

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
404437406  
Receive Date:  
12/26/2025  
Report taken by:  
Grace Rollins

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: KERR MCGEE OIL & GAS ONSHORE LP	Operator No: 47120	Phone Numbers Phone: (720) 929-4307 Mobile: ( )
Address: P O BOX 173779		
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Max Moran	Email: DJRemediation_Forms@oxy.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 27095 Initial Form 27 Document #: 403301119

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: PIT	Facility ID: 118064	API #: _____	County Name: WELD
Facility Name: STATE 2	Latitude: 40.221777	Longitude: -104.673267	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: CSW	Sec: 16	Twp: 3N	Range: 65W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION	Facility ID: 317677	API #: _____	County Name: WELD
Facility Name: STATE-63N65W 16CSW	Latitude: 40.221730	Longitude: -104.673030	
** correct Lat/Long if needed: Latitude: 40.222002		Longitude: -104.673219	
QtrQtr: CSW	Sec: 16	Twp: 3N	Range: 65W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE      Facility ID: 484421      API #: \_\_\_\_\_      County Name: WELD  
Facility Name: Megan H 16-33 O SA Tank Battery      Latitude: 40.222002      Longitude: -104.673219  
\*\* correct Lat/Long if needed: Latitude: \_\_\_\_\_      Longitude: \_\_\_\_\_  
QtrQtr: CSW      Sec: 16      Twp: 3N      Range: 65W      Meridian: 6      Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications SC      Most Sensitive Adjacent Land Use livestock

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**

Domestic water well: none  
Surface water: none  
Wetlands: none  
Livestock: none  
Occupied Building: none  
High Priority Habitats: none

**DENIED**

# 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 samples/laboratory analytical results
Yes	SOILS	180' (N-S) x 200' (E-W) x 55' 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.

Decommissioning activities were completed at the Megan H 16-33 O SA production facility on 4/18/23 - 5/2/23, as summarized in Form 27-Supplemental Document #403872384. Laboratory analytical results indicated that benzene, ethylbenzene, total xylenes, TPH, naph., TMBs, pH, SAR, 1,2-methylnaphthalene, arsenic, and barium concentrations in soil samples collected from beneath the former PWV exceeded the applicable ECMC Table 915-1 standards, and the ECMC issued Spill/Release Point ID 484421 for this release. From 4/18/23-12/16/24 excavation activities were conducted and 276 soil samples have been collected from the base and sidewalls of the excavation ranging in depths of approximately 2.5' to 41.5' bgs. Based on the waste characterization results (PW-B01@5'), subsequent soil samples have been submitted for laboratory analysis of BTEX, TPH, naph., TMBs, pH, SAR, PAHs, arsenic, barium, cadmium, and selenium using ECMC-approved methods. On 11/26/24 - 12/16/24, 54 confirmation soil samples were collected from the final excavation extent and submitted for laboratory analysis of the full ECMC Table 915-1. Final analytical results for the soil samples collected from the final extent indicate that organic and inorganic impacts remain at the base of the excavation (PW-B35@41.5'). Due to the presence of groundwater within the base of the excavation, additional excavation activities are unable to safely continue. The applicable soil boring logs are attached. The applicable secured analytical laboratory reports are attached.

## 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 ):

To delineate the remaining impacts, 38 soil borings were advanced in and around the final excavation extent to approximately 35' - 55' bgs. Monitoring wells were installed in each soil boring location. Soil samples were collected based on the interval exhibiting the highest PID and/or from the interval above the observed water table. The samples were submitted for analysis of the full ECMC Table 915-1 analytical suite. Final analytical results for the samples collected during monitoring well installation indicated that impacts had not been fully defined, and as such, step-out wells (MW-37 & MW-38) were installed on 11/3/25-11/4/25 to further delineate impacts. Analytical results indicate remaining soil impacts have been laterally defined. KMOG will propose a remedial plan in a forthcoming Form 27-Supp. Update. The soil boring sample locations are illustrated on Figure 1.

### Proposed Groundwater Sampling

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

Quarterly groundwater monitoring was initiated on 10/31/24. Depth to groundwater was observed at approximately 19' - 39' bgs within the 36 monitoring wells that have been gauged and sampled. Quarterly groundwater monitoring has been completed in Q4 2024 - Q4 2025. Groundwater samples were collected and submitted for laboratory analysis of Table 915-1 organic and inorganic compounds in groundwater. Analytical results for the Fourth Quarter 2025 indicate that benzene, toluene, total xylenes, 1,2,4-TMB and/or 1,3,5-TMB concentrations in groundwater samples MW-04, MW-32, MW-33, and MW-34, and chloride ion concentrations in MW-04 and MW-32 exceeded the ECMC Table 915-1 standards and/or local background limits. Quarterly groundwater monitoring will continue until 4 quarters of compliant groundwater is reached.

### 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 403

Number of soil samples exceeding 915-1 375

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

Approximate areal extent (square feet) 40000

### NA / ND

-- Highest concentration of TPH (mg/kg) 8373

-- Highest concentration of SAR 23.9

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 55

### Groundwater

Number of groundwater samples collected 141

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 19

Number of groundwater monitoring wells installed 38

Number of groundwater samples exceeding 915-1 13

-- Highest concentration of Benzene (µg/l) 19100

-- Highest concentration of Toluene (µg/l) 28300

-- Highest concentration of Ethylbenzene (µg/l) 732

-- Highest concentration of Xylene (µg/l) 14400

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?

Background (BG) samples PW-BG10-PW-BG25 were collected from native material (Olney loamy sand) adjacent to the former PWV excavation at depths from 8-37.5' bgs. BG samples from the Megan H 16-12 JI & UPRC H17-99HZ wellheads (located within the same field, less than 0.25 miles from the excavation) collected from similar soil series (Olney and Vona Series, both well-drained soils formed in eolian deposits), soil type (loamy sand), depth, & land use are included, as approved in F27-S. Doc. #403872384. BG samples from the Megan H 16-32 wellhead (located within the same field, less than 0.35 miles from the excavation) collected from similar soil series (Valent sand), depth, & land use are included. The samples were analyzed for pH, SAR, EC, boron, &/or metals. Multiple BG sample locations have been engulfed within the excavation area & have been omitted from this report. Like & kind BG samples have been applied to like & kind samples, illustrated in the attached soil composition summary.

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?

Site assessment activities to address the remaining soil impacts are currently ongoing and will be summarized in a forthcoming Form 27-Supplemental update. Based on the observed depth to water (~19-39' bgs), all soil samples collected deeper than approximately 19' bgs were saturated soil samples, are assumed to be mobilized groundwater impacts, and will be remediated as such.

## 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 May 17, 2023 through December 16, 2024, approximately 15,080 cubic yards of impacted material were excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal, approximately 1,070 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal, and approximately 2,060 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 9 cubic yards of impacted hydro-excavation soil slurry were removed from the PWV excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 658 barrels of impacted groundwater were removed from the PWV excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling. Stockpile soil from sloping activities and adjacent reclamation activities was sampled to assess suitability for backfilling. Compliant stockpile soil was used as backfill material. Stockpile soil that did not meet Table 915-1 standards was disposed of off-site. Analytical data for stockpile soil samples is summarized in Tables 2 through 5. The excavation areas have been backfilled and contoured to match pre-existing conditions.

## 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.

Final analytical results for the soil samples still in place indicate that organic and inorganic impacts remain at the base of the excavation (PW-B35@41.5'). Due to the presence of groundwater within the base of the excavation, deeper excavation activities are unable to safely continue. KMOG will propose a remedial plan in a forthcoming Form 27-Supplemental Update. Prior to backfilling, approximately 560 pounds of COGACpH® and WPX activated carbon were added to the groundwater within the excavation area, to mitigate remaining hydrocarbon impacts in groundwater. 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

In Situ

Ex Situ

_____ Bioremediation ( or enhanced bioremediation )	Yes	Excavate and offsite disposal
_____ Chemical oxidation		If Yes: Estimated Volume (Cubic Yards) _____ 18219
_____ Air sparge / Soil vapor extraction		Name of Licensed Disposal Facility or ECMC Facility ID # _____ 149007
_____ 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 \_\_\_\_\_ Activated carbon adsorption

## 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.

On 10/31/24 - 11/4/25, 38 groundwater monitoring wells (MW-01 - MW-38) were installed at the site to delineate remaining soil and groundwater impacts. Analytical results for the Fourth Quarter 2025 indicate that benzene, toluene, total xylenes, 1,2,4-TMB and/or 1,3,5-TMB concentrations in groundwater samples MW-04, MW-32, MW-33, and MW-34 exceeded the ECMC Table 915-1 standards and local background limits. Analytical results indicated that chloride ion concentrations in MW-04 and MW-32 exceeded the applicable ECMC Table 915-1 standards and local background limits. Groundwater monitoring will continue on a quarterly basis until four consecutive quarters of compliant groundwater is reached. Following results of delineation activities, KMOG will propose a remedial path forward for any remaining impacts. The monitoring well locations are depicted on Figure 4. The Fourth Quarter 2025 groundwater elevation data is summarized in Table 6 and illustrated on Figure 5. The groundwater analytical results are summarized in Tables 7 and 8.

# 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 the ECMC. 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: \$ 20000

## 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 2,060 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 9 cubic yards of impacted hydro-excavation soil slurry were removed from the PWV excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 658 barrels of impacted groundwater were removed from the PWV 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                      18219

E&P waste (solid) description    Impacted soil

ECMC Disposal Facility ID #, if applicable:                      149007

Non-ECMC Disposal Facility:    Buffalo Ridge Landfill in Keenesburg,  
Colorado, Front Range Landfill in  
Erie, Colorado

Volume of E&P Waste (liquid) in barrels                      658

E&P waste (liquid) description    Impacted groundwater

ECMC Disposal Facility ID #, if applicable:                      434766

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? \_\_\_\_\_

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 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 Remediation 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. 01/03/2023

Actual Spill or Release date, or date of discovery. 04/26/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/18/2023

Proposed site investigation commencement. 04/18/2023

Proposed completion of site investigation. 03/31/2027

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/26/2023

Proposed date of completion of Remediation. 03/31/2027

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**

The previous Form 27-Supplemental Reports (Document #404129594 & #404298615, submitted 5/12/25 & 8/26/25) are still in process with the ECMC.

Verification samples and/or analytical reruns have been included for pH, SAR, boron, arsenic, barium, cadmium, chromium VI, lead, nickel, and selenium to further assess the ECMC Table 915-1 inorganic exceedances. The scientific justification for the inclusion of the results is the assessment of soil heterogeneity and identification of analytical variability due to constituent composition and distribution within the sampled area.

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

Signed: Max Moran \_\_\_\_\_

Title: Environmental Advisor \_\_\_\_\_

Submit Date: 12/26/2025 \_\_\_\_\_

Email: DJRemediation\_Forms@oxy.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: 27095 \_\_\_\_\_

**COA Type****Description**

0 COA	
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**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**

404437406	FORM 27 DENIED
404437414	LABORATORY ANALYTICAL REPORT
404437416	LABORATORY ANALYTICAL REPORT
404437420	LOGS
404440828	LABORATORY ANALYTICAL REPORT
404440829	LABORATORY ANALYTICAL REPORT
404440830	LABORATORY ANALYTICAL REPORT
404440832	SOIL SAMPLE LOCATION MAP
404440836	GROUND WATER SAMPLE LOCATION
404440837	GROUND WATER ELEVATION MAP
404444065	LABORATORY ANALYTICAL REPORT
404444066	SOIL SAMPLE LOCATION MAP
404444067	SOIL SAMPLE LOCATION MAP
404480953	ANALYTICAL DATA SUMMARY TABLE(S)
404480954	OTHER
404571684	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 16 Files

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

Environmental	Previous Form 27 Document # 404129594 was denied due to data validation. As the subject Form relies on that data, it is also denied.	03/09/2026
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Total: 1 comment(s)