

# 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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402389689

Receive Date:

05/05/2020

Report taken by:

Kari Oakman

## 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: <u>GREAT WESTERN OPERATING COMPANY LLC</u>	Operator No: <u>10110</u>	<b>Phone Numbers</b>
Address: <u>1001 17TH STREET #2000</u>		Phone: <u>(720) 595-2132</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Jason Davidson</u>	Email: <u>j davidson@gwp.com</u>	Mobile: <u>( )</u>

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 14436Initial Form 27 Document #: 402212421

#### 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 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 _____   |

#### SITE INFORMATION

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

Facility Type: <u>LOCATION</u>	Facility ID: <u>320313</u>	API #: _____	County Name: <u>ADAMS</u>
Facility Name: <u>NORTH YORK-61S68W 12NWSW</u>		Latitude: <u>39.977350</u>	Longitude: <u>-104.957217</u>
** correct Lat/Long if needed: Latitude: <u>39.977193</u>		Longitude: <u>-104.956918</u>	
QtrQtr: <u>NWSW</u>	Sec: <u>12</u>	Twp: <u>1S</u>	Range: <u>68W</u>
Meridian: <u>6</u>		Sensitive Area? <u>Yes</u>	

#### SITE CONDITIONS

General soil type - USCS Classifications SC

Most Sensitive Adjacent Land Use Big Dry Creek is located 300 feet to the west.

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

Residential neighborhood in place 840 feet to the north.

# 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      ☐ Piggings 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
No	GROUNDWATER	Not impacted	Grab groundwater sampling
No	SOILS	Excavated	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.

Five discreet confirmation soil samples were collected on 10/17/19 (4 wall and 1 base) from the produced water tank excavation, which measured approximately 20 feet by 20 feet by 5 feet deep. The base and wall sample from the south wall were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, total petroleum hydrocarbon (TPH)- gasoline range organics (GRO), and TPH- diesel range organics (DRO). In addition, the base sample was analyzed for pH, Electrical Conductivity (EC), and Sodium Absorption Ratio (SAR). Concentrations of BTEX, naphthalene, TPH-GRO, and TPH-DRO were either not reported at or above laboratory detection limits or were reported below their respective COGCC Table 910-1 concentration levels. Concentrations of TPH-GRO and TPH-DRO were added to calculate TPH. TPH concentrations were reported at 362 milligrams per kilogram (mg/kg) and 290 mg/kg, which are below the Table 910-1 concentration level of 500 mg/kg. The results for pH, EC, and SAR associated with the base sample were reported within their respective Table 910-1 concentration ranges. Groundwater was encountered at the base of the excavation at approximately 5 feet below ground surface (bgs). One grab groundwater sample was collected from the excavation using a new disposable polyethylene bailer and nylon cord and analyzed for BTEX. Benzene concentrations were reported at 16.0 micrograms per liter (ug/L), which is above the Table 910-1 concentration level of 5.0 ug/L. All other analytes were reported at concentrations below their respective Table 910-1 concentration levels. The excavation cavity was backfilled with the material that was initially excavated.

## 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 ):

Please refer to the Operator Comments section of the Submit tab of this Form 27.

### 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 3

Number of soil samples exceeding 910-1 0

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 0

### NA / ND

-- Highest concentration of TPH (mg/kg) 108

NA Highest concentration of SAR

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 0

### Groundwater

Number of groundwater samples collected 1

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 5'

Number of groundwater monitoring wells installed 1

Number of groundwater samples exceeding 910-1 0

ND Highest concentration of Benzene (µg/l)

ND Highest concentration of Toluene (µg/l)

ND Highest concentration of Ethylbenzene (µg/l)

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?

# 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.

On 3/6/20, approximately 150 cubic yards of hydrocarbon-impacted soil and 40 barrels of groundwater were removed from the excavation and hauled offsite for proper disposal under GWOC waste manifests. Copies of the waste manifests are attached.

## 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.

Remediation activities beneath the former produced water tanks commenced on 3/6/20. Source removal by excavation was conducted, based on visual and olfactory observations, field soil screening, and laboratory analysis. The excavation measured approximately 50 feet by 43 feet and was approximately 6 feet to 7 feet deep. Groundwater infiltrated the excavation at approximately 5 feet bgs. Three excavation confirmation soil samples (one base and two sidewall) were collected and submitted for laboratory analysis for BTEX, TPH-GRO and TPH-DRO. Concentrations of BTEX, TPH-GRO, and TPH-DRO were either not reported at or above laboratory detection limits or were reported below their respective Table 910-1 concentration levels in all three confirmation soil samples collected. Hydrocarbon-impacted soil was not observed along the north and east walls of the excavation. Following the completion of remediation activities, one groundwater sample (GW-2) was collected from the base of the excavation, in the same location as sample NorthYorkGW, collected on 10/17/19. The sample was collected using a new disposable polyethylene bailer and nylon cord and analyzed for BTEX. Concentrations of BTEX were not detected above laboratory reporting limits.

## 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) \_\_\_\_\_ 150  
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 impacted.

## REMEDATION 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 Closure Request

### 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 150

E&P waste (solid) description Hydrocarbon impacted soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Waste Management's Buffalo Ridge  
Landfill in Keenesburg, CO

Volume of E&P Waste (liquid) in barrels 40

E&P waste (liquid) description Groundwater

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Expedition Water Services Injection  
Well EWS#6

## REMEDATION COMPLETION REPORT

### REMEDATION 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.

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. 10/24/2019

Actual Spill or Release date, if known. \_\_\_\_\_

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 10/17/2019

Date of commencement of Site Investigation. 10/17/2019

Date of completion of Site Investigation. 10/17/2019

### **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 03/06/2020

Date of completion of Remediation. 03/06/2020

### **SITE RECLAMATION DATES**

Date of commencement of Reclamation. \_\_\_\_\_

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

**OPERATOR COMMENT**

On April 28, 2020, one 1-inch diameter PVC groundwater monitoring well was installed at the Site using hand auger equipment. The monitoring well, designated as MW-1 was installed to 7.0 feet bgs using 2 feet of screen and 5 feet of riser. Groundwater was encountered in the well at 5.0 feet bgs. Following well development activities, one groundwater sample was collected from the monitoring well using a peristaltic pump with new polyethylene tubing. On the day of collection, the groundwater sample was submitted to Origins for BTEX analysis. Concentrations of BTEX were not detected at or above laboratory reporting limits. Great Western is requesting closure of COGCC Remediation Project #14436. The monitoring well was abandoned in accordance with State of Colorado standards following sampling activities. The monitoring well location and analytical results are illustrated on the attached Figure 6. Analytical results are summarized on the attached Table 2. A copy of the lab report, a photo log, and boring log are also attached.

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 Specialist

Submit Date: 05/05/2020

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: Kari Oakman

Date: 05/06/2020

Remediation Project Number: 14436

**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.</p> <p>The surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules. 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>
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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**

402389689	FORM 27-SUPPLEMENTAL-SUBMITTED
402389708	ANALYTICAL RESULTS
402389865	ANALYTICAL RESULTS
402389867	GROUND WATER SAMPLE LOCATION
402389870	PHOTOS
402390038	LOGS

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)