

State of Colorado  
Oil and Gas Conservation Commission

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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.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

Name of Operator: GREAT WESTERN OPERATING COMPANY LLC	Operator No: 10110	Phone Numbers Phone: (720) 595-2132 Mobile: (303) 596-5693
Address: 1001 17TH STREET #2000		
City: DENVER	State: CO	Zip: 80202
Contact Person: Jason Davidson	Email: jdavidson@gwp.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 8677 Initial Form 27 Document #: 200413854

PURPOSE INFORMATION

- Rule 913.c.(1): Pit or Cuttings Trench closure.
- Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- Rule 913.g: Changes of Operator.
- Rule 915.b: Request to leave elevated inorganics in situ.
- Other: \_\_\_\_\_

SITE INFORMATION

No Multiple Facilities

Facility Type: LOCATION	Facility ID: 333241	API #: _____	County Name: WELD
Facility Name: MERSHON-66N67W 26SWSE	Latitude: 40.452920	Longitude: -104.857360	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWSE	Sec: 26	Twp: 6N	Range: 67W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use INDUSTRIAL  
Is domestic water well within 1/4 mile? Yes Is surface water within 1/4 mile? Yes  
Is groundwater less than 20 feet below ground surface? Yes

## 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	MW-1	monitoring
Yes	SOILS	during excavation	during 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.

Limited excavation and stockpiling of visibly impacted soils on September 18, 2014. Collected initial soil samples for laboratory analysis. September 25, 2014 lab results confirmed release. Approximately 250 cubic yards of additional impacted soils were excavated and sent for disposal at Waste Management's North Weld County facility on October 3, 2014.

### 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 ):

The concentration of benzene in groundwater from MW-1 has fluctuated since the original April 2015 sampling event. The variations in benzene concentrations in this well may be due to seasonal groundwater fluctuations, but benzene is consistently present and not steadily decreasing, indicating that the source is still present below the onsite DCP gas line which cannot be excavated beneath. Impacted groundwater does not extend to the locations of the other monitoring wells. Natural attenuation will continue to be monitored.

#### 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 915-1 0  
Was the areal and vertical extent of soil contamination delineated? \_\_\_\_\_  
Approximate areal extent (square feet) \_\_\_\_\_

### NA / ND

NA Highest concentration of TPH (mg/kg) \_\_\_\_\_  
NA Highest concentration of SAR \_\_\_\_\_  
BTEX > 915-1 \_\_\_\_\_  
Vertical Extent > 915-1 (in feet) \_\_\_\_\_

### Groundwater

Number of groundwater samples collected 4  
Was extent of groundwater contaminated delineated? Yes  
Depth to groundwater (below ground surface, in feet) 14'  
Number of groundwater monitoring wells installed 4  
Number of groundwater samples exceeding 915-1 1

-- Highest concentration of Benzene (µg/l) 467  
-- Highest concentration of Toluene (µg/l) 4.6  
-- Highest concentration of Ethylbenzene (µg/l) 16.9  
-- Highest concentration of Xylene (µg/l) 62.1  
NA Highest concentration of Methane (mg/l) \_\_\_\_\_

### Surface Water

0 Number of surface water samples collected  
0 Number of surface water samples exceeding 915-1  
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? Yes

### SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Initial soil excavation based on staining, odors, and final laboratory analytical results has been completed at location of former produced water vessel.

### 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 concentration of benzene in groundwater from MW-1 has fluctuated since the original April 2015 sampling event but has decreased overall. The variations in benzene concentrations in this well may be due to seasonal groundwater fluctuations. Impacted groundwater does not extend to the locations of the other monitoring wells. Natural attenuation will continue to be monitored.

## 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.

The concentration of benzene in groundwater from MW-1 has fluctuated since the original April 2015 sampling event. The variations in benzene concentrations in this well may be due to seasonal groundwater fluctuations, but benzene is consistently present and not steadily decreasing, indicating that the source is still present below the onsite DCP gas line which cannot be excavaed beneath. Impacted groundwater does not extend to the locations of the other monitoring wells. Natural attenuation will continue to be monitored on a biannual basis, in June and December.

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

### Approved Reporting Schedule:

Quarterly     Semi-Annually     Annually     Other

### Request Alternative Reporting Schedule:

Semi-Annually     Annually     Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

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

If YES:

Compliant with Rule 913.h.(1).

Compliant with Rule 913.h.(2).

Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards? \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? \_\_\_\_\_

Does Groundwater meet Table 915-1 standards? Yes

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

Operator shall comply with the COGCC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

# 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 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 provide the seed mix? \_\_\_\_\_

If YES, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

Did the local soil conservation district provide the seed mix? \_\_\_\_\_

## SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. \_\_\_\_\_

Proposed date of completion of Reclamation. \_\_\_\_\_

## IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

### PRIOR DATES

Date of Surface Owner notification/consultation, if required. \_\_\_\_\_

Actual Spill or Release date, or date of discovery. \_\_\_\_\_

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). \_\_\_\_\_

Proposed site investigation commencement. 09/18/2014

Proposed completion of site investigation. \_\_\_\_\_

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 10/03/2014

Proposed date of completion of Remediation. \_\_\_\_\_

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

\_\_\_\_\_

**OPERATOR COMMENT**

Four quarters of groundwater sampling have demonstrated that natural attenuation has progressed, and benzene is no longer present above 0.005 mg/L in MW-1. We respectfully request closure for groundwater monitoring at the site.

GWOC plans to P&A the facility in December 2022, and will address potentially impacted soil remaining in place east of the pipeline at that time. GWOC will submit an updated Form 27 in June 2022.

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

Signed: Rachel A. Peterson \_\_\_\_\_

Title: Env. Department Manager \_\_\_\_\_

Submit Date: 11/19/2021 \_\_\_\_\_

Email: petersonr@agwco.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: 12/13/2021 \_\_\_\_\_

Remediation Project Number: 8677 \_\_\_\_\_

**Condition of Approval****COA Type****Description**

COA Type	Description
0 COA	

**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**

402876579	FORM 27-SUPPLEMENTAL-SUBMITTED
402876683	MONITORING REPORT

Total Attach: 2 Files

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

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)