

State of Colorado
Oil and Gas Conservation Commission

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Document Number:
402976612
Receive Date:
03/16/2022

Report taken by:
Candice (Nikki) Graber

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>		
City: <u>DENVER</u>	State: <u>CO</u>	Phone: <u>(970) 336-3500</u>
	Zip: <u>80217-3779</u>	Mobile: <u>(970) 515-1161</u>
Contact Person: <u>Phillip Hamlin</u>	Email: <u>Phillip_Hamlin@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 18130 Initial Form 27 Document #: 402687604

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: Proposed groundwater monitoring plan

SITE INFORMATION

Yes Multiple Facilities

Facility Type: <u>LOCATION</u>	Facility ID: <u>332165</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>RUBY O-64N67W 15SWSE</u>	Latitude: <u>40.307469</u>	Longitude: <u>-104.875404</u>	
	** correct Lat/Long if needed: Latitude: <u>40.308064</u>	Longitude: <u>-104.876720</u>	
QtrQtr: <u>SWSE</u>	Sec: <u>15</u>	Twp: <u>4N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>
Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>480244</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Star O 15-10, 23 Dump Line Release</u>	Latitude: <u>40.308222</u>	Longitude: <u>-104.876712</u>	
	** correct Lat/Long if needed: Latitude: _____	Longitude: _____	
QtrQtr: <u>SWSE</u>	Sec: <u>15</u>	Twp: <u>4N</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 Residential

Is domestic water well within 1/4 mile? No

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

Surface water is located approximately 1,300 feet east of the facility.
Multiple buildings and livestock holding pens are located within 1/4 mile of the facility.
A designated high priority habitat is located within 1/4 mile to the east of the facility.

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 and laboratory analytical results
Yes	SOILS	18' (E-W) x 13' (N-S) x 5' bgs	Excavation, soil sampling, and 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 June 28, 2021, historical impacts were discovered below the dump lines during decommissioning activities at the Star O 15-10 production facility location, and excavation activities were initiated. Groundwater was encountered in the dump line excavation area at approximately 4 feet below ground surface (bgs). The COGCC issued Spill/Release Point ID 480244 for this release.

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 from the final excavation extent, as described in a previous Form 27-Supplemental update (COGCC Document No. 402791688). Based on the data presented, impacted soils in the excavation area were remediated to be in compliance with COGCC Table 915-1 standards and/or within the range of site-specific background results. Per that COA that was issued, soil samples were also collected from each soil boring location (BH01 - BH06) during monitoring well installation activities on January 18, 2022. The borehole soil samples were submitted for laboratory analysis of Table 915-1 VOCs, TPH, and PAHs, using standard methods appropriate for detecting the target analytes. Analytical results for the borehole soil samples indicated that constituent concentrations were in compliance with the applicable COGCC Table 915-1 standards. Soil analytical results are presented in Tables 2 and 3. The laboratory analytical report is provided in Attachment A.

Proposed Groundwater Sampling

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

On January 18, 2022, six (6) temporary groundwater monitoring wells (BH01 - BH06) were installed to further assess the extent of the potentially remaining groundwater impacts. Quarterly groundwater monitoring was initiated on January 27, 2022, and is ongoing. Groundwater analytical data is presented in Table 1, and the groundwater sample locations are illustrated on Figure 1. The laboratory analytical report for the initial First Quarter 2022 groundwater monitoring event is provided in 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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 17
Number of soil samples exceeding 915-1 1
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 234

NA / ND

-- Highest concentration of TPH (mg/kg) 823.8
5
-- Highest concentration of SAR 2.18
BTEX > 915-1 Yes
Vertical Extent > 915-1 (in feet) 5

Groundwater

Number of groundwater samples collected 7
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 4'
Number of groundwater monitoring wells installed 6
Number of groundwater samples exceeding 915-1 1

-- Highest concentration of Benzene (µg/l) 18.5
-- Highest concentration of Toluene (µg/l) 79.9
-- Highest concentration of Ethylbenzene (µg/l) 5.82
-- Highest concentration of Xylene (µg/l) 99.3
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?

[Empty text box]

Were background samples collected as part of this site investigation?

Background soil sample PW-BG01@2' was collected from native material adjacent to the production facility location, as described in a previous Form 27-Supplemental Update (COGCC Document No. 402791688).

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?

The five (5) temporary groundwater monitoring wells installed for assessment purposes (BH02 - BH06) will continue to be sampled on a quarterly basis and submitted for laboratory analysis of Table 915-1 constituents. Kerr-McGee is requesting the removal of dedicated background temporary monitoring well BH01 from the groundwater sampling program, as described in the "Groundwater Monitoring" section of this document.

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 June 25 and August 19, 2021, approximately 110 cubic yards of impacted material were removed from the dump line excavation area and transported to the Front Range Landfill in Erie, Colorado for disposal.

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 analytical results indicate that impacted soils in the dump line excavation area have been remediated to be in compliance with COGCC Table 915-1 standards and/or within the range of site-specific background results. Quarterly groundwater monitoring is ongoing and will be continued until concentrations remain in compliance with the COGCC Table 915-1 standards. Additional remedial activities may be evaluated, as needed, to address potential remaining groundwater impacts. 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)

Excavate and offsite disposal

<input type="checkbox"/> Chemical oxidation	<input type="checkbox"/> Yes	If Yes: Estimated Volume (Cubic Yards) <input type="text" value="110"/>
<input type="checkbox"/> Air sparge / Soil vapor extraction		Name of Licensed Disposal Facility or COGCC Facility ID # <input type="text"/>
<input type="checkbox"/> Natural Attenuation	<input type="checkbox"/> No	Excavate and onsite remediation
<input type="checkbox"/> Other <input type="text"/>		Land Treatment
		Bioremediation (or enhanced bioremediation)
		Chemical oxidation
		Other <input type="text"/>

Groundwater Remediation Summary

No Bioremediation (or enhanced bioremediation)

No Chemical oxidation

No Air sparge / Soil vapor extraction

Yes 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.

On January 18, 2022, 6 temporary groundwater monitoring wells (BH01 - BH06) were installed to further assess the extent of the potentially remaining groundwater impacts. Upgradient dedicated background monitoring well BH01 was selected from the First Quarter 2022 monitoring event as a background location for comparison to inorganic groundwater standards in Table 915-1. Based on a comparison to site-specific background concentrations, inorganic constituents in all 5 of the assessment monitoring wells (BH02 - BH06) were in compliance with the Table 915-1 standards during the First Quarter 2022 monitoring event. As such, Kerr-McGee is requesting the removal of Table 915-1 inorganic constituents (chloride, sulfate, and total dissolved solids) from the ongoing quarterly groundwater monitoring program at this location. Based on these results, Kerr-McGee is also requesting the removal of dedicated background temporary monitoring well BH01 from the groundwater monitoring program. The 5 assessment temporary groundwater monitoring wells (BH02 - BH06) will continue to be sampled on a quarterly basis and submitted for laboratory analysis of the remaining Table 915-1 constituents. Background monitoring well BH01 will continue to be gauged during ongoing quarterly monitoring events, but groundwater assessment samples will not be collected from this monitoring well location. The temporary monitoring well locations are illustrated on Figure 1, and a potentiometric surface contour map for the First Quarter 2022 is presented as Figure 2. Well completion logs for the temporary monitoring wells are provided in Attachment B.

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 Proposed groundwater monitoring plan _____

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:

NA

Volume of E&P Waste (solid) in cubic yards _____ 110

E&P waste (solid) description Impacted soil

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Front Range Landfill - 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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

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. 06/29/2021

Actual Spill or Release date, or date of discovery. 06/28/2021

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/23/2021

Proposed site investigation commencement. 06/23/2021

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/25/2021

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

Based on the First Quarter 2022 groundwater analytical results, Kerr-McGee is requesting the removal of dedicated background temporary monitoring well BH01 from the ongoing groundwater sampling program. Additionally, Kerr-McGee is seeking the Director's approval to remove the inorganic constituents in Table 915-1 (chloride, sulfate, and total dissolved solids) from the ongoing quarterly groundwater monitoring program. The remaining 5 assessment monitoring wells (BH02 - BH06) will continue to be sampled on a quarterly basis and submitted for laboratory analysis of the remaining Table 915-1 constituents. Based on the First Quarter 2022 groundwater monitoring results presented herein, Kerr-McGee will continue to provide annual Form 27-Supplemental updates for this site. The Project Implementation Summary is provided as Attachment C.

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: 03/16/2022

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: Candice (Nikki) Graber

Date: 03/21/2022

Remediation Project Number: 18130

Condition of Approval

COA Type

Description

	Operator will analyze groundwater samples from all monitoring wells for Groundwater Inorganic Parameters (total dissolved solids, chloride, sulfate) for a minimum of four quarterly monitoring events.
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

402976612	FORM 27-SUPPLEMENTAL-SUBMITTED
402976700	LOGS
402976704	SITE MAP
402976706	GROUND WATER ELEVATION MAP
402976709	IMPLEMENTATION SCHEDULE
402976710	ANALYTICAL RESULTS
402976712	ANALYTICAL RESULTS
402976715	ANALYTICAL RESULTS

Total Attach: 8 Files

General Comments

User Group

Comment

Comment Date

Environmental	COGCC agrees to the amended reporting schedule.	03/21/2022
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Total: 1 comment(s)