

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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Report taken by:

Taylor Robinson

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
Address: P O BOX 173779		Phone: (970) 336-3500
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Gregory Hamilton	Email: gregory_hamilton@oxy.com	Mobile: (970) 515-1698

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 28476 Initial Form 27 Document #: 403340115

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

No Multiple Facilities

Facility Type: LOCATION	Facility ID: 479198	API #: _____	County Name: WELD
Facility Name: SBJ 22-13HZ PAD	Latitude: 40.315167	Longitude: -104.956905	
	** correct Lat/Long if needed: Latitude: 40.313386	Longitude: -104.956703	
QtrQtr: SWNW	Sec: 13	Twp: 4N	Range: 6W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications ML

Most Sensitive Adjacent Land Use Little Thompson River

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? Yes

Other Potential Receptors within 1/4 mile

Domestic water well: 1194' ENE
Surface water: 1151' SSW
Wetlands: 1140' SSW
Springs: none
Livestock: none
Occupied Building: 637' ENE
High Priority habitats: aquatic native species conservation waters 428' SSW

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	No hydrocarbon impacts encountered	Groundwater samples/laboratory analytical results
Yes	SOILS	373' (E-W) x 187' (N-S) x 0.5'	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.

Following a release of approximately 6 bbls at the SBJ 22-13 HZ O SA location discovered on February 22, 2023. Back-hoes were used to begin recovery of the surface impacts and as a precaution, absorbent booms were deployed into the Little Thompson River after a slight sheen was observed. Hydrovacs were used to begin recovery of impacts around the facility equipment. Between February 22 and March 1, 2023, surface water samples were collected from nine locations over a eight-day period along the Little Thompson River upstream, adjacent, and downstream of the release location and were submitted for laboratory analysis. In addition, soil samples were collected from the extents of the release location and submitted for laboratory analysis. A Form 19-Initial Spill/Release Report (ECMC Document No. 403327277) was submitted on February 24, 2023, and the ECMC issued Spill/Release Point ID 484027. A topographic Site Location Map showing the geographic setting of the site location is provided as Figure 1. The soil sample and field screening locations are illustrated on Figure 2 and surface water sample locations are illustrated on Figure 4. Soil sample location and field screening data are presented in Table 1. 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):

Between February 22 to May 1, 2023, excavation/hydrovac activities were conducted to address remaining soil impacts at the release location. A total of 230 soil samples were collected from the extents of the release location at depths ranging from 3" bgs to 5' bgs. Soil sample Initial Waste Characterization @ 3" was submitted for laboratory analysis of Full Table 915-1. The remaining soil samples were submitted for laboratory analysis of BTEX, naphthalene, TMBs, PAHs (except benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene), and metals (except lead, silver, zinc, chromium (VI)) using ECMC-approved methods. Analytical results indicated that concentrations in the soil samples collected from release location were in compliance with the applicable ECMC Table 915-1 standards and/or within the range of site-specific background levels. Soil analytical results are summarized in Tables 2-5.

Proposed Groundwater Sampling

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

On June 14 and September 28, 2023, a groundwater sample was collected from monitoring well MW-01. The groundwater samples were submitted for laboratory analysis of BTEX, naphthalene, and TMBs using ECMC-approved methods. Laboratory analytical results indicated that the groundwater samples were in compliance with the ECMC Table 915-1 standards. Groundwater analytical results are summarized in Table 7. The groundwater sample location is illustrated in Figure 3.

Proposed Surface Water Sampling

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

Between February 22 and March 1, 2023, 38 surface water samples were collected from nine locations (SW-01 through SW-09) over a eight-day period along the Little Thompson River upstream, adjacent, and downstream of the release location. Laboratory analytical results indicated that all surface water samples collected from each sample location between February 22 and March 1, 2023 were in full compliance with Colorado Department of Public Health and Environment Regulation No. 31 standards for surface water, and in full compliance with ECMC Table 915-1 groundwater standards. Surface water analytical results are summarized in Table 6. The surface water sample locations are illustrated in Figure 4.

Additional Investigative Actions

☐ Additional alternative investigative actions described in attached Site Investigation Plan (summary):

On June 12, 2023, groundwater monitoring well MW-01 was installed downgradient of the release location to investigate the lithology beneath the site and assess groundwater conditions. A Geoprobe drill rig was utilized to install monitoring well MW-01 to a total depth of approximately 29' bgs, where drilling refusal was encountered. The location of monitoring well MW-01 is illustrated in Figure 3. The soil boring/well completion diagram is presented in Attachment A.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 230

Number of soil samples exceeding 915-1 1

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

Approximate areal extent (square feet) 69751

NA / ND

-- Highest concentration of TPH (mg/kg) 14830

-- Highest concentration of SAR 1.86

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 5

Groundwater

Number of groundwater samples collected 2

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 17

Number of groundwater monitoring wells installed 1

Number of groundwater samples exceeding 915-1 0

ND Highest concentration of Benzene (µg/l)

ND Highest concentration of Toluene (µg/l)

ND Highest concentration of Ethylbenzene (µg/l)

ND Highest concentration of Xylene (µg/l)

NA Highest concentration of Methane (mg/l)

Surface Water

38 Number of surface water samples collected

0 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?

A total of 37 background soil samples were collected from native material adjacent to the release location at depths ranging from 3" to 5.5' bgs. The background soil samples were submitted for laboratory analysis of the Table 915-1 metals using standard methods appropriate for detecting target analytes in Table 915-1. Analytical results for the background soil samples are presented in Table 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?

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.

Between February 22 and May 1, 2023, approximately 270 cubic yards of impacted soil was excavated and transported to the Front Range Landfill in Erie, Colorado for disposal, approximately 280 cubic yards of impacted soil was excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling, and approximately 9 cubic yards of impacted slurry was excavated and transported to the Aggregate Recycling Facility in Fort Lupton, Colorado. The excavation area will be backfilled and contoured to match pre-existing conditions.

REMEDATION 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.

Based on laboratory analytical results, the 38 surface water samples collected from nine locations along the Little Thompson River (upstream, adjacent, and downstream of the release location) were in full compliance with Colorado Department of Public Health and Environment Regulation No. 31 standards for surface water, and in full compliance with ECMC Table 915-1 groundwater standards. In addition, the 2 groundwater samples collected from monitoring well MW-01 were in compliance with the ECMC Table 915-1 standards.

The lithology beneath the release location is a stiff to hard clay observed from 1 to 29' bgs, with a sandy clay lens observed from 25.5-27' bgs. Based on the lithology observed during installation of monitoring well MW-01, it appears a confining layer (very stiff clay) exists at approximately 10' bgs. The lithology observed does not support that a pathway to groundwater exists. Therefore, Kerr-McGee is requesting Residential Soil Screening Levels (RSLs) be applied to the site as the ECMC Table 915-1 standard.

Soil Remediation Summary

☐ In Situ

☒ Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 559

_____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____ 149007

_____ Natural Attenuation

_____ Excavate and onsite remediation

_____ Other _____

Yes _____ 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.

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 Colorado Oil and Gas Conservation Commission. The cost for remediation is a preliminary estimate only, costs may change upwards or downwards 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: \$ 1000

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:

Between February 22 and May 1, 2023, approximately 280 cubic yards of impacted soil was excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling and approximately 9 cubic yards of impacted soil was excavated and transported to the Aggregate Recycling Facility in Fort Lupton, Colorado.

Volume of E&P Waste (solid) in cubic yards 559

E&P waste (solid) description impacted soil

COGCC Disposal Facility ID #, if applicable: 149007

Non-COGCC Disposal Facility: Front Range Landfill located in Erie, 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?

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? _____

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 ECMC 1000 Series Reclamation Rules. Timeliness of reclamation initiation and completion will be subject to NFA, surface owner discretion and land use, and suitable ground conditions which allow for execution of surface reclamation activities so as to not cause unwarranted damages.

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? Yes

If YES, does the seed mix comply with local soil conservation district recommendations? Yes

Did the local soil conservation district provide the seed mix? Yes

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. 02/22/2023

Actual Spill or Release date, or date of discovery. 02/22/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/22/2023

Proposed site investigation commencement. 02/22/2023

Proposed completion of site investigation. 09/28/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/22/2023

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

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

Signed: Gregory Hamilton

Title: Environmental Lead

Submit Date: 02/05/2024

Email: gregory_hamilton@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: Taylor Robinson

Date: 02/27/2024

Remediation Project Number: 28476

COA Type**Description**

	ECMC approves Operator's request for use of Residential SSLs based on the depth to groundwater and the local lithology suggesting a pathway to groundwater at this location is not likely.
1 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**

403669284	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403669942	OTHER
403669951	OTHER
403669959	OTHER
403669961	SITE MAP
403669963	SOIL SAMPLE LOCATION MAP
403669964	GROUND WATER SAMPLE LOCATION
403669966	GROUND WATER SAMPLE LOCATION
403669967	ANALYTICAL RESULTS
403669968	OTHER
403669976	ANALYTICAL RESULTS
403701259	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 12 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)