

State of Colorado Oil and Gas Conservation Commission

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401985740

Receive Date:

03/26/2019

Report taken by:

CHRIS CANFIELD

Site Investigation and Remediation Workplan (Initial 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: GREAT WESTERN OPERATING COMPANY LLC | Operator No: 10110 | Phone Numbers Phone: (303) 595-2078 Mobile: () |
| Address: 1001 17TH STREET #2000 | | |
| City: DENVER | State: CO Zip: 80202 | |
| Contact Person: Ben Huggins | Email: bhuggins@gwogco.com | |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 13049

Initial Form 27 Document #: 401985740

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 checked="" 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 type="checkbox"/> Other _____ |

SITE INFORMATION

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

| | | | |
|---------------------------------|---------------------|--|--|
| Facility Type: LOCATION | Facility ID: 335735 | API #: _____ | County Name: ADAMS |
| Facility Name: TALON POINT 15-8 | | Latitude: 39.974361 | Longitude: -104.908833 |
| | | ** correct Lat/Long if needed: Latitude: 39.974294 | Longitude: -104.908563 |
| QtrQtr: SWSE | Sec: 8 | Twp: 1S | Range: 67W Meridian: 6 Sensitive Area? Yes |

SITE CONDITIONS

General soil type - USCS Classifications SC

Most Sensitive Adjacent Land Use Unnamed intermittent drainage in place approximately 525 feet to the north

Is domestic water well within 1/4 mile? No

Is surface water within 1/4 mile? Yes

Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

Todd Creek in place approximately 1,500 feet to the south
Residential properties in place approximately 1,300 feet to the west

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 |
|--------------|----------------|------------------|--------------------|
| UNDETERMINED | SOILS | Unknown | Not yet determined |

INITIAL ACTION SUMMARY

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

Not applicable

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):

Five discreet confirmation soil samples will be collected (4 wall and 1 base) from the produced water tank excavation. The base and wall sample from the downgradient wall or the wall sample exhibiting the highest PID reading will be analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), gasoline range organics (GRO), and diesel range organics (DRO). In addition, one shallow wall sample in the root bearing zone will be collected from the downgradient wall or the wall exhibiting the highest PID reading and analyzed for pH, Electrical Conductivity (EC), and Sodium Absorption Ratio (SAR). See the attached Figure 2.

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 _____ 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 _____ 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 _____

_____ 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 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

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Operator will either dig and haul or treat any soils onsite that exceed Table 910-1 concentration levels.

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.

A remediation or closure plan will be developed based on the results of the confirmation soil sampling activities.

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.

REMEDATION 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: _____

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.

If necessary, the site will be reclaimed in accordance with COGCC 1000 series rules.

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). 03/28/2019

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

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| |
|--|

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

Signed: ` Jason Davidson _____

Title: Senior Geologist _____

Submit Date: ` 03/26/2019 _____

Email: jdavidson@olsson.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: 04/02/2019 _____

Remediation Project Number: 13049 _____

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**

| | |
|-----------|---------------------------|
| 401985740 | FORM 27-INITIAL-SUBMITTED |
| 401985822 | SITE MAP |
| 401985824 | SOIL SAMPLE LOCATION MAP |

Total Attach: 3 Files

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

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

Total: 0 comment(s)