

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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403829546

Receive Date:

06/19/2024

Report taken by:

Chris Sanchez

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 ECOM 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? Yes

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?	Yes

Facility Type:	SPILL OR RELEASE	Facility ID:	485136	API #:		County Name:	LINCOLN
Facility Name:	Skyfall 2-5	Latitude:	39.298797	Longitude:	-103.573526		
		** correct Lat/Long if needed: Latitude:		Longitude:			
QtrQtr:	NWNE	Sec:	5	Twp:	9S	Range:	55W
				Meridian:	6	Sensitive Area?	Yes

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?	No		

Other Potential Receptors within 1/4 mile

N/A

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	GROUNDWATER	0	not encountered
Yes	SOILS	15' (N-S) x 13' (E-W) x 13' bgs	lab analysis

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 ECMC 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. The farmer has already planted crop for the growing season. No additional work has been done at the site since the previous SF27 was submitted. See attached site investigation report for figures, tables, photos, and laboratory analytical reports for all previous work completed at 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):

The farmer has already planted crop for the growing season. Additional background grab soil samples will be collected in the field around the wellhead after fall harvest and submitted to Origins Laboratory in Denver, Colorado for Arsenic analysis only prior to additional excavation and confirmation sampling at the wellhead.

Proposed Groundwater Sampling

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

If groundwater is encountered in the wellhead excavation, a grab sample will be collected and analyzed for Table 915-1 Organic Compounds in Groundwater

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 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?

See Proposed Sampling Plan

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 for disposal

Soil Remediation Summary

☐ In Situ

☐ Ex Situ

_____ Bioremediation (or enhanced bioremediation)
_____ Chemical oxidation
_____ Air sparge / Soil vapor extraction
_____ Natural Attenuation
_____ Other _____

_____ Excavate and offsite disposal
_____ If Yes: Estimated Volume (Cubic Yards) _____
_____ Name of Licensed Disposal Facility or ECMC 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: \$ 2000

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 or per landowner direction.

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 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. 10/31/2024

Proposed date of completion of Reclamation. 12/31/2024

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. 09/15/2023

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. 10/31/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 10/25/2023

Proposed date of completion of Remediation. 10/31/2024

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

In-process F44 document number 403590851 for the abandoned-in-place flowline is related to this form.

Water well documents available on Colorado Division of Water Resources online database for water well receipt number 9090460 approximately 3,450' S from the wellhead state a static groundwater level of 50' bgs. Per ECMC Rule 915.a., operators will adhere to the concentrations for soil cleanup in Table 915-1. Operators will use Residential Soil Screening Level Concentrations as cleanup levels. Comparing the most recent wellhead excavation confirmation soil sample results to Table 915-1 Residential Soil Screening Level limits and background results, Arsenic is the only parameter that remains elevated.

The farmer has already planted crop for the growing season. Additional background grab soil samples will be collected in the field around the wellhead after fall harvest and submitted to Origins Laboratory in Denver, Colorado for Arsenic analysis only prior to additional excavation and confirmation sampling at the wellhead. This form is to satisfy the 90 day submission requirement from the previous SF27 submission.

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

Signed: David Castro

Title: Senior Project Scientist

Submit Date: 06/19/2024

Email: dcastro@eagle-enviro.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: Chris Sanchez

Date: 07/31/2024

Remediation Project Number: 29666

COA Type

Description

	ECMC does not approve the Operators request to use RSSL at this time. Operator shall provide additional justification for use of Residential SSL including but not limited to depth to groundwater and the local lithology before ECMC will approve.
	Water Well @ 3,450 feet is not adequate to indicate site specific Depth to Groundwater.
	If encountered operator will analyze groundwater samples for Table 915-1 Groundwater Inorganic Parameters (total dissolved solids, sulfate, chloride) in addition to the Organic Compounds
	Approval of this Form 27 does not imply approval of pre-abandonment in place notice required by Rule 1105.d.(2). for Flowline abandonment.
	Operator will continue quarterly reporting until the site investigation is complete and Table 915-1 standards are met within the remediation area

4 COAs

ATTACHMENT 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

403829546	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403829589	SITE INVESTIGATION REPORT
403871788	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 3 Files

General Comments

User Group

Comment

Comment Date

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

Total: 0 comment(s)