

State of Colorado
Oil and Gas Conservation Commission

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 24758 Initial Form 27 Document #: 403137797

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: <u>WELL</u>	Facility ID: _____	API #: <u>123-07404</u>	County Name: <u>WELD</u>
Facility Name: <u>STRONG P 28-2</u>	Latitude: <u>40.200392</u>	Longitude: <u>-104.891293</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWNE</u>	Sec: <u>28</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 SC Most Sensitive Adjacent Land Use 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

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SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|---|
| <input type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste | <input checked="" type="checkbox"/> Non-E&P Waste |
| <input type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | Non-Impacted Groundwater |
| <input type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input 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
No	GROUNDWATER	No hydrocarbon impacts observed	groundwater samples/laboratory analytical results
Yes	SOILS	10' (N-S) x 25' (E-W) x 11' 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.

On September 9, 2022, historical soil impacts were discovered following cut and cap operations at the Strong P 28-2 wellhead location, location, and excavation activities were conducted. The COGCC issued Spill/Release Point ID 482916 for this release. Non-impacted groundwater was encountered in the excavation area at approximately 5 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):

Soil samples were collected as described in a previous Form 27-Supplemental update (COGCC Document No. 403304491). Based on the data presented, impacted soils in the excavation area were removed and the remaining soils at this location are in compliance with the applicable COGCC Table 915-1 standards and/or within the range of site-specific background results with the exception to the arsenic, barium, and selenium concentrations. The final excavation extent and associated soil sample locations are illustrated on Figure 1. Per COAs of the approved previous Form 27-Supplemental (COGCC Document No. 403304491) on April 10, 2023, soil samples will be collected at the same depths as soil samples FL-B01, FL-B02, and DL-B01 and submitted for laboratory analysis of pH, EC, SAR, and boron using COGCC approved methods.

Proposed Groundwater Sampling

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

Non-impacted groundwater was encountered in the wellhead cut and cap excavation at approximately 11 feet bgs. On November 1, 2022, a groundwater sample (GW01) was collected and submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-TMB, 1,3,5-TMB, by USEPA Method 8260D. Analytical results indicated that constituent concentrations in groundwater sample GW01 were in compliance with COGCC Table 915-1 standards. As such, current groundwater conditions at this site are in compliance with COGCC Table 915-1 standards. Based on the remaining metal impacts in the wellhead excavation area, future groundwater samples will be submitted for the COGCC Table 915-1 groundwater analytical suite, as well as dissolved arsenic, barium, and selenium. The wellhead groundwater sample location and proposed temporary monitoring well locations are illustrated on Figure 2. The groundwater analytical results are presented in Table 1. The laboratory analytical report is provided as Attachment A.

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 COGCC on January 30, 2023 (Document No. 403304491). Based on the COAs that were issued by the COGCC for the approved previous Form 27-Supplemental (COGCC Document No. 403304491), soil samples will be collected at the same depths as soil samples FL-B01, FL-B02, and DL-B01 and submitted for laboratory analysis of pH, EC, SAR, and boron using COGCC approved methods. In addition, a minimum of one soil sample will be collected from each soil boring during monitoring well installation and submitted for laboratory analysis of BTEX, naphthalene, TPH, 1,2,4-TMB, 1,3,5-TMB, pH, pH, EC, SAR, boron, arsenic, barium, and selenium using COGCC approved methods.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 20

Number of soil samples exceeding 915-1 7

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

Approximate areal extent (square feet) 250

NA / ND

-- Highest concentration of TPH (mg/kg) 1538

-- Highest concentration of SAR 2.17

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 11

Groundwater

Number of groundwater samples collected 1

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 11

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 0

ND Highest concentration of Benzene (µg/l) _____

-- Highest concentration of Toluene (µg/l) 2.17

ND Highest concentration of Ethylbenzene (µg/l) _____

-- Highest concentration of Xylene (µg/l) 5.17

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?

Six (6) background soil samples were collected from native material adjacent to the wellhead cut and cap excavation, as described in a previous Form 27-Supplemental (COGCC Document No. 403304491).

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?

Temporary groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining soil impacts. Based on the remaining metal impacts in the wellhead excavation area, the temporary groundwater monitoring wells will be sampled for four consecutive quarters and submitted for laboratory analysis of the COGCC Table 915-1 groundwater analytical suite, as well as dissolved arsenic, barium, and selenium.

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 September 7 and November 1, 2022, approximately 120 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal; approximately 10 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. The excavation area was subsequently backfilled and contoured to match pre-existing site condition.

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.

Laboratory analytical results indicate that impacted soils in the wellhead cut and cap excavation area were removed and the remaining soils at this location are in compliance with the applicable COGCC Table 915-1 standards and/or within the range of site-specific background results, with the exception to the arsenic, barium, and selenium concentrations in multiple samples. Laboratory analytical results indicate that constituent concentrations in the groundwater sample collected from the wellhead cut and cap excavation area (GW01) were in compliance with COGCC Table 915-1 standards. As such, current groundwater conditions at this site are in compliance with COGCC Table 915-1 standards. Based on the the approval of the previous Form 27-Supplemental (Document No. 403304491), temporary groundwater monitoring wells will be installed at the site fully define the extent and magnitude of the remaining soil impacts. Subsequent to installation, the temporary groundwater monitoring wells will be sampled for four consecutive quarters and submitted for laboratory analysis of the Table 915-1 organic constituents (BTEX, naphthalene, 1,2,4- and 1,3,5-TMB), as well as dissolved arsenic, barium, and selenium. The estimated time to attain NFA is four quarters from the date of monitoring well installation and initiation of groundwater monitoring.

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) _____ 130
_____ Air sparge / Soil vapor extraction	_____ Name of Licensed Disposal Facility or COGCC 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

No _____ Natural Attenuation

No _____ 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.

Based on the approval of the previous Form 27-Supplemental (Document No. 403304491), temporary groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining soil impacts. Subsequent to installation, the temporary groundwater monitoring wells will be sampled for four consecutive quarters and submitted for laboratory analysis of the Table 915-1 organic constituents (BTEX, naphthalene, 1,2,4- and 1,3,5-TMB), as well as dissolved arsenic, barium, and selenium. The excavation groundwater sample location and proposed temporary monitoring well locations are illustrated on Figure 2. Groundwater analytical data is presented in Table 1. A groundwater monitoring location figure illustrating the locations of the surveyed temporary 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 update

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.

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

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 10 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards _____ 130

E&P waste (solid) description impacted soil

COGCC Disposal Facility ID #, if applicable: _____ 149007

Non-COGCC Disposal Facility: Front Range Landfill 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? 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 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 COGCC 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. 08/15/2022

Actual Spill or Release date, or date of discovery. 09/08/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/07/2022

Proposed site investigation commencement. 09/07/2022

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 09/08/2022

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

Form 27-Supplemental Updates will be submitted to the COGCC on a quarterly basis until temporary groundwater monitoring wells have been installed and the COGCC-mandated four quarters of groundwater monitoring have been initiated. The Project Implementation Summary is provided as Attachment B.

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

Signed: Gregory Hamilton

Title: Sr. Env. Consultant

Submit Date: 04/27/2023

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: 06/29/2023

Remediation Project Number: 24758

COA Type**Description**

	Arsenic, barium, and selenium concentrations in confirmation soil samples exceed the Table 915-1 Concentrations and are greater than 1.25 times background. Operator will provide additional data to characterize arsenic, barium, and selenium concentrations at the site to determine their source.
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**

403380921	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403385848	SOIL SAMPLE LOCATION MAP
403385852	ANALYTICAL RESULTS
403385853	IMPLEMENTATION SCHEDULE
403385855	ANALYTICAL RESULTS
403386150	GROUND WATER SAMPLE LOCATION
403410554	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 7 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)