

State of Colorado  
Oil and Gas Conservation Commission

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



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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 &amp; GAS ONSHORE LP</u>	Operator No: <u>47120</u>	<b>Phone Numbers</b>
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) 515-1698</u>
Contact Person: <u>Gregory Hamilton</u>	Email: <u>Gregory_Hamilton@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 21344 Initial Form 27 Document #: 402894813

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>TANK BATTERY</u>	Facility ID: <u>272017</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>NYGREN 12-22</u>	Latitude: <u>40.122350</u>	Longitude: <u>-104.996011</u>	
	** correct Lat/Long if needed: Latitude: <u>40.122444</u>	Longitude: <u>-104.992118</u>	
QtrQtr: <u>NWSW</u>	Sec: <u>22</u>	Twp: <u>2N</u>	Range: <u>68W</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? 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

Multiple buildings are located within ¼ mile of the facility.  
The nearest building is located approximately 850 feet west of the facility.  
The nearest domestic water well is located approximately 1,100 feet northwest of the facility.  
Surface water is located approximately 440 feet southeast of the facility.  
A wetland is located approximately 470 feet southeast of the facility.

## 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 impacts encountered	Groundwater sample/laboratory analytical results
No	SOILS	No hydrocarbon impacts encountered	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.

Tank battery decommissioning activities were completed at the Nygren 12-22 O SA production facility location on January 28 and February 1, 2022. Visual inspection and field screening of soils at the former production facility infrastructure locations was conducted following tank battery decommissioning activities, and soil samples were submitted for laboratory analysis to determine if a release occurred. Laboratory analytical results indicated that pH was elevated in soil at the former partially-buried produced water vessel (PWV) location. Groundwater was encountered in the PWV removal excavation at approximately 4 feet below ground surface (bgs), and a groundwater sample was collected from the excavation area to determine if groundwater impacts were present. A topographic Site Location Map showing the geographic setting of the site location is provided as Figure 1. Soil sample location and field screening data are presented in Table 1. The soil and groundwater sample and field screening locations are illustrated on Figure 2.

**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 January 28, 2022, 5 soil samples were collected from the former separator, AST, and PWV locations, at depths ranging from approximately 3 inches to 4 feet bgs. The soil samples were submitted for laboratory analysis of BTEX, TPH-GRO (C6-C10) by USEPA Method 8260D, TPH-DRO (C10-C28) and ORO (C28-C40) by USEPA Method 8015D. Additionally, sample PW-N01@2' was submitted for laboratory analysis of pH, EC, and SAR by saturated paste method, and boron by hot water soluble soil extract method. Analytical results indicated that constituent concentrations in the 5 confirmation soil samples were in compliance with COGCC Table 915-1 standards, with exception to the pH value in PW-N01@2'. However, the pH result was within the acceptable range of soil variability, and it alone does not indicate that a hydrocarbon or produced water release occurred at the former PWV location. As such, it was determined to be acceptable to leave in place. Soil analytical results are presented in Tables 2 and 3.

**Proposed Groundwater Sampling**

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

Groundwater was encountered in the PWV removal excavation at approximately 4 feet bgs. On January 28, 2022, a groundwater sample (PW-GW01) was collected from the PWV removal excavation area and submitted for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4- and 1,3,5-trimethylbenzene (TMB), by USEPA Method 8260D. Analytical results indicated that constituent concentrations in groundwater sample PW-GW01 were in compliance with COGCC Table 915-1 standards. The groundwater sample location is illustrated on Figure 2, and groundwater analytical results are presented in Table 4.

**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 ):

On January 28 and February 1, 2022, visual inspection and field screening of soils was conducted at 3 sidewall locations within the PWV removal excavation area, 1 location below the former AST, 1 pothole location during dump line removal activities, 1 location at the former emissions control device (ECD), and 1 one location at the former meter house. Based on the inspection and screening results, hydrocarbon-impacted soil was not observed at the soil screening locations. As a result, no soil samples were submitted for laboratory analysis from these areas in accordance with the COGCC Operator Guidance for Oil & Gas Facility Closure. Soil sample location and field screening data are presented in Table 1. Soil analytical results are presented in Tables 2 and 3. The soil and groundwater sample and field screening locations are illustrated on Figure 2. The laboratory analytical report is provided as Attachment A. The field notes and a photographic log are provided as Attachment B.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 5  
Number of soil samples exceeding 915-1 1  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 0

### NA / ND

ND Highest concentration of TPH (mg/kg) \_\_\_\_\_  
-- Highest concentration of SAR 1.87  
BTEX > 915-1 No  
Vertical Extent > 915-1 (in feet) 0

### Groundwater

Number of groundwater samples collected 1  
Was extent of groundwater contaminated delineated? Yes  
Depth to groundwater (below ground surface, in feet) 4'  
Number of groundwater monitoring wells installed 0  
Number of groundwater samples exceeding 915-1 0

-- Highest concentration of Benzene (µg/l) 1.94  
-- Highest concentration of Toluene (µg/l) 8.53  
-- Highest concentration of Ethylbenzene (µg/l) 1.12  
-- Highest concentration of Xylene (µg/l) 15.2  
NA Highest concentration of Methane (mg/l) \_\_\_\_\_

### Surface Water

0 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?

Background soil samples PW-BG01@2' - PW-BG03@2' and PW-BG01@4' - PW-BG03@4' were collected from native material adjacent to the former production facility. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters using standard methods appropriate for detecting the target analytes in Table 915-1. Analytical results for the background soil samples are presented in Table 3.

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.

Laboratory results indicate that constituent concentrations in the 5 confirmation soil samples collected from the former separator, AST, and PWV locations were in compliance with COGCC Table 915-1 allowable levels, with exception to the pH value in PW-N01@2'. However, the pH result was within the acceptable range of soil variability, and it alone does not indicate that a hydrocarbon or produced water release occurred at the former PWV location. As such, it was determined to be acceptable to leave in place, and no soils were removed. The excavation area was backfilled and contoured to match pre-existing site conditions.

### REMIEDIATION 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 5 confirmation soil samples collected from the former separator, AST, and PWV locations were in compliance with COGCC Table 915-1 allowable levels, with exception to the pH value in PW-N01@2'. However, the pH result was within the acceptable range of soil variability, and it alone does not indicate that a hydrocarbon or produced water release occurred at the former PWV location. As such, it was determined to be acceptable to leave in place. Laboratory analytical results indicate that constituent concentrations in the groundwater sample (PW-GW01), collected from the PWV removal excavation, were in compliance with the COGCC Table 915-1 standards. Based on the analytical and soil screening data presented herein, assessment is complete at this site and no further activities are required. As such, Kerr-McGee is requesting a No Further Action (NFA) determination for this location.

**Soil Remediation Summary**

In Situ

Ex Situ

- \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )
- \_\_\_\_\_ Chemical oxidation
- \_\_\_\_\_ Air sparge / Soil vapor extraction
- \_\_\_\_\_ Natural Attenuation
- \_\_\_\_\_ Other \_\_\_\_\_

- \_\_\_\_\_ Excavate and offsite disposal
- \_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_
- \_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_
- \_\_\_\_\_ Excavate and onsite remediation
- \_\_\_\_\_ 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    NFA Request

## WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation?    No

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

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

E&P waste (solid) description    \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable:    \_\_\_\_\_

Non-COGCC Disposal Facility:    \_\_\_\_\_

Volume of E&P Waste (liquid) in barrels    \_\_\_\_\_

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. 07/29/2021

Actual Spill or Release date, or date of discovery. \_\_\_\_\_

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 01/28/2022

Proposed site investigation commencement. 01/28/2022

Proposed completion of site investigation. 02/02/2022

### REMEDIAL ACTION DATES

Proposed start date of Remediation. \_\_\_\_\_

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**

Laboratory results indicate that constituent concentrations in the 5 confirmation soil samples collected from the former separator, AST, and PWV locations were in compliance with COGCC Table 915-1 allowable levels, with exception to the pH value in PW-N01@2'. However, the pH result was within the acceptable range of soil variability, and it alone does not indicate that a hydrocarbon or produced water release occurred at the former PWV location. As such, it was determined to be acceptable to leave in place. As a result, Kerr-McGee is requesting an NFA determination for this location, based on the analytical and soil screening data provided herein.

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 Consultant \_\_\_\_\_

Submit Date: 04/28/2022 \_\_\_\_\_

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: Candice (Nikki) Graber \_\_\_\_\_

Date: 05/25/2022 \_\_\_\_\_

Remediation Project Number: 21344 \_\_\_\_\_

**Condition of Approval****COA Type****Description**

	In accordance with Rule 913.e.(3), Operator will adopt a quarterly reporting schedule.
	Due to shallow groundwater and detected contaminants of concern COGCC has removed the Operator's request for closure. Operator will characterize groundwater and conduct a minimum of four quarters of groundwater monitoring to demonstrate compliance with Table 915-1 Organic Compounds in Groundwater.
2 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**

403027091	FORM 27-SUPPLEMENTAL-SUBMITTED
403027108	PHOTO DOCUMENTATION
403027110	SITE MAP
403027111	SOIL SAMPLE LOCATION MAP
403027112	ANALYTICAL RESULTS
403027113	ANALYTICAL RESULTS

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)