

State of Colorado
Energy & Carbon Management Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



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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: <u>KERR MCGEE OIL & GAS ONSHORE LP</u>	Operator No: <u>47120</u>	Phone Numbers
Address: <u>P O BOX 173779</u>		Phone: <u>(970) 336-3500</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80217-3779</u>		Mobile: <u>()</u>
Contact Person: <u>Phillip Hamlin</u>	Email: <u>Phillip_Hamlin@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 23522 Initial Form 27 Document #: 403070659

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: <u>LOCATION</u>	Facility ID: <u>332556</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>PSC-63N67W 11SWSE</u>	Latitude: <u>40.233850</u>	Longitude: <u>-104.856680</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSE</u>	Sec: <u>11</u>	Twp: <u>3N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>481901</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>PSC-63N67W Separator Release</u>	Latitude: <u>40.236063</u>	Longitude: <u>-104.855308</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSE</u>	Sec: <u>11</u>	Twp: <u>3N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications CH

Most Sensitive Adjacent Land Use Non-Crop Land

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

The nearest domestic water well is located approximately 625 feet south of the release location.
Surface water is located approximately 625 feet northwest of the release location.
A wetland is located approximately 1,050 feet south of the release location.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | _____ |
| <input checked="" type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input checked="" type="checkbox"/> Condensate | <input type="checkbox"/> Pigging Waste | |
| <input type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash | |
| <input type="checkbox"/> Drill Cuttings | <input type="checkbox"/> Spent Filters | |
| | <input type="checkbox"/> Pit Bottoms | |
| | <input type="checkbox"/> Other (as described by EPA) | _____ |

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	See attached data	Groundwater sampling / laboratory analysis
Yes	SOILS	106' (N-S) x 64' (E-W) x 12' bgs	Excavation / soil sampling / laboratory 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.

On February 23, 2022, an estimated 0.23 barrels of condensate were released to the ground surface at the PSC-63N67W (PSC 15-11) Production Facility due to a broken sight glass on the separator. During soil cleanup activities on March 18, 2022, the release became State Reportable due to observed soil impacts in contact with groundwater. The ECOM issued Spill/Release Point 481901 for this release (Document No. 402988996). On March 21, 2022, soil samples B01@6' and W01@5' were collected from the initial excavation area during ongoing cleanup activities. Based on the field screening results and photoionization detector (PID) readings, these samples were selected for waste characterization purposes and were submitted for laboratory analysis of the full Table 915-1 analytical suite using standard ECOM-approved methods. Analytical results for the waste characterization samples indicated that soil impacts were present due to benzene, toluene, ethylbenzene, total xylenes (BTEX), total petroleum hydrocarbons (TPH), 1,2,4- and 1,3,5-trimethylbenzene (TMB), polycyclic aromatic hydrocarbons (PAHs), arsenic (As), and selenium (Se). The remaining analytical results for samples B01@6' and W01@5' were in compliance with ECOM Table 915-1 standards and/or within the range of site-specific background levels. Groundwater was encountered in the excavation area at approximately 6 feet below ground surface (bgs).

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 23 through December 21, 2022, excavation activities were conducted to address remaining soil impacts, and 29 soil samples were collected from the base and sidewalls of the final excavation extents, at depths ranging from approximately 5 to 12 feet bgs. Based on the analytical results for waste characterization samples B01@6' and W01@5, the confirmation soil samples were submitted for laboratory analysis of BTEX, 1,2,4- and 1,3,5-TMB, TPH-GRO (C6-C10), DRO (C10-C28), ORO (C28-C40), PAHs, As, and Se, as approved by the ECOM in the Initial Form 27 (Document No. 403070659). Analytical results indicate that constituent concentrations in the soil samples collected from the final excavation extents were in compliance with ECOM Table 915-1 standards and/or within the range of site-specific background levels.

Proposed Groundwater Sampling

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

Groundwater was encountered in the excavation area at approximately 6 feet bgs. On March 21, 2022, a groundwater sample (GW01) was collected from the excavation area and submitted for laboratory analysis of BTEX, naphthalene, 1,2,4- and 1,3,5-TMB by USEPA Method 8260D. Analytical results indicate that the benzene, toluene, total xylenes, naphthalene, 1,2,4- and 1,3,5-TMB concentrations in groundwater sample GW01 exceeded the ECOM Table 915-1 standards. The excavation groundwater sample location and proposed temporary monitoring well locations are illustrated on Figure 1. Groundwater analytical results are presented in Table 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):

No additional assessment activities have been conducted at this site since the previous Form 27-Supplemental was submitted to the ECOM (Document No. 403358968). Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining groundwater impacts. Monitoring well installation activities are anticipated to be completed during the Third Quarter 2023.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 47

Number of soil samples exceeding 915-1 21

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

Approximate areal extent (square feet) 6300

NA / ND

-- Highest concentration of TPH (mg/kg) 6641

-- Highest concentration of SAR 0.781

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 12

Groundwater

Number of groundwater samples collected 1

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 6

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 1

-- Highest concentration of Benzene (µg/l) 1160

-- Highest concentration of Toluene (µg/l) 5400

-- Highest concentration of Ethylbenzene (µg/l) 491

-- Highest concentration of Xylene (µg/l) 5930

NA 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?

Four (4) background soil samples were collected from native material adjacent to the wellhead cut and cap excavation, as described in a previous Form 27-Supplemental (Document No. 403397162).

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?

Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining groundwater impacts. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of ECMC Table 915-1 constituents. Monitoring well installation activities are anticipated to be completed during the Third Quarter 2023.

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 February 23 through December 21, 2022, approximately 162 cubic yards of impacted soil slurry were removed from the excavation area via vacuum truck hydro-excavation activities and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling; approximately 3,120 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal; approximately 1,160 cubic yards of impacted material were excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Approximately 20,226 barrels of impacted groundwater were removed from the excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling. Laboratory results indicate that constituent concentrations in the confirmation soil samples collected from the final excavation extents were in compliance with COGCC Table 915-1 standards and/or within the range of site-specific background levels. The excavation area has been backfilled and contoured to match pre-existing conditions.

REMEDICATION 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 confirmation soil samples collected from the final excavation extents were in compliance with ECMC Table 915-1 standards and/or within the range of site-specific background levels. Prior to backfilling, approximately 220 pounds of OxPure® activated carbon were added to the groundwater within the excavation area, to mitigate remaining hydrocarbon impacts in groundwater. Groundwater monitoring wells will be installed at the former wellhead location to fully define the extent and magnitude of the remaining groundwater impacts. Groundwater monitoring well installation is currently scheduled for the Third Quarter 2023. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of Table 915-1 constituents. Estimated time to attain NFA is TBD based on the groundwater concentrations, the extent of impacted groundwater, and the efficacy of the selected remedial technologies.

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) _____ 4442
_____ Air sparge / Soil vapor extraction	_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____ 434766
_____ Natural Attenuation	No _____ Excavate and onsite remediation
_____ Other _____	_____ Land Treatment
	_____ Bioremediation (or enhanced bioremediation)
	_____ Chemical oxidation
	_____ Other _____

Groundwater Remediation Summary

_____ No _____ Bioremediation (or enhanced bioremediation)

_____ No _____ Chemical oxidation

_____ No _____ Air sparge / Soil vapor extraction

_____ Yes _____ Natural Attenuation

_____ Yes _____ Other _____ Groundwater removal, OxPure®
activated carbon application

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.

Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining groundwater impacts. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of Table 915-1 constituents. Groundwater monitoring well installation is currently scheduled for the Third Quarter 2023. The excavation groundwater sample location and proposed temporary monitoring well locations are illustrated on Figure 1, and groundwater analytical data is presented in Table 1. Subsequent to installation, a figure illustrating the locations of the surveyed temporary groundwater monitoring wells will be provided in a Form 27-Supplemental update.

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 up

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 Energy and Carbon Management 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: \$ 75000

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:

Approximately 162 cubic yards of impacted soil slurry were removed from the excavation area via vacuum truck hydro-excavation activities and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 20,226 barrels of impacted groundwater were removed from the excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 4442

E&P waste (solid) description Impacted soil

COGCC Disposal Facility ID #, if applicable: 434766

Non-COGCC Disposal Facility: Front Range Landfill - Erie, Colorado;
Buffalo Ridge Landfill - Keenesburg,
Colorado

Volume of E&P Waste (liquid) in barrels 20226

E&P waste (liquid) description Impacted groundwater

COGCC Disposal Facility ID #, if applicable: 434766

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? No

Is additional groundwater monitoring to be conducted? Yes

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? No

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. 11/30/2027

Proposed date of completion of Reclamation. 12/31/2027

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. 03/21/2022

Actual Spill or Release date, or date of discovery. 03/18/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/23/2022

Proposed site investigation commencement. 03/21/2022

Proposed completion of site investigation. 09/30/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/23/2022

Proposed date of completion of Remediation. 12/31/2026

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

Form 27-Supplemental updates will be submitted to the ECMC on a quarterly basis until the extent of the potentially remaining groundwater impacts has been fully delineated. The project implementation summary is provided as Attachment A.

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

Signed: Phillip Hamlin

Title: Senior Environmental Rep.

Submit Date: 09/26/2023

Email: Phillip_Hamlin@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: 11/01/2023

Remediation Project Number: 23522

COA Type**Description**

	Operator shall field log soil borings during monitoring well installation and provide boring logs/well construction diagrams with the next monitoring report.
	Operator will submit a minimum of one soil sample for the proposed laboratory analysis from each soil boring advanced during monitoring well installation.
	ECMC approves of the proposed soil boring/gw monitoring locations. If field observations indicate that the proposed delineation borings are located inside the previous excavation extent additional soil borings will be required. Additionally, depending on the results of the current site investigation plan, Operator may be required to install additional soil borings to fully delineate soil impacts.
3 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**

403526506	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403538104	IMPLEMENTATION SCHEDULE
403538105	GROUND WATER SAMPLE LOCATION
403538106	ANALYTICAL RESULTS
403580462	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 5 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)