

# State of Colorado Oil and Gas Conservation Commission

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401599042

Receive Date:

04/07/2018

Report taken by:

RICK ALLISON

## 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: <u>GREAT WESTERN OPERATING COMPANY LLC</u>	Operator No: <u>10110</u>	<b>Phone Numbers</b>
Address: <u>1801 BROADWAY #500</u>		Phone: <u>(303) 398-0478</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Ben Huggins</u>	Email: <u>bhuggins@gwogco.com</u>	Mobile: <u>( )</u>

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 11194Initial Form 27 Document #: 401599042

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

#### SITE INFORMATION

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

Facility Type: <u>LOCATION</u>	Facility ID: <u>322588</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>WINDSOR INVESTMENT GROUP-66N67W 35SEW</u>		Latitude: <u>40.445373</u>	Longitude: <u>-104.863005</u>
** correct Lat/Long if needed: Latitude: <u>40.445428</u>		Longitude: <u>-104.863422</u>	
QtrQtr: <u>SEW</u>	Sec: <u>35</u>	Twp: <u>6N</u>	Range: <u>67W</u>
Meridian: <u>6</u>		Sensitive Area? <u>Yes</u>	

#### SITE CONDITIONS

General soil type - USCS Classifications SW

Most Sensitive Adjacent Land Use Cache La Poudre River in place 150 feet southwest

Is 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

None

## 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
UNDETERMINED	GROUNDWATER	Not yet determined	Sampling during due diligence (DD)
Yes	SOILS	Not yet determined	Sampling during DD & excavation

### INITIAL ACTION SUMMARY

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

During due diligence on December 13, 2017, five direct push soil borings were advanced surrounding the tank battery berm to assess potential soil and groundwater petroleum hydrocarbon impacts. Soil impacts were discovered between the site entrance and the condensate tank berm. Excavation activities were conducted on April 4 and 5, 2018 to further investigate/remediate the impacted soil discovered during due diligence. Please refer to Figures 1 and 2 for site location and an illustration of the laboratory analytical results from the December 13, 2017 due diligence.

### 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 addition to soil sampling conducted during due diligence on December 13, 2017, five confirmation grab soil samples were collected from the wall of the excavation on April 5, 2018 and analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), gasoline range organics (GRO), and diesel range organics (DRO). At the time this Form 27 was written, laboratory analytical results had not yet been reported. A copy of the laboratory report will be attached to a supplemental Form 27. See the attached Figure 2 for sample locations and field screening results.

#### Proposed Groundwater Sampling

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

Five groundwater samples were collected during due diligence on December 13, 2017 and analyzed for BTEX. Concentrations of BTEX were not detected above laboratory reporting limits in any of the samples collected. Groundwater samples were not collected during excavation activities on April 4 and 5, 2018.

#### 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 ):

If necessary, a plan for additional investigation actions will be developed based on confirmation soil sample laboratory analytical results from excavation activities conducted on April 4 and 5, 2018.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 5

Number of soil samples exceeding 910-1 0

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 300

### NA / ND

NA Highest concentration of TPH (mg/kg)           

NA Highest concentration of SAR           

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 10

### Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 9'

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 910-1 0

-- 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

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) 22

Volume of liquid waste (barrels) 0

☒ Is further site investigation required?

It is unknown whether further investigation will be required. At the time this Form 27 was written, laboratory analytical results had not yet been reported. A plan for further investigation will be developed based on the laboratory results of the confirmation soil samples.

# REMEDIAL ACTION PLAN

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

During excavation activities on April 4 and 5, 2018 a buried historic concrete vault, crushed and abandoned in place, was discovered. The vault, buried 4.5 feet below ground surface (bgs), is the suspected source of subsurface soil impacts in the area between the site entrance and the condensate tank berm. The vault debris and approximately 22 cubic yards of impacted soil was removed from the excavation and hauled offsite for proper disposal under Great Western Operating Company (GWOC) waste manifests. Copies of the waste manifests were unavailable at the time this Form 27 was written. However, copies will be attached to a supplemental Form 27.

## 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.

The excavation measured approximately 15 feet by 15 feet at the base and was approximately 10 feet deep. Groundwater was encountered in the excavation at approximately 9 feet bgs. On April 5, 2018, 700 pounds of Chemically Oxygenated Granular Activated Carbon (COGAC™) were applied to the groundwater at the base of the excavation and thoroughly mixed in prior to backfill with clean overburden and imported material. If necessary, a remedial action plan will be developed based on confirmation soil sample laboratory analytical results.

## Soil Remediation Summary

☒ In Situ

Yes Bioremediation ( or enhanced bioremediation )

No Chemical oxidation

No Air sparge / Soil vapor extraction

No Natural Attenuation

Other \_\_\_\_\_

☒ Ex Situ

Yes Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) 22

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

No 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

Yes Other COGAC™ was applied to the base of the excavation to treat soil impacts.

## 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.

If required, a groundwater monitoring plan will be developed. However, groundwater analytical data collected during due diligence activities on December 13, 2017 indicated that dissolved phase hydrocarbon impacts were not present at the site.

## 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? ☐ 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. 01/05/2018

Actual Spill or Release date, if known. 12/13/2017

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/13/2017

Date of commencement of Site Investigation. 04/04/2018

Date of completion of Site Investigation. 04/05/2018

### REMEDIAL ACTION DATES

Date of commencement of Remediation. 04/05/2018

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: ` 04/07/2018 \_\_\_\_\_

Email: jdavidson@olssonassociates.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: RICK ALLISON \_\_\_\_\_

Date: 04/11/2018 \_\_\_\_\_

Remediation Project Number: 11194 \_\_\_\_\_

**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**

401599042	FORM 27-INITIAL-SUBMITTED
401599502	SITE MAP
401599503	SOIL SAMPLE LOCATION MAP

Total Attach: 3 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)