

State of Colorado Oil and Gas Conservation Commission

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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.

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	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 #: 17652 Initial Form 27 Document #: 402652459

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 #: 123-12952	County Name: WELD
Facility Name: PIERCE UNIT-KENNEDY 3		Latitude: 40.631210	Longitude: -104.765830
		** correct Lat/Long if needed: Latitude: 40.631210	Longitude: -104.765830
QtrQtr: NESW	Sec: 27	Twp: 8N	Range: 66W Meridian: 6 Sensitive Area? No

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 Pierce Unit Kennedy #3 wellhead is surrounded by agricultural fields in all directions. Residences are located approximately 750 feet to the east. There are no groundwater well permits mapped within ¼ mile of the wellhead. Based on monitoring activities at the Pierce Central Battery 5,100 feet to the northeast, groundwater is expected to be encountered between 25 feet and 26 feet below ground surface. The wellhead is situated in a quarter-quarter section within 1,000 feet of a Type III Well Location. There are no additional sensitive areas or wildlife habitats identified within a quarter mile of the wellhead.

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	23' x 18' x 7' deep - 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.

Great Western proposes to conduct closure of the Pierce Unit Kennedy #3 wellhead. Plugging and abandonment of the well will commence on 4/14/2021 and will be completed by 4/16/2021. Cut and cap activities are planned to commence and be completed on 4/22/2021. The off-location flowline will be left in place as it shared with Great Western's Jennings #1 well. Therefore, there are no Form 44s related to this P&A. The tank battery, which is located approximately 5,100 feet to the northeast of the wellhead, will remain in place. Great Western will conduct site investigation activities, field screening, and confirmation soil sampling activities during closure in accordance with COGCC 900 Series Rules. Discreet soil samples and, if necessary one groundwater sample, will be collected and analyzed pursuant to Rule 915, following the general sample collection guidance in Rule 915.e.(2) and Rule 915.e.(3). All waste generated during the closure activities will be managed and disposed of at Waste Management's North Weld Landfill in Ault, Colorado in accordance with Rules 905 and 906. See the attached Figure 1 for an illustration of the location of the Site.

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):

Up to five discreet soil samples will be collected for field screening. 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, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 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 2 for an illustration of the wellhead layout and proposed discreet soil sample locations for field screening and for laboratory analysis.

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 915-1 3
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 414

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) 8496
-- Highest concentration of SAR 9.01
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 7

 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?

Please refer to the Operator Comments under the Submit tab of this Form 27 for a discussion of the background soil sampling activities conducted at the Site.

☒ Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards) 89 Volume of liquid waste (barrels) 0

☒ Is further site investigation required?

Please refer to the Operator Comments under the Submit tab of this Form 27 for a discussion of the additional site investigation activities proposed at the Site.

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 Operator Comments under the Submit tab of this Form 27 for a discussion of the source removal activities conducted at the Site.

REMEDIAL 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.

Source removal excavation and associated confirmation soil sample laboratory analytical results indicate no further remediation is currently necessary.

Soil Remediation Summary

☐ In Situ

☒ Ex Situ

 Bioremediation (or enhanced bioremediation) Yes Excavate and offsite disposal

 Chemical oxidation If Yes: Estimated Volume (Cubic Yards) 89

_____ 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? Yes

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

Not applicable

Volume of E&P Waste (solid) in cubic yards 89

E&P waste (solid) description Hydrocarbon impacted soil

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Waste Management's Nort Weld
Landfill in 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: _____

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? _____

Does the previous reply indicate consideration of background concentrations? _____

Does Groundwater meet Table 915-1 standards? _____

Is additional groundwater monitoring to be conducted? _____

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.

A reclamation plan will be prepared based on the results of the proposed additional SAR delineation activities. 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 provide the seed mix? _____

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

Did the local soil conservation district provide the seed mix? _____

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. _____

Proposed date of completion of Reclamation. _____

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. 03/23/2021

Actual Spill or Release date, or date of discovery. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/26/2021

Proposed site investigation commencement. 09/07/2021

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/27/2021

Proposed date of completion of Remediation. 05/27/2021

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 initial site investigation activities at the Pierce Unit Kennedy #3 wellhead occurred on April 26, 2021. Soil at the wellhead and pumpjack was field screened using a photoionization detector (PID). No evidence of impact was observed at the pumpjack. At the wellhead, an elevated PID reading of 496 parts per million (ppm) was obtained at 4 feet below ground surface (bgs) east of the wellhead indicating potential impact. As a result, one discrete characterization soil sample (SS1-4) was collected at that location. One background sample (BG1-2) was collected from 2 feet bgs from soil located north of the site. Characterization soil sample SS1-4 was submitted to Origins Laboratory, Inc. (Origins) in Denver, Colorado for analysis of the full COGCC Table 915-1 list of analytes by COGCC approved methods. Background sample BG1-2 was submitted for analysis of arsenic, selenium, pH, electrical conductivity (EC), boron, and sodium adsorption ratio (SAR) by COGCC approved methods. Total petroleum hydrocarbons (TPH), arsenic, and SAR were reported at concentrations and levels above their respective Table 915-1 residential soil screening levels (RSSLs) in SS1-4. Arsenic was reported above the its Table 915-1 RSSL in BG1-2. All remaining laboratory analytical results were compliant with their respective Table 915-1 RSSLs.

Based on site investigation activities and laboratory analytical results for waste characterization soil sample SS1-4, on May 27, 2021, approximately 89 cubic yards of material was excavated and hauled offsite under Great Western manifest for disposal. The final extent of the excavation was approximately 23 feet east-west by 18 feet north-south to a total depth of approximately 7 feet bgs. Following excavation, confirmation soil samples were collected from the floor of the excavation (SS1-7) at 7 feet bgs and from each sidewall (SS2-3 through SS5-3) at 3 feet bgs. Additionally, one background sample (BG2-7) was collected at 7 feet bgs from native material at the southwestern edge of the pad. The confirmation soil samples were submitted to Origins for analysis of benzene, toluene, ethylbenzene, total xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and SAR by COGCC approved methods. Background sample BG2-7 was submitted for analysis of selenium and SAR by COGCC approved methods. SAR was reported above its COGCC Table 915-1 standard in samples SS1-7 and SS3-3 at values of 7.00 and 9.01, respectively. All remaining laboratory analytical results were compliant with applicable COGCC Table 915-1 RSSLs. Soil sample and field screening locations are presented on Figure 2, and analytical results are presented on Table 1 and Table 2. Sample location information is provided on Table 3. A photo log, wellhead checklist, copies of the laboratory analytical reports, and copies of the waste manifests are also attached.

To vertically and laterally delineate potential SAR impacts at the Site, additional confirmation soil samples are proposed to be collected at SS1 from 9 feet to 10 feet bgs, and at SS3 from 1 foot, 5 feet, 7 feet, and 9 feet to 10 feet bgs. Four step-out confirmation soil samples will be collected from two locations to the northwest and southwest of SS3 from 1 foot and 3 feet bgs. All samples will be submitted for analysis of SAR. The proposed soil sample locations are illustrated on the attached Figure 3.

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: 17652

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.

<u>Att Doc Num</u>	<u>Name</u>
402786823	SITE MAP
402786824	SOIL SAMPLE LOCATION MAP
402786827	SOIL SAMPLE LOCATION MAP
402786831	ANALYTICAL RESULTS
402786833	ANALYTICAL RESULTS
402786834	PHOTO DOCUMENTATION
402786842	SITE INVESTIGATION REPORT
402786843	ANALYTICAL RESULTS
402786844	ANALYTICAL RESULTS
402786845	ANALYTICAL RESULTS
402786846	DISPOSAL MANIFESTS

Total Attach: 11 Files

General Comments

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

Total: 0 comment(s)