

State of Colorado  
Oil and Gas Conservation Commission

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Report taken by:  
Candice (Nikki) Graber

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: 1001 17TH STREET #2000		Phone: (720) 595-2132
City: DENVER	State: CO Zip: 80202	Mobile: ( )
Contact Person: Jason Davidson	Email: jdavidson@gwp.com	

PROJECT, PURPOSE & SITE INFORMATION

<b>PROJECT INFORMATION</b>	
Remediation Project #: 9339	Initial Form 27 Document #: 200437905
<b>PURPOSE INFORMATION</b>	
<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 checked="" 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
<b>SITE INFORMATION</b>	
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? Yes
<b>SITE CONDITIONS</b>	
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	
<b>Other Potential Receptors within 1/4 mile</b>	
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 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
No	GROUNDWATER	Not Impacted	Quarterly Sampling - NFA Issued
No	SOILS	Excavated - Not impacted	Confirmation soil sampling

## INITIAL ACTION SUMMARY

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

Two limited subsurface investigations (LSI) were conducted at the Site between November 2014 and April 2015 during which sixteen soil borings were advanced. To allow for representative groundwater sampling, eleven of the borings were completed as temporary piezometers. Benzene, toluene, ethylbenzene, and total xylene (BTEX) concentrations were either not detected at or above laboratory reporting limits or were reported below their respective COGCC Table 910-1 concentration levels in groundwater samples collected from all eleven piezometers. Hydrocarbon impacted soils were encountered in one soil boring advanced on the east side of the former compressor building. Concrete slabs, building foundations, and buried utilities prohibited excavation of the impacted soils with a backhoe. Subsequently, excavation was attempted utilizing an air knife and vacuum truck on January 18, 2016. This excavation attempt was unsuccessful due to buried concrete debris encountered on the east side of the former compressor building.

On January 21, 2016, three groundwater monitoring wells were installed adjacent to the former compressor building. Groundwater was encountered at approximately 13 feet to 14 feet below ground surface (bgs) and flow direction was to the west/northwest. Quarterly groundwater sampling activities were conducted between January 2016 and August 2017. BTEX concentrations were reported below their respective COGCC Table 910-1 concentration levels for four consecutive sampling events from October 2016 through August 2017. The COGCC issued No Further Action for groundwater at the Site on December 1, 2017.

## 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 ):

Between November 6 and November 8, 2019, Great Western directed excavation activities at the Site to remediate impacted soil associated with the operation of an historic compressor station. During excavation activities, visual and olfactory observations were made to assess the vertical and lateral extent of impacted soil. A photoionization detector (PID) was also used to screen soil samples to assess soil impacts. A total of six confirmation soil samples (two base and four sidewall) were collected during excavation activities and submitted for laboratory analysis of BTEX, total petroleum hydrocarbons (TPH)- gasoline range organics (GRO) and TPH- diesel range organics (DRO). See the attached Figure 2 for the confirmation soil sample locations. See attached Table 1 for a summary of confirmation soil sampling analytical results.

### 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 6  
Number of soil samples exceeding 910-1 0  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 3240

### NA / ND

-- Highest concentration of TPH (mg/kg) 82.6  
NA Highest concentration of SAR           
BTEX > 910-1 No  
Vertical Extent > 910-1 (in feet) 12

### Groundwater

Number of groundwater samples collected 0  
Was extent of groundwater contaminated delineated? Yes  
Depth to groundwater (below ground surface, in feet)           
Number of groundwater monitoring wells installed 3  
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

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.

Great Western excavated and transported approximately 645 cubic yards of impacted soil offsite to Waste Management's North Weld Landfill (a licensed disposal facility) located in Ault, Colorado. Copies of the waste manifests are attached.

## 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.

Excavation activities were conducted from November 6 and November 8, 2019 to remove the hydrocarbon-impacted soil at the Site. Impacted soil was encountered at approximately 3 feet to 6 feet bgs and extended to 8 feet and 12 feet bgs throughout the majority of the excavation. Approximately 645 cubic yards of impacted soil was excavated and transported to Waste Management's North Weld Landfill, located in Ault, Colorado under Great Western manifest. Clean overburden and imported soil were used to backfill the excavation.

## Soil Remediation Summary

### In Situ

- \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )
- \_\_\_\_\_ Chemical oxidation
- \_\_\_\_\_ Air sparge / Soil vapor extraction
- \_\_\_\_\_ Natural Attenuation
- \_\_\_\_\_ Other \_\_\_\_\_

### Ex Situ

- Yes \_\_\_\_\_ Excavate and offsite disposal
- \_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 645
- \_\_\_\_\_ 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.

Groundwater was not encountered during excavation activities. As stated above, The COGCC issued No Further Action for groundwater at the Site on December 1, 2017. The three monitoring wells will be abandoned in accordance with State of Colorado, Office of the State Engineer well abandonment procedures.

## REMEDIATION PROGRESS UPDATE

### PERIODIC REPORTING

**Frequency:**  Quarterly  Semi-Annually  Annually  Other Remediation Progress Report

**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? Yes

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

None

Volume of E&P Waste (solid) in cubic yards 645

E&P waste (solid) description Hydrocarbon impacted soil

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: Waste Management's North Weld  
Landfill, Ault, CO

Volume of E&P Waste (liquid) in barrels 0

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? Yes

Do all soils meet Table 910-1 standards? Yes

Does the previous reply indicate consideration of background concentrations? Yes

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.

The site has been reclaimed in accordance with the COGCC 1000 series rules. See attached photograph.

Is the described reclamation complete? Yes

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? Yes

If NO, does the seed mix comply with local soil conservation district recommendations? Yes

## 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). 11/10/2014

Date of commencement of Site Investigation. 01/21/2016

Date of completion of Site Investigation. 08/28/2017

### **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 11/06/2019

Date of completion of Remediation. 11/08/2019

### **SITE RECLAMATION DATES**

Date of commencement of Reclamation. 11/11/2019

Date of completion of Reclamation. \_\_\_\_\_

**OPERATOR COMMENT**

To satisfy requirements summarized in the COGCC's Field Inspection Form (Document #691201173) submitted on October 15, 2019, Great Western removed and properly disposed of the oily material on top of the concrete pad, the chemical storage containers, trash, noxious weeds, and the concrete pads between October 17 and November 1, 2019.

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 EHS Supervisor \_\_\_\_\_

Submit Date: 12/12/2019 \_\_\_\_\_

Email: jdavidson@gwp.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: Candice (Nikki) Graber \_\_\_\_\_

Date: 12/12/2019 \_\_\_\_\_

Remediation Project Number: 9339 \_\_\_\_\_

**COA Type****Description**

	<p>Based on the information presented, it appears that no further action is necessary at this time and the COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if groundwater is found to be impacted, then further investigation and/or remediation activities may be required. In addition, the surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules.</p> <p>For locations with active ongoing oil and gas operations, comply with Rule 1003 interim reclamation requirements and for locations that will no longer have active oil and gas operations, comply with Rule 1004 Final Reclamation requirements.</p>
	<p>Operator shall abandon the monitoring wells in accordance with DWR regulations within 90 days of the approval of this Form 27.</p>

**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**

402261081	FORM 27-SUPPLEMENTAL-SUBMITTED
402261229	ANALYTICAL RESULTS
402261231	ANALYTICAL RESULTS
402261241	SOIL SAMPLE LOCATION MAP
402261242	DISPOSAL MANIFESTS
402261257	PHOTOS

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)