1 2021. Extraction has identified DWR water sources near the site for inclusion into a one-time upcoming sample event (see attached list) and is currently attempting contact with the respective water source owners for permission to sample.

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.

The field parameters collected during purging and laboratory data from the Q1 2021 sample event have been uploaded into the Colorado Environmental database and attached as a hard copy (pdf) to this form.

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? _____

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? Yes _____

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 or the activities migrate outside the original facility footprint. If these occur, 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? _____

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. _____

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/30/2019

Date of commencement of Site Investigation. _____

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. _____

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

| |
|--|
| |
|--|

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

Signed: ` Heather Shideman _____

Title: Project Manager

Submit Date: ` _____

Email: heather.shideman@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: _____

Date: _____

Remediation Project Number: 13928

COA Type

Description

| | |
|--|--|
| | |
|--|--|

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

| | |
|-----------|-------------------|
| 402674301 | MONITORING REPORT |
|-----------|-------------------|

Total Attach: 1 Files

General Comments

User Group

Comment

Comment Date

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

Total: 0 comment(s)