

State of Colorado  
Oil and Gas Conservation Commission

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Report taken by:  
CHRIS CANFIELD

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 #: 15153 Initial Form 27 Document #: 402047090

**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: LOCATION	Facility ID: 320176	API #: _____	County Name: ADAMS
Facility Name: GREAT WESTERN GREIN 1	Latitude: 39.996989	Longitude: -104.795749	
	** correct Lat/Long if needed: Latitude: 39.996675	Longitude: -104.792573	
QtrQtr: NWNE	Sec: 5	Twp: 1S	Range: 66W Meridian: 6 Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications SM      Most Sensitive Adjacent Land Use Agricultural

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**

Residence is located less than 200 feet east of tank battery. Unnamed surface water bodies in place approximately 700 feet and 1,130 feet to the southeast. Brighton lateral in place approximately 985 feet to the southeast.

# 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 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
No	GROUNDWATER	Remediated	Site Investigation/Groundwater Sampling
No	SOILS	Remediated	Site Investigation/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.

Petroleum hydrocarbon impacted soil from a historical flowline release of unknown volume was discovered (Spill Release Point ID 463759) during the removal of a partially buried produced water vault on May 20, 2019. The produced water tank was removed and addressed under a separate Form 27 (Remediation Project # 13007). On March 29-30, 2019, a soil boring investigation was conducted to further define the horizontal and vertical extent of potentially impacted soil and groundwater at the Site. Seventeen borings were advanced in and surrounding the source area to depths ranging from 10 feet to 15.5 feet below ground surface (bgs). Soil staining was observed from approximately 3 feet to 10 feet bgs in the source area. Ten characterization soil samples were submitted to Origins Laboratory (Origins) for analysis, based visual and olfactory observations and field screening using a photoionization detector (PID). The samples were analyzed for total petroleum hydrocarbons (TPH)- gasoline range organics (GRO) and TPH- diesel range organics (DRO) to compare to the COGCC Table 910-1 concentration levels. Concentrations of TPH-GRO and TPH-DRO were added to calculate TPH. TPH concentrations were reported above the Table 910-1 concentration level of 500 milligrams per kilogram (mg/kg) in the soil samples from boring SB-1 at 6 feet bgs (1,630 mg/kg) and from SB-13 at 6 feet bgs (2,660 mg/kg). TPH concentrations in the remaining samples were reported either below laboratory reporting limits or below the Table 910-1 concentration level.

## 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 ):

# 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? Yes

Approximate areal extent (square feet)         

### NA / ND

NA Highest concentration of TPH (mg/kg)         

NA Highest concentration of SAR         

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet)         

### Groundwater

Number of groundwater samples collected 5

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 6'

Number of groundwater monitoring wells installed 5

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

0 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.

Please refer to the Remediation Progress Report submitted with the COGCC approved Supplemental Form 27 Document Number 402475784 for a detailed summary of the July 2020 source removal activities conducted at the Site.

## 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.

Please refer to the Remediation Progress Report submitted with the COGCC approved Supplemental Form 27 Document Number 402475784 for a detailed summary of the July 2020 remediation activities conducted at the Site.

## Soil Remediation Summary

In Situ

Ex Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

No \_\_\_\_\_ Excavate and offsite disposal

\_\_\_\_\_ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_

\_\_\_\_\_ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_

\_\_\_\_\_ Natural Attenuation

Yes \_\_\_\_\_ Excavate and onsite remediation

\_\_\_\_\_ Other \_\_\_\_\_

Yes \_\_\_\_\_ Land Treatment

No \_\_\_\_\_ Bioremediation (or enhanced bioremediation)

Yes \_\_\_\_\_ Chemical oxidation

No \_\_\_\_\_ Other \_\_\_\_\_

## Groundwater Remediation Summary

Yes \_\_\_\_\_ 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.

On 4/22/21, groundwater samples from all 5 wells were collected and delivered to Origins for BTEX analysis. Concentrations of BTEX were not reported at or above laboratory detection limits in any of the 5 samples collected. Groundwater was encountered in the monitoring wells from 5.05 feet to 7.23 feet below the top of casing in each well and was calculated to flow to the northwest across the Site. See the attached Figure 3 depicting the location of the monitoring wells and groundwater analytical results. See Table 2 for a summary of the groundwater analytical results. A copy of the laboratory analytical report is also attached. Refer to Figure 4 for an illustration of the groundwater elevation and flow direction during the 4/22/21 sampling event.

The 4/22/21 quarterly sampling event was the fourth consecutive quarter of groundwater analytical results below COGCC Table 910-1 concentration levels for BTEX. No further action is being requested for Remediation Project #15153.

Following approval of closure, the 5 monitoring wells will be abandoned in accordance with State standards.

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

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

Excavated hydrocarbon impacted soil was treated on-site and used to backfill the excavation.

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 0

E&P waste (solid) description \_\_\_\_\_

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

Non-COGCC Disposal Facility: \_\_\_\_\_

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_ 180

E&P waste (liquid) description Hydrocarbon Impacted Groundwater

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

Non-COGCC Disposal Facility: NGL Water Solutions DJ, LLC South Weld SWD1 Facility, Brighton, CO

## 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? 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.

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. 03/21/2019

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

## **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 03/20/2019

Date of commencement of Site Investigation. 05/29/2019

Date of completion of Site Investigation. 05/31/2019

## **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 07/13/2020

Date of completion of Remediation. 07/17/2020

## **SITE RECLAMATION DATES**

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

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

**OPERATOR COMMENT**

No further action is being requested for Remediation Project #15153.

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: 05/03/2021

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: CHRIS CANFIELD

Date: 05/17/2021

Remediation Project Number: 15153

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

	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.
	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.
2 COAs	

**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**

402678044	FORM 27-SUPPLEMENTAL-SUBMITTED
402678069	GROUND WATER SAMPLE LOCATION
402678071	GROUND WATER ELEVATION MAP
402678073	ANALYTICAL RESULTS
402678074	ANALYTICAL RESULTS

Total Attach: 5 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)