

**State of Colorado
Energy & Carbon Management Commission**

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Document Number:

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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 ECMC 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
Contact Person: Cristina Goodrich	Email: cgoodrich@murfininc.com	Mobile: ()

PROJECT, PURPOSE & SITE INFORMATION**PROJECT INFORMATION**

Remediation Project #: 29666 Initial Form 27 Document #: 403409061

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: LOCATION	Facility ID: 450166	API #:	County Name: LINCOLN
Facility Name: Skyfall 2-5	Latitude: 39.298800	Longitude: -103.573500	
** correct Lat/Long if needed: Latitude: 39.301802		Longitude: -103.574051	
QtrQtr: NWNE	Sec: 5	Twp: 9S	Range: 55W Meridian: 6 Sensitive Area? Yes

Facility Type: WELL	Facility ID:	API #: 073-06719	County Name: LINCOLN
Facility Name: Skyfall 2-5	Latitude: 39.298800	Longitude: -103.573500	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: NWNE	Sec: 5	Twp: 9S	Range: 55W Meridian: 6 Sensitive Area? No

Facility Type: OFF-LOCATION FLOWLINE	Facility ID: 477002	API #: _____	County Name: LINCOLN
Facility Name: Skyfall 2-5	Latitude: 39.301820	Longitude: -103.573750	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWNE	Sec: 5	Twp: 9S	Range: 55W Meridian: 6 Sensitive Area? No

SITE CONDITIONS

General soil type - USCS Classifications ML	Most Sensitive Adjacent Land Use Crop land
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? Yes	

Other Potential Receptors within 1/4 mile

Water Well: none
 Surface Water: none
 Wetlands: none
 Springs: none
 Livestock: none
 Occupied Building: none
 High Priority Habitat (HPH): none

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
UNDETERMINED	GROUNDWATER	TBD	Groundwater samples/laboratory analytical results
Yes	SOILS	15' (N-S) x 13' (E-W) x 13' 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 and facility decommissioning were completed at the Skyfall 2-5 location on 9/7/23 - 10/25/23. Groundwater was not encountered in the wellhead cut and cap excavation area or during facility decommissioning activities. Visual inspection and field screening of soils around the well and associated equipment was conducted following wellhead cut and cap and facility decommission operations, and a soil sample (WH-B01@8') was submitted for laboratory analysis to determine if a release occurred. The flowline associated with this wellhead will be abandoned in place per the landowner's request. Soil samples were collected from the locations where the flowline risers were disconnected at the wellhead (FL-B01@6') and separator (FL-B02@4'), and from beneath the former ASTs and separator (AST-B01@3", AST-B03@3", AST-B05@3", AST-B07@3", and SEP-B01@4', and submitted for laboratory analysis to determine if a release occurred. Laboratory analytical results for soil sample WH-B01@8 indicated that TPH and 1,2-methylnaphthalene impacts exceeding ECOM Table 915-1 were present at the former wellhead location. As such, a Form 19-Initial/Supplemental Spill/Release Report (ECMC Document No. 403532228) was submitted on September 18, 2023, and the ECMC issued Spill/Release Point ID 485136. The remaining analytical results for the soil samples collected during wellhead cut and cap and facility decommissioning operations were in compliance with ECMC standards. 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 soil sample and field screening locations are illustrated on Figures 2,3, and 4. The field notes and a photographic log are provided as Attachment B.

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 September 15, 2023, historical soil impacts were discovered following wellhead cut & cap operations at the Skyfall 2-5 wellhead. Excavation and assessment activities are ongoing. Soil analytical results are summarized in Tables 2 through 5. The laboratory analytical report is 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 flowline removal activities. If groundwater is encountered during remaining excavation activities, a minimum of one grab sample will be collected as soon as practical. Groundwater samples will be submitted to an accredited laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, using standard methods appropriate for detecting the target analytes in ECMC Table 915-1.

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 9/7/23 - 10/25/23, visual inspection and field screening of soils was conducted at four sidewall locations within the wellhead excavation area, four locations at the ground surface adjacent to the excavation, beneath the former ASTs, ECDs, and dumphine. Based on the inspection and screening results, no soil samples were submitted from these areas in accordance with ECMC Operator Guidance. The laboratory analytical report is provided as Attachment A. The field notes and a photographic log are provided as Attachment B.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 24

Number of soil samples exceeding 915-1 12

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

Approximate areal extent (square feet) 195

NA / ND

-- Highest concentration of TPH (mg/kg) 782

-- Highest concentration of SAR 4.27

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 13

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?

Background soil samples WH-BG01@3", WH-BG01@4', WH-BG02@3", WH-BG02@4', WH-BG03@10, and WH-BG04@10' 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 3 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?

Excavation and assessment activities are ongoing.

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.

Excavation and assessment activities are ongoing. Soils will be removed and transported to a licensed disposal facility. Disposal records will be kept on file and available upon request.

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.

Excavation and assessment activities are ongoing.

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.

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

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.

Murfin is adequately bonded as shown by submitted Form 3A Doc: 403418364 and has General Liability insurance.

Operator anticipates the remaining cost for this project to be: \$ 8000

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

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC 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? No ☐

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? Yes

Is additional groundwater monitoring to be conducted? _____

Operator shall comply with the ECMC 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 ECMC 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. _____

Actual Spill or Release date, or date of discovery. 09/15/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/07/2023

Proposed site investigation commencement. 09/07/2023

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 10/25/2023

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

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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 ECMC Rules and applicable orders and is hereby approved.

ECMC Approved:

Date:

Remediation Project Number: 29666

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**

403727227	ANALYTICAL RESULTS
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Total Attach: 1 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)