

State of Colorado Oil and Gas Conservation Commission

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Receive Date:

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Report taken by:

Candice (Nikki) Graber

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: KERR MCGEE OIL & GAS ONSHORE LP | Operator No: 47120 | Phone Numbers Phone: (720) 929-4306 Mobile: () |
| Address: P O BOX 173779 | | |
| City: DENVER | State: CO Zip: 80217-3779 | |
| Contact Person: Erik Mickelson | Email: Erik_Mickelson@oxy.com | |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 22962 Initial Form 27 Document #: 403029142

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

Yes Multiple Facilities

| | | | |
|--|--------------------|---------------------|--|
| Facility Type: WELL | Facility ID: _____ | API #: 123-11297 | County Name: WELD |
| Facility Name: DONALD COOK GU TRUE 1 | | Latitude: 40.157390 | Longitude: -104.731240 |
| ** correct Lat/Long if needed: Latitude: _____ | | Longitude: _____ | |
| QtrQtr: NWNW | Sec: 12 | Twp: 2N | Range: 66W Meridian: 6 Sensitive Area? Yes |

| | | | |
|--|---------------------|---------------------|--|
| Facility Type: SPILL OR RELEASE | Facility ID: 482395 | API #: _____ | County Name: WELD |
| Facility Name: Cook Donald GU #1 WH Historical | | Latitude: 40.157384 | Longitude: -104.731248 |
| ** correct Lat/Long if needed: Latitude: _____ | | Longitude: _____ | |
| QtrQtr: NWNW | Sec: 12 | Twp: 2N | Range: 66W Meridian: 6 Sensitive Area? Yes |

| | | | |
|--|---------------------|------------------------|--|
| Facility Type: SPILL OR RELEASE | Facility ID: 482914 | API #: | County Name: WELD |
| Facility Name: Cook Donald GU 1 Soil Vapor | Latitude: 40.157390 | Longitude: -104.731240 | |
| ** correct Lat/Long if needed: Latitude: | | Longitude: | |
| QtrQtr: NWNW | Sec: 12 | Twp: 2N | Range: 66W Meridian: 6 Sensitive Area? Yes |

SITE CONDITIONS

General soil type - USCS Classifications SC Most Sensitive Adjacent Land Use Crop land

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? Yes

Other Potential Receptors within 1/4 mile

Surface water is located approximately 440 feet north of the wellhead.
A wetland is located approximately 540 feet northeast 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 | 15' (E-W) x 12' (N-S) x 8' bgs | Inspection/soil samples/laboratory analytical results |

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

Wellhead cut and cap operations were completed at the Cook Donald GU True 1 wellhead on June 15, 2022. Groundwater was not encountered in the wellhead cut and cap excavation area. Visual inspection and field screening of soils around the well and the associated pumping equipment was conducted following cut and cap operations, and soil samples were collected as described in a previous Form 27-Supplemental update (Document No. 403162389). Analytical results indicated that historical soil impacts were present at the former wellhead location, and the COGCC issued Spill/Release Point ID 482395 (approved Form 19 Document No. 403082359). The flowline associated with this wellhead was partially removed on June 15 through 17, 2022, and soil samples were collected as described in a previous Form 27-Supplemental update (Document No. 403162389). The remaining flowline was abandoned in place and its status will be changed to out-of-service in accordance with Rule 1101.a.(3).A,B,&C. Following cut and cap operations, 5 shallow soil vapor points (SVPs) were installed in the vicinity of the wellhead. On August 22, 2022, methane was detected with field screening equipment at SVP02, and soil vapor samples were collected as described herein. Based on the discovery of soil vapor impacts, a Form 19-Initial/Supplemental (Document No. 403159045) was submitted to the COGCC on September 8, 2022, and the COGCC issued Spill/Release Point ID 482914 for the soil gas release at this location. Soil sample location and field screening data are presented in Table 1. The soil sample and field screening locations are illustrated on Figures 1 and 2. The field notes and a photographic log are provided as Attachment A.

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):

Soil samples were collected as described in a previous Form 27-Supplemental update (COGCC Document No. 403162389). Based on the data presented, impacted soils in the excavation area were remediated to be in compliance with the COGCC Table 915-1 standards and/or within the range of site-specific background levels. Soil analytical results are summarized in Tables 2 through 5. The soil sample and field screening locations are illustrated on Figures 1 and 2. The field notes and a photographic log are provided as Attachment A.

Proposed Groundwater Sampling

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

Groundwater was not encountered during wellhead cut and cap or partial flowline removal operations.

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):

On August 22, 2022, methane was detected with field screening equipment at SVP02. Soil vapor samples were collected from all 5 SVPs using IsoTubes™ and an IsoTube™ sampling manifold in conjunction with the pump on a GEM 5000. The samples were submitted to IsoTech for gas composition analysis. Results from the gas composition analysis indicated the presence of a trace concentration of thermogenic gas. The release was reported to the COGCC in the Form 19 Initial/Supplemental dated September 8, 2022 (Document No. 403159045). The volume of the release is unknown, and an investigation into the nature and source of the soil gas is on-going. The original soil vapor points were destroyed. New soil vapor points will be installed to continue the assessment activities following the backfill of the wellhead excavation. The former SVP locations are illustrated on Figure 1, the SVP screening results are summarized in Table 6, and the proposed additional SVP locations are illustrated on Figure 3.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 10

Number of soil samples exceeding 915-1 2

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 180

NA / ND

-- Highest concentration of TPH (mg/kg) 34.05
6

-- Highest concentration of SAR 7.37

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 8

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet)

Number of groundwater monitoring wells installed

Number of groundwater samples exceeding 915-1

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 915-1

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?

Background soil samples WH-BG01@3' - WH-BG02@3' and WH-BG01@6' - WH-BG02@6' were collected from native material adjacent to the wellhead cut and cap excavation. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and Table 915-1 metals using standard methods appropriate for detecting the target analytes in Table 915-1. Analytical results for the background soil samples are presented in Tables 4 and 5.

☐ 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?

The soil vapor investigation is ongoing. The original soil vapor points were destroyed. New soil vapor points will be installed to continue the assessment activities following the backfill of the wellhead excavation. The initial SVP locations are illustrated on Figure 1, and the proposed additional SVP locations are illustrated on Figure 3. Findings associated with the ongoing soil vapor investigation will be presented in a forthcoming Form 27-Supplemental update.

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.

On June 30, 2022, approximately 80 cubic yards of impacted material were removed from the cut and cap excavation area and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. The excavation area was subsequently backfilled and contoured to match pre-existing site conditions. The soil vapor investigation is ongoing. Plans are in place to install additional SVPs for monitoring stray soil gas following backfilling of the wellhead excavation. The proposed SVP locations are illustrated on Figure 3. Findings associated with the upcoming vapor point installation and sampling will be detailed in a Form 27-Supplemental update.

REMEDIAL ACTION 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.

Laboratory data indicate that impacted soils in the wellhead excavation area have been remediated to be in compliance with the COGCC Table 915-1 standards and/or within the range of site-specific background levels. Laboratory results indicate that constituent concentrations in the soil samples collected during partial flowline removal were in compliance with COGCC Table 915-1 standards. Groundwater was not encountered in the wellhead excavation area or during partial flowline removal activities. Based on the analytical and soil screening data presented herein, assessment is complete at the Cook Donald GU True 1 wellhead and the associated flowline, and no further activities are required in these areas. Results from the SVP gas composition analysis indicated the presence of a trace concentration of thermogenic gas in soil. The soil vapor investigation is ongoing. Plans are in place to install additional SVPs for monitoring stray soil gas following backfilling of the wellhead excavation. The proposed SVP locations are illustrated on Figure 3. Findings associated with the ongoing soil vapor investigation will be presented in a forthcoming Form 27-Supplemental update.

Soil Remediation Summary

| | |
|---|---|
| <input type="checkbox"/> In Situ | <input checked="" type="checkbox"/> Ex Situ |
| _____ Bioremediation (or enhanced bioremediation) | Yes _____ Excavate and offsite disposal |
| _____ Chemical oxidation | _____ If Yes: Estimated Volume (Cubic Yards) _____ 80 |
| _____ Air sparge / Soil vapor extraction | _____ Name of Licensed Disposal Facility or COGCC Facility ID # _____ |
| _____ Natural Attenuation | No _____ Excavate and onsite remediation |
| _____ Other _____ | _____ 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.

REMEDIATION 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 Project Status Update

Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

KMOG has sufficient insurance and bonding to fully address the anticipated costs of Remediation, including the remaining estimated costs for this project. KMOG currently has over 40 million in bonds with the Colorado Oil and Gas Conservation Commission. The cost for remediation is a preliminary estimate only, costs may change upwards or downward based on site-specific information. KMOG makes no representation or guarantees as to the accuracy of the preliminary estimate.

Operator anticipates the remaining cost for this project to be: \$ 30000

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:

NA

Volume of E&P Waste (solid) in cubic yards 80

E&P waste (solid) description Impacted soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Buffalo Ridge Landfill, Keenesburg, Colorado

Volume of E&P Waste (liquid) in barrels 0

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

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? Yes

Does Groundwater meet Table 915-1 standards? Yes

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.

The site will be reclaimed in accordance with COGCC 1000 Series Reclamation 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. 06/16/2022

Actual Spill or Release date, or date of discovery. 06/16/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/15/2022

Proposed site investigation commencement. 06/15/2022

Proposed completion of site investigation. 06/15/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/15/2022

Proposed date of completion of Remediation. 06/15/2023

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

Based on the analytical and soil screening data presented herein, assessment is complete at the Cook Donald GU True 1 wellhead and the associated flowline, and no further activities are required in these areas. Results from the SVP gas composition analysis indicated the presence of a trace concentration of thermogenic gas in soil. An investigation into the nature and source of the stray soil gas is on-going, and additional information will be provided in a forthcoming Form 27-Supplemental update. Form 27-Supplemental updates will continue to be submitted to the COGCC on a quarterly basis.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: Erik Mickelson

Title: Senior HSE Advisor

Submit Date: 12/09/2022

Email: Erik_Mickelson@oxy.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: Candice (Nikki) Graber

Date: 03/20/2023

Remediation Project Number: 22962

COA Type**Description**

| | |
|--------|--|
| | Results from samples indicate that organic constituents are above groundwater screening levels but below residential. Operator shall provide information regarding the depth to groundwater and potential pathways to groundwater with the next Form 27. |
| | Operator shall provide the Form 44 for abandonment in place on the next Form 27. |
| 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**

| | |
|-----------|--------------------------------|
| 403255156 | FORM 27-SUPPLEMENTAL-SUBMITTED |
| 403255237 | PHOTO DOCUMENTATION |
| 403255239 | SOIL SAMPLE LOCATION MAP |
| 403255241 | SOIL SAMPLE LOCATION MAP |
| 403255243 | OTHER |
| 403255244 | OTHER |
| 403255246 | ANALYTICAL RESULTS |

Total Attach: 7 Files

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

| | | |
|--|--|---------------------|
| | | Stamp Upon Approval |
|--|--|---------------------|

Total: 0 comment(s)