

State of Colorado Oil and Gas Conservation Commission

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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: MURFIN DRILLING COMPANY INC	Operator No: 61650	Phone Numbers
Address: 250 N WATER ST STE 300		Phone: (316) 858-8664
City: WICHITA State: KS Zip: 67202		Mobile: (316) 210-4832
Contact Person: Cristina Goodrich	Email: cgoodrich@murfininc.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 21623 Initial Form 27 Document #: 402912170

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 #: 073-06757	County Name: LINCOLN
Facility Name: Moonraker 6-27	Latitude: 39.150730	Longitude: -103.654100	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 27	Twp: 10S	Range: 56W Meridian: 6 Sensitive Area? Yes
Facility Type: TANK BATTERY	Facility ID: 459718	API #: _____	County Name: LINCOLN
Facility Name: Moonraker 6-27	Latitude: 39.150720	Longitude: -103.654100	
** correct Lat/Long if needed: Latitude: 39.149740		Longitude: -103.659090	
QtrQtr: SENW	Sec: 27	Twp: 10S	Range: 56W Meridian: 6 Sensitive Area? Yes

Facility Type: OFF-LOCATION FLOWLINE	Facility ID: 481403	API #: _____	County Name: LINCOLN
Facility Name: Production Line 6-27		Latitude: 39.149740	Longitude: -103.659090
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 27	Twp: 10S	Range: 56W
Meridian: 6		Sensitive Area? Yes	

SITE CONDITIONS

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

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? No

Other Potential Receptors within 1/4 mile

Long Branch Creek located between wellhead and facility

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	No hydrocarbon impacts encountered	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 Moonraker 6-27 wellhead on February 3 and March 9, 2023. Groundwater was not encountered during decommissioning activities. Visual inspection and field screening of soils around the well and associated pumping equipment was conducted following wellhead cut and cap operations, and a soil sample (WH-B01@6') was submitted for laboratory analysis to determine if a release occurred. The removal of the associated flowline was completed on February 3, 2023. Soil samples were collected from the locations where the flowline risers were disconnected at the wellhead (FL-B01@3') and separator (FL-B04@4'), from the directional change of the flowline (FL-B02@4'), and from the location where to flowline crossed Long Branch Creek (FL-B03@4') and submitted for laboratory analysis to determine if a release occurred. Decommissioning activities were completed at the Moonraker 6-27 production facility on February 3, 2023. Visual inspection and field screening of soils at one separator, one aboveground produced water tank, two aboveground storage tanks (AST), and two combustors was conducted following removal activities, and soil samples (SEP-B01@3", AST-B01@3", AST-B02@3", PW-B01@3", COM-B01@3", COM-B02@3") were submitted for laboratory analysis to determine if a release occurred. Laboratory analytical results indicated that pH was elevated in the soil at the former produced water tank location, but within an acceptable range of analytical variability. A topographic Site Location Map showing the geographic setting of the site location is provided as Figure 1. Soil sample location and field screening data are presented in Table 1. The wellhead soil sample sample and field screening locations are illustrated on Figure 2. The flowline soil sample and field screening locations are illustrated on Figure 3.

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):

On February 3-March 9, 2023, soil samples were collected from the base of the cut and cap excavation area, from the locations most likely to have been impacted during the operational life of the flowline, and from beneath the former production facility equipment. The soil samples were submitted for laboratory analysis of BTEX, naphthalene, TMBs, TPH-GRO (C6-C10), TPH-DRO (C10-C28), TPH-ORO (C28-C40), pH, EC, SAR, and boron using COGCC approved methods. Analytical results indicated that constituent concentrations in the soil samples were in compliance with COGCC Table 915-1 standards and/or within site-specific background concentrations, with the exception of the pH value in sample PW-B01@3". The pH value was within the acceptable range of soil variability, and it alone does not indicate that a hydrocarbon release occurred at the former wellhead location. As such, it was determined to be acceptable to leave in place. Soil analytical results are presented in Table 2.

Proposed Groundwater Sampling

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

Groundwater was not encountered during decommissioning activities.

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 March 9, 2023, visual inspection and field screening of soils was conducted at 4 sidewall locations within the cut and cap excavation area and 4 locations at the ground surface adjacent to the excavation. Based on the inspection and screening results, hydrocarbon-impacted soil was not observed at the screening locations, and no soil samples were submitted for laboratory analysis from these areas in accordance with the COGCC Operator Guidance. The laboratory analytical report is provided as Attachment A. The field notes and photographic log are provided as Attachment B.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 20

Number of soil samples exceeding 915-1 1

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

Approximate areal extent (square feet) 0

NA / ND

-- Highest concentration of TPH (mg/kg) 35.1

-- Highest concentration of SAR 5.4

BTEX > 915-1 No

Vertical Extent > 915-1 (in 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

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?

☐ 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.

Laboratory results indicate that constituent concentrations in the soil samples collected from the base of the wellhead cut and cap excavation area (WH-B01@6'), during flowline removal (FL-B01@4', FL-B02@4', FL-B03@4', FL-B04@4'), and from beneath the former production facility equipment were in compliance with the COGCC Table 915-1 standards, with the exception to the pH value for PW-B01@3". However, the pH result was within the acceptable range of analytical variability, and it alone does not indicate that a hydrocarbon or produced water release occurred at the former produced water tank location. As such, it was determined to be acceptable to leave in place, and no soils were removed. The cut and cap excavation will be backfilled and contoured to match preexisting site conditions.

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 results indicate that constituent concentrations in the soil samples collected from the base of the wellhead cut and cap excavation area (WH-B01@6'), during flowline removal (FL-B01@4', FL-B02@4', FL-B03@4', FL-B04@4'), and from beneath the former production facility equipment were in compliance with the COGCC Table 915-1 standards, with the exception to the pH value for PW-B01@3". However, the pH result was within the acceptable range of analytical variability, and it alone does not indicate that a hydrocarbon or produced water release occurred at the former produced water tank location. Due to the depth of the elevated pH result, it was determined to be acceptable to leave in place, and no soils were removed. Based on the analytical and soil screening data presented herein, assessment is complete at this site and no further activities are required. As such, Murfin Drilling Company is requesting a No Further Action (NFA) determination for this location.

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

_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____

_____ Natural Attenuation

_____ 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 NFA Request

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.

Operator anticipates the remaining cost for this project to be: \$ 0

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:

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes

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? _____

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.

Reclamation will be conducted in accordance with COGCC 1004 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. _____

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

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/03/2023

Proposed site investigation commencement. 02/03/2023

Proposed completion of site investigation. 03/09/2023

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

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

Signed: Cristina Goodrich

Title: Production Engineer

Submit Date: _____

Email: cgoodrich@murfininc.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: 21623

COA Type**Description**

0 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.

Att Doc Num**Name**

403363107	OTHER
403363163	PHOTO DOCUMENTATION
403363174	SITE MAP
403363176	SOIL SAMPLE LOCATION MAP
403363177	SOIL SAMPLE LOCATION MAP
403363184	SOIL SAMPLE LOCATION MAP
403363196	ANALYTICAL RESULTS
403363199	ANALYTICAL RESULTS
403373429	OTHER
403373430	OTHER

Total Attach: 10 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)