

State of Colorado  
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



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Report taken by:  
RICK ALLISON

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: GREAT WESTERN OPERATING COMPANY LLC | Operator No: 10110        | <b>Phone Numbers</b>  |
| Address: 1801 BROADWAY #500                           |                           | Phone: (303) 398-0537 |
| City: DENVER  | State: CO                 | Zip: 80202            |
| Contact Person: Scot Donato                           | Email: sdonato@gwogco.com | Mobile: ( )           |

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**  
Remediation Project #: 9339 Initial Form 27 Document #: 200437905

**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 No further action request for groundwater monitoring.            |

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

|                                     |  |                        |                   |
|-------------------------------------|--|------------------------|-------------------|
| Facility Type: LOCATION             | Facility ID: 322653                                | API #: _____           | County Name: WELD |
| Facility Name: MILLER-66N67W 11SESE | Latitude: 40.496090                                | Longitude: -104.853649 |                   |
|                                     | ** correct Lat/Long if needed: Latitude: 40.496567 | Longitude: -104.852823 |                   |
| QtrQtr: SESE                        | Sec: 11  | Twp: 6N                | Range: 67W        |
|                                     | Meridian: 6  | Sensitive Area? No     |                   |

**SITE CONDITIONS**

General soil type - USCS Classifications SC      Most Sensitive Adjacent Land Use Rural Residential Properties in place to the NE and SE

Is domestic water well within 1/4 mile? Yes      Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? Yes

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

Two rural residential properties, One domestic well 1/4 mile west and cross gradient

# 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 type="checkbox"/> Produced Water       | <input type="checkbox"/> Workover Fluids             | _____                                  |
| <input checked="" 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    | Unknown          | Not yet determined. |
| Yes       | SOILS          | Unknown          | Not yet determined. |

## INITIAL ACTION SUMMARY

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

Impact was discovered during routine due diligence. Analytical sample results indicated that soils, and potentially groundwater, exceed Table 910-1 standards for TPH and BTEX.

## 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 ):

### 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 ):

Additional subsurface investigative actions will occur following decommissioning and removal of the compressor station in presently inaccessible areas as necessary to ensure compliance with COGCC standards.

# 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? No

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 12

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 13'

Number of groundwater monitoring wells installed 3

Number of groundwater samples exceeding 910-1 2

-- Highest concentration of Benzene (µg/l) 42

ND Highest concentration of Toluene (µg/l)         

-- Highest concentration of Ethylbenzene (µg/l) 2.37

ND Highest concentration of Xylene (µg/l)         

NA 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?

Additional source removal and soil excavation activities will take place following decommissioning and removal of the compressor station, as is necessary to meet COGCC standards.

# 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.

Source removal by air-vac excavation was attempted on 1/18/16, but was unsuccessful due to concrete foundation and slab debris. Limited source soils are currently inaccessible beneath the existing compressor building and concrete separator slabs. Buried debris and utilities also prohibit excavation.

## 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.

Limited source removal and soil excavation, based on staining, odors, and laboratory analytical results, will take place following decommissioning and removal of the compressor station. Impacted soils will either be excavated for disposal or treated onsite. The number and location of soil samples shall be appropriate to assess horizontal and vertical extent of impact and confirm remediation. Samples will be analyzed for BTEX, TPH-GRO, and TPH-DRO.

## 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.

Olsson has completed seven quarterly groundwater sampling events at the site since January 2016. BTEX concentrations in groundwater samples from monitoring wells MW-1, MW-2, and MW-3 have remained below their respective COGCC Table 910-1 concentration levels for four consecutive sampling events. This Supplemental Form 27 serves as a No Further Action request for quarterly groundwater monitoring at the site.

# 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? No

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? No

## 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.

The site will be reclaimed in accordance with the 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). 03/03/2017  
 Date of commencement of Site Investigation. 03/03/2017  
 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

This Supplemental Form 27 serves as a No Further Action request for quarterly groundwater monitoring at the site.

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: 12/01/2017 Email: j davidson@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: 12/01/2017

Remediation Project Number: 9339

### 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.

| <u>Att Doc Num</u> | <u>Name</u>                    |
|--------------------|--------------------------------|
| 401420116          | FORM 27-SUPPLEMENTAL-SUBMITTED |
| 401460315          | OTHER                          |
| 401473479          | ANALYTICAL RESULTS             |
| 401473480          | ANALYTICAL RESULTS             |

Total Attach: 4 Files

## General Comments

| <u>User Group</u> | <u>Comment</u>  | <u>Comment Date</u> |
|-------------------|---|---------------------|
| Environmental     | Returned to Draft: Please attach the February 24, 2017 and May 26, 2017 laboratory analytical reports for those groundwater monitoring events and resubmit the Form 27. | 11/30/2017          |
| Environmental     | After excavation of impacts beneath the compressor, additional monitoring may be required, depending on the results of the excavation.                                  | 11/30/2017          |

Total: 2 comment(s)