

# State of Colorado Oil and Gas Conservation Commission

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



Document Number:

402475099

Receive Date:

Report taken by:

## 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	Phone Numbers Phone: (720) 595-2132 Mobile: ( )
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 #: 15781

Initial Form 27 Document #: 402450517

#### 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: LOCATION	Facility ID: 446023	API #:	County Name: WELD
Facility Name: T&M DE Pad 22-039HC		Latitude: 40.655308	Longitude: -104.771744
		** correct Lat/Long if needed: Latitude: 40.655603	Longitude: -104.772526
QtrQtr: SWSW	Sec: 15	Twp: 8N	Range: 66W Meridian: 6 Sensitive Area? Yes

#### SITE CONDITIONS

General soil type - USCS Classifications SW

Most Sensitive Adjacent Land Use Agriculture

Is domestic water well within 1/4 mile? No

Is surface water within 1/4 mile? Yes

Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

None

# 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      ☐ Pigging 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
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.

On 7/13/20, a leak was identified at the second from the northern-most separator (source separator), caused by the improper closing of a needle valve following maintenance that resulted in the release of 24 bbls of oil within secondary containment. Between 7/13-20/20, a hydrovac was used to remove the standing liquids and impacted roadbase and soil from the area surrounding the 2 northern-most separators to ~3 ft to 5 ft below ground surface (bgs). On 7/20/20, a pothole investigation was conducted using a hydrovac to determine the extent of hydrocarbon impacts. Potholes were excavated in the source area to depths ranging from 3 ft to 10 ft bgs, the maximum reach of the hydrovac. Initial visual and olfactory observations and photoionization detector (PID) readings indicated the presence of hydrocarbon impacts to at least 10 ft bgs. No soil samples were submitted for laboratory analysis during the pothole or excavation activities. Following removal, the area was backfilled with clean roadbase. On 8/4/20, 1 soil boring, MW-1, was advanced to 26 ft bgs using a Geoprobe ~8 ft west of the source separator, outside containment. The boring was converted into a monitoring well. No soil impacts were observed during drilling and groundwater was not encountered. 3 soil samples were collected from the boring at 12 ft, 14 ft, and 24 ft bgs. The soil samples were submitted to Origins Laboratory in Denver, CO for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), Total Petroleum Hydrocarbons (TPH)- Gasoline Range Organics (GRO) and TPH- Diesel Range Organics (DRO). Concentrations of BTEX, TPH-GRO, and TPH-DRO were not detected at or above laboratory detection limits in any of the samples. During measurement activities on 8/12/20, groundwater was again, not encountered in MW-1. Refer to the attached Table 1 and Figure 2 for a summary of the laboratory results. Figure 2 also illustrates the location of MW-1. A copy of the laboratory report is attached.

## 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 ):

Please refer to the Remediation Summary section in the Remedial Action Plan tab of this Form 27.

### 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 3

Number of soil samples exceeding 910-1 0

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

Approximate areal extent (square feet) 400

### NA / ND

ND Highest concentration of TPH (mg/kg)

ND Highest concentration of SAR

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 20

### Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) \

Number of groundwater monitoring wells installed

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.

Following removal of the two northern most separators, Great Western proposes to utilize hydrovac equipment to excavate the remaining hydrocarbon impacted roadbase and soil from ground surface to the maximum reach of the hydrovac (~10 feet bgs) for offsite disposal. During excavation activities, visual and olfactory observations will be made to assess the vertical and lateral extent of impacted soil. A PID will be used to screen soil samples to assess soil impacts. Confirmation soil samples will be collected from the walls of the excavation and analyzed for BTEX, TPH-GRO, and TPH-DRO. The number and location of soil samples shall be appropriate to confirm successful remediation of shallow hydrocarbon impacts. Based on the high permeability of the gravelly soil at the Site, limited horizontal migration is expected and the excavation area is estimated to measure 20 feet by 20 feet. Once laboratory results indicate BTEX, TPH-GRO, and TPH-DRO concentrations are below their respective COGCC Table 910-1 concentration levels in the confirmation soil samples, Great Western will backfill the excavation with clean fill material. Excavation activities are planned to commence during the week of 8/31/20. Figure 2 illustrates the estimated hydrovac excavation area.

## 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.

Following backfill and prior to replacement of the separators, Great Western proposes to install one 2-inch diameter Soil Vapor Extraction (SVE) well in the center of the source area. The well will be installed beneath the west end of the source separator to address the impacted soil remaining below ~10 feet bgs. The depth and screening interval of the SVE well will be determined based on field and PID screening results during borehole advancement. Based on the high permeability of the gravelly soil at the Site, the radius of influence for the SVE well is estimated to be ~30 feet. Following replacement of the separators, Great Western plans to install a trailer-mounted, solar-powered SVE unit that will be piped to the top of the SVE well casing. The unit will operate 24/7 for up to 12 months or until confirmation soil sample laboratory analytical results indicate BTEX, TPH-GRO, and TPH-DRO concentrations are below their respective COGCC Table 910-1 concentration levels. SVE well installation activities are planned to commence during the week of 8/31/20. The SVE remediation system installation activities are planned to commence within 45 days of approval of this Form 27. Figure 2 illustrates the proposed SVE well location. The attached photograph illustrates the proposed SVE remediation system.

## 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.

Groundwater is not expected to be encountered during the proposed remediation activities. Groundwater monitoring well MW-1 will be abandoned in accordance with State standards.

## REMEDIATION PROGRESS UPDATE

### PERIODIC REPORTING

**Frequency:** ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other Following initial remediation activities

**Report Type:** ☐ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report  
☒ Other Remediation Summary Report

### 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: \_\_\_\_\_

## 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? \_\_\_\_\_

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

## 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. 07/16/2020

Actual Spill or Release date, if known. 07/13/2020

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 07/20/2020

Date of commencement of Site Investigation. 07/20/2020

Date of completion of Site Investigation. 08/04/2020

### **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 09/01/2020

Date of completion of Remediation.

### **SITE RECLAMATION DATES**

Date of commencement of Reclamation.

Date of completion of Reclamation.

### **OPERATOR COMMENT**

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:

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:

Date:

Remediation Project Number: 15781

### **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**

402475722	SITE MAP
402475723	ANALYTICAL RESULTS
402475724	ANALYTICAL RESULTS
402475725	PHOTOS

Total Attach: 4 Files

### **General Comments**

#### **User Group**

#### **Comment**

#### **Comment Date**

		Stamp Upon Approval
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Total: 0 comment(s)