

# 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	<b>Phone Numbers</b> 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 #: 16834 Initial Form 27 Document #: 402603711

#### 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: WELL	Facility ID:	API #: 123-23784	County Name: WELD
Facility Name: DILKA 22-6	Latitude: 40.517000	Longitude: -104.481690	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: SENW	Sec: 6	Twp: 6N	Range: 63W Meridian: 6 Sensitive Area? Yes

#### SITE CONDITIONS

General soil type - USCS Classifications SC  
 Most Sensitive Adjacent Land Use Agricultural  
 Is domestic water well within 1/4 mile? No  
 Is surface water within 1/4 mile? No  
 Is groundwater less than 20 feet below ground surface? No

#### Other Potential Receptors within 1/4 mile

The Dilka 22-6 wellhead and ~933-foot flowline are surrounded by vacant pasture in all directions. The flowline runs northeast from the wellhead, through the open pasture, to the Dilka 21 tank battery. The tank battery, which is located ~910 feet northeast of the wellhead, will remain in place. A livestock feedlot is in place ~600' southwest of the wellhead. There are 2 mapped wetlands. One ~475' southeast and one ~760' west. Depth to groundwater is unknown, but well construction records for water well permit 262396, located 1,025' southwest of the wellhead, reported a static water level of 23' below ground surface in 2005. The wellhead and flowline are mapped in the Pronghorn Winter Concentration High Priority Habitat. There are no additional sensitive areas or wildlife habitats identified within a quarter mile of the wellhead and flowline. See the attached Figure 1 for an illustration of the location of the Site.

## 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
No	SOILS	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.

Great Western proposes to conduct closure of the Dilka 22-6 wellhead and flowline. Plugging and abandonment of the well will commence on 3/13/2021 and will be completed by 3/15/2021. Flowline removal activities and cut and cap activities are planned to commence on 3/22/2021 and be completed by 3/24/2021. Great Western will conduct site investigation activities, field screening, and confirmation sampling activities during closure in accordance with COGCC 900 Series Rules. Discrete soil samples will be collected and analyzed pursuant to Rule 915, following the general sample collection guidance in Rule 915.e.(2). All waste generated during the closure activities will be managed and disposed of at Waste Management's North Weld Landfill in Ault, CO in accordance with Rules 905 and 906.

### 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 ):

Four discrete soil samples will be collected for field screening at the wellhead. At least one of the field screening samples will be submitted to an accredited laboratory for analysis. Soil samples will be analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, and Total Volatile Petroleum Hydrocarbons (TVPH [C6-C10]) by EPA Method 8260 and Total Extractable Petroleum Hydrocarbons (TEPH [C10-C36]) by EPA Method 8015. Analytical results for TVPH and TEPH will be added together to calculate Total Petroleum Hydrocarbons (TPH). See the attached Figure 3 for an illustration of the wellhead layout and proposed discrete soil sample locations for field screening and for laboratory analysis. See the Additional Investigative Actions section below for a summary of the flowline investigation and sampling activities.

#### Proposed Groundwater Sampling

- ☒ Will groundwater samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

If needed, groundwater samples will be collected in accordance with COGCC Rule 915.e.(3)., and will be submitted to an accredited laboratory for analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene by EPA Method 8260.

#### 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 ):

Great Western will remove the flowline by cutting it in 50' to 100' sections and pulling it from the subsurface. Up to ten discrete soil samples will be collected for field screening during flowline abandonment. If indications of soil impacts are present, the samples will be submitted to an accredited laboratory for analysis as discussed in the Proposed Soil Sampling section above. If indications of groundwater impacts are present, samples will be collected and submitted to an accredited laboratory for analysis as discussed in the Proposed Groundwater Sampling section below. See the attached Figure 2 for an illustration of the wellhead and flowline and proposed field screening sample locations.

## SITE INVESTIGATION REPORT

### SAMPLE SUMMARY

**Soil**

Number of soil samples collected 2  
Number of soil samples exceeding 915-1 0  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 0

**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 915-1   

**Surface Water**

0 Number of surface water samples collected  
   Number of surface water samples exceeding 915-1  
If surface water is impacted, other agency notification may be required.

**NA / ND**

-- Highest concentration of TPH (mg/kg) 464  
NA Highest concentration of SAR     
BTEX > 915-1 No  
Vertical Extent > 915-1 (in feet) 0

   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)   

**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.

Based on site investigation activities and laboratory analytical results of confirmation soil samples "Floor 6 Ft", which was collected adjacent to the Dilka 22-6 wellhead and soil sample "Separator 0.2 Ft", which was collected adjacent to the flowline, the removal and disposal of soil was not necessary. The clean material excavated during cut and cap activities was used to backfill the excavation. Further, excavated material for flowline pulling and trenching was used as backfill.

**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.

Based on site investigation activities and laboratory analytical results for confirmation soil samples "Floor 6 Ft" collected adjacent to the Dilka 22-6 wellhead as well as a sample collected from the soil adjacent to the flowline just west of the separator "Separator 0.2 ft", a remediation plan is not needed.

**Soil Remediation Summary**

☐ In Situ

☐ Ex Situ

   Bioremediation ( or enhanced bioremediation )

   Excavate and offsite disposal

   Chemical oxidation

If Yes: Estimated Volume (Cubic Yards)

\_\_\_\_\_ Air sparge / Soil vapor extraction  
\_\_\_\_\_ Natural Attenuation  
\_\_\_\_\_ Other \_\_\_\_\_

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 site investigation activities.

## **REMEDATION 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: \_\_\_\_\_

# REMEDATION COMPLETION REPORT

## REMEDATION 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? Yes

Does the previous reply indicate consideration of background concentrations? No

Does Groundwater meet Table 915-1 standards? Yes

Is additional groundwater monitoring to be conducted? No

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.

Great Western has conducted final reclamation of the land and soil affected by the facility in accordance with COGCC 1000-Series Rules. All disturbed areas have been reclaimed as nearly as practical to their original condition and all excavations have been backfilled. All areas compacted by oil and gas operations have been cross-ripped. Great Western has applied topsoil and compost. The land has been adequately tilled to re-establish a proper seedbed, stabilized to minimize erosion, and is scheduled to be reseeded with a landowner approved seed mix during the Fall 2021.

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 provide the seed mix? Yes

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

Did the local soil conservation district provide the seed mix? No

### SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. 03/31/2021

Proposed date of completion of Reclamation. 10/01/2021

## 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. 02/04/2021

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

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/13/2021

Proposed site investigation commencement. 03/31/2021

Proposed completion of site investigation. 03/31/2021

## REMEDIAL ACTION DATES

Proposed start date of Remediation. \_\_\_\_\_

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

Cut and cap and flowline removal activities and associated site investigation and confirmation soil sampling at the Dilka 22-6 wellhead and flowline occurred on March 31, 2021. See the attached Figures 1, 2, 3 and 4 for an illustration of the Site.

Five discrete soil samples were collected at depths ranging 4 feet to 6 feet below ground surface (bgs) in each cardinal direction around the wellhead and the floor of the wellhead excavation. Further, seven discrete soil samples were collected along the flowline at depths of 0.2 feet (at separator) to 4 feet. These samples were field screened using a photoionization detector (PID). Field screening results ranged from 0 parts per million (ppm) to 8 ppm. Confirmation soil samples "Floor 6 Ft" and "Separator 0.2 Ft", collected from the base of the wellhead excavation and adjacent to the separator, were submitted to Origins Laboratory, Inc. (Origins) in Denver, CO. The lab analyzed the soil samples for benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene and Gasoline Range Organics (GRO) [C6-C10] by EPA Method 8260, and Diesel Range Organics (DRO) [C10-C28] and Residual Range Organics (RRO) [C28-C40] by EPA Method 8015. Analytical results for confirmation soil samples were either reported below laboratory method detection limits or below their respective COGCC Table 915-1 Residential SSL concentration levels.

Discreet soil samples were collected from six potholes/trenches along the flowline and field screened using a PID. Field screening results were all reported at 0 ppm. Based on field screening results, no soil samples were submitted for laboratory analysis.

Please refer to the attached Wellhead and Flowline Closure Checklists for a detailed description of the March 31, 2021 site investigation activities. Soil sample and field screening locations, as well as analytical and field screening results, are presented on Figures 3 and 4. See the attached Tables 1, 2, and 3 for a summary of analytical and field screening results as well as general observations made during the site investigation. A photo log and a copy of the laboratory analytical report 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: 06/25/2021

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: RICK ALLISON

Date: 07/16/2021

Remediation Project Number: 16834

## Condition of Approval

### COA Type

### Description

	<p>Closure request removed: The detected concentration of 1,2,4-Trimethylbenzene exceeds the Table 915-1 Protection of Groundwater SSL and has not been defined. No evidence is provided to demonstrate the pathway to groundwater is closed. Therefore, NFA cannot be granted at this time.</p> <p>Operator shall define horizontal and vertical extent of impacts that exceed the Table 915-1 Protection of Groundwater SSL. Soil samples should include the complete Table 915-1. Groundwater samples should include both Table 915-1 Organics and Inorganics in groundwater.</p>
1 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.

<u>Att Doc Num</u>	<u>Name</u>
402729955	FORM 27-SUPPLEMENTAL-SUBMITTED
402729961	SITE INVESTIGATION REPORT

Total Attach: 2 Files

### General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)