FORM 27 Rev 3/16

State of Colorado
Oil and Gas Conservation Commission

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Receive Date: 05/01/2018
Report taken by: RICK ALLISON

Site Investigation and Remediation Workplan (Initial 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 INFORMATON

Name of Operator: GREAT WESTERN OPERATING COMPANY LLC Operator No: 10110
Address: 1801 BROADWAY #500
City: DENVER State: CO Zip: 80202
Contact Person: Ben Huggins

Phone Numbers
Phone: (303) 398-0478
Mobile: ( )
Email: bhuggins@olssonassociates.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 11294 Initial Form 27 Document #: 401623783

PURPOSE INFORMATION

- [ ] 901.e. Sensitive Area Determination
- [ ] 909.c.(1), Rule 905: Pit or PW vessel closure
- [x] 909.c.(2), Rule 906: Spill/Release Remediation
- [ ] 909.c.(3), Rule 907.e.: Land treatment of oily waste
- [ ] 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure
- [ ] 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
- [ ] Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
- [ ] Rule 909.e.(2)B.: Closure of remediation project
- [ ] Rule 906.c.: Director request
- [ ] Other

SITE INFORMATION

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

Facility Type: SPILL OR RELEASE Facility ID: 454672 API #: County Name: WELD
Facility Name: Pierce Unit 2 flowline 23SWSW Latitude: 40.641880 Longitude: -104.751510
** correct Lat/Long if needed: Latitude: 40.645499 Longitude: -104.751450
QtrQtr: SWSW Sec: 23 Twp: 8N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications: CL
Most Sensitive Adjacent Land Use: Pasture and agricultural
Is domestic water well within 1/4 mile? Yes
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

Rural residential properties.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
  - [x] Produced Water
  - [x] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
UNDETERMINED	GROUNDWATER	Unknown	Not yet 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.

The flowline was shut-in. Excavation work was initiated on 3/30/18 once utility locates were completed. Following soil removal, Olsson Associates (Olsson) collected soil samples from the stockpiled soil, the base of the excavation beneath the flowline at a depth of 6 feet below ground surface (bgs), and from the side walls of the excavation at depths of 4 feet to 4.5 feet bgs. Soil samples were delivered to Origins Laboratory in Denver, CO for analysis of benzene, toluene, ethylbenzene, and total xylene (BTEX), gasoline range organics (GRO), and diesel range organics (DRO) to compare to the COGCC Table 910-1 concentration levels. Approximately 29 cubic yards of soil were stockpiled onsite. One additional soil sample was collected on 4/23/18 during excavation and flowline repair activities. The sample was collected from 11 feet bgs from a pothole in the base of the excavation, between the north sidewall and north flowline.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

- [x] Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

A limited subsurface investigation is proposed to be conducted on 5/3/18 in the area of the flowline leak. A Geoprobe will be utilized to collect continuous soil samples sufficient to delineate lateral and vertical extent of soil impacts. Soil samples will be analyzed for GRO and DRO to compare to the COGCC Table 910-1 concentration levels. Analytical results will be expected on 5/7/18. See the attached Figure 3 for proposed boring/sample locations.

Proposed Groundwater Sampling

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

If groundwater is encountered during the limited subsurface investigation, one sample will be collected for BTEX analysis. Analytical results will be expected on 5/7/18.

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: 8

Number of soil samples exceeeding 910-1: 8

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

Approximate areal extent (square feet): 625

NA / ND

Highest concentration of TPH (mg/kg): -- 14780

Highest concentration of SAR: NA

BTEX > 910-1: Yes

Vertical Extent > 910-1 (in feet): 8

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

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): 29

Volume of liquid waste (barrels): 0

☒ Is further site investigation required?

The operator proposes to conduct a limited subsurface investigation. See the proposed soil sampling plan section of this Form 27.

REMEDIAL ACTION PLAN

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Source removal will be determined based on the results of the limited subsurface investigation.

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.

A remediation or closure plan will be developed based on the results of the limited subsurface investigation.

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.

If impacted groundwater is encountered during the limited subsurface investigation, a monitoring plan will be developed.

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? _____

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: _____

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. 03/23/2018

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/30/2018

Date of commencement of Site Investigation. 05/03/2018

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 05/21/2018

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. 06/04/2018

Date of completion of Reclamation. _____

OPERATOR COMMENT

The flowline is associated with the Pierce Unit #2, but the leak occurred near the plugged and abandoned Priddy #1 location.

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 Geologist

Submit Date:` 05/01/2018 Email: jdavidson@olssonassociates.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: 05/02/2018

Remediation Project Number: 11294

COA Type	Description
	Provide 48 hours notice to COGCC prior to commencement of each phase of work (notice for site assessment has been provided).
	Surface reclamation in the release area must be conducted in accordance with Rule 1004.
	Operator has proposed to analyze soil samples for TPH-GRO and TPH-DRO during the site assessment. BTEX compounds were detected in the initial excavation. Therefore, confirmation soil samples collected during the remediation phase shall include analysis for TPH-GRO, TPH-DRO and BTEX.

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
401623783	FORM 27-INITIAL-SUBMITTED
401623933	ANALYTICAL RESULTS
401623934	ANALYTICAL RESULTS
401624606	SOIL SAMPLE LOCATION MAP
401624853	ANALYTICAL RESULTS
401626663	SOIL SAMPLE LOCATION MAP

Total Attach: 6 Files

General Comments

User Group	Comment	Comment Date
Environmental	COGCC changed related facility from Location 317697 (the well location) to Spill ID 454672 (the flowline release point)	05/02/2018

Total: 1 comment(s)