

State of Colorado
Oil and Gas Conservation Commission

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Report taken by:
PETER GINTAUTAS

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.

Refer to Rules 340, 905, 906, 907, 908, 909, and 910

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>
Contact Person: <u>Phillip Hamlin</u>	Email: <u>Phillip_Hamlin@oxy.com</u>	Mobile: <u>(970) 515-1161</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION
Remediation Project #: 13673 Initial Form 27 Document #: 402058636

PURPOSE INFORMATION

<input type="checkbox"/> 901.e. Sensitive Area Determination	<input checked="" type="checkbox"/> 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
<input checked="" type="checkbox"/> 909.c.(1), Rule 905: Pit or PW vessel closure	<input type="checkbox"/> Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
<input checked="" type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation	<input type="checkbox"/> Rule 909.e.(2)B.: Closure of remediation project
<input type="checkbox"/> 909.c.(3), Rule 907.e.: Land treatment of oily waste	<input type="checkbox"/> Rule 906.c.: Director request
<input type="checkbox"/> 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure	<input type="checkbox"/> Other _____

SITE INFORMATION Y Multiple Facilities (in accordance with Rule 909.c.)

Facility Type: <u>LOCATION</u>	Facility ID: <u>336361</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>HSR-LOUIS-63N67W 30NWSE</u>	Latitude: <u>40.195700</u>	Longitude: <u>-104.930850</u>	
** correct Lat/Long if needed: Latitude: <u>40.194555</u>		Longitude: <u>-104.932359</u>	
QtrQtr: <u>NWSE</u>	Sec: <u>30</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>465338</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>SPILL/RELEASE POINT</u>	Latitude: <u>40.194533</u>	Longitude: <u>-104.932345</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWSE</u>	Sec: <u>30</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 SM 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

None

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 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
Yes	GROUNDWATER	See attached data	Groundwater sampling and laboratory analysis
Yes	SOILS	42' (N-S) x 35' (E-W) x 15' 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.

During a routine inspection, a release from a corroded dump line was discovered at the HSR-Louis 10-30 production facility. The facility was shut-in, associated infrastructure removed, and excavation activities were initiated. Groundwater was encountered in the excavation area at approximately 15 feet below ground surface (bgs). The COGCC has issued Spill/Release Point ID 465338 for this release. A partially-buried produced water vessel was replaced during excavation activities.

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 sidewalls and base of the excavation area at depths ranging from approximately 6 feet to 14 feet below ground surface (bgs). The base soil samples were submitted to Origins Laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) by USEPA Method 8260C, TPH diesel and oil range organics (DRO and ORO) by USEPA Method 8015, electrical conductivity (EC), pH, and SAR. The sidewall soil samples were submitted for analysis of BTEX, naphthalene, and TPH. Analytical results indicated that constituent concentrations in the soil samples collected from the final extent of the excavation were in full compliance with COGCC standards.

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 15 feet bgs. A groundwater sample (GW01) was collected from the excavation and submitted to Origins Laboratory for analysis of BTEX by USEPA Method 8260. Groundwater analytical results indicated that the benzene and toluene concentrations in sample GW01 were out of compliance with the COGCC standards.

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):

Soil analytical data is presented in Table 1 and groundwater analytical data is presented in Table 2. Soil and groundwater sample locations are illustrated on Figure 1. The laboratory analytical reports are provided as Attachment A. A partially-buried produced water vessel was replaced during excavation activities.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 22

Number of soil samples exceeding 910-1 10

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

Approximate areal extent (square feet) 1215

NA / ND

-- Highest concentration of TPH (mg/kg) 11630

-- Highest concentration of SAR 56.65

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 15

Groundwater

Number of groundwater samples collected 1

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 15

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 910-1 1

-- Highest concentration of Benzene (µg/l) 2280

-- Highest concentration of Toluene (µg/l) 2780

-- Highest concentration of Ethylbenzene (µg/l) 135

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

NA Highest concentration of Methane (mg/l)

Surface Water

0 Number of surface water samples collected

 Number of surface water samples exceeding 910-1

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?

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?

Hydrocarbon impacted groundwater remains at the site. Temporary groundwater monitoring wells will be installed to further assess the extent of groundwater impacts. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of BTEX until concentrations remain in full compliance with COGCC standards for four consecutive quarters.

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 4 and June 11, 2019, approximately 540 cubic yards of impacted material were removed and transported to the Front Range Landfill in Erie, Colorado for disposal. Approximately 40 barrels of impacted groundwater were removed from the excavation via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility for disposal. Soils were excavated into the phreatic zone to address potential impacts that may have been present below the current groundwater table due to seasonal fluctuations.

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 excavation area have been remediated to be in full compliance with COGCC standards. Prior to backfilling, approximately 110 pounds of OxPure® activated carbon were added to the groundwater within the excavation area to mitigate remaining hydrocarbon impacts in groundwater. Temporary groundwater monitoring wells are proposed to further assess the extent of groundwater impacts and/or for remediation purposes. Temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of BTEX until concentrations remain in full compliance with COGCC standards for four consecutive quarters. 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. The SDS for the activated carbon used at this location is included as Attachment B.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) _____ 540

_____ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or COGCC Facility ID # _____

_____ Natural Attenuation

_____ 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, 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.

Temporary groundwater monitoring wells will be installed at the site to further assess the extent of groundwater impacts and/or for remediation purposes. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of BTEX until concentrations remain in full compliance with COGCC standards for four consecutive quarters. A groundwater monitoring location figure illustrating the locations of the surveyed temporary monitoring wells will be provided in an eForm 27-Supplemental update.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: Quarterly Semi-Annually Annually Other _____

Report Type: Groundwater Monitoring Land Treatment Progress Report O&M Report
 Other _____

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 _____ 540

E&P waste (solid) description _____ Hydrocarbon-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 _____ 40

E&P waste (liquid) description _____ Hydrocarbon-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 _____

Do all soils meet Table 910-1 standards? _____

Does the previous reply indicate consideration of background concentrations? _____

Are the only residual soil impacts pH, SAR, or EC at depths greater than 3 feet below ground surface? _____

Does Groundwater meet Table 910-1 standards? _____

Is additional groundwater monitoring to be conducted? _____

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 produced water vault and associated infrastructure were replaced, and the site has been restored to its pre-release grade. Upon facility decommissioning, the site will be reclaimed in accordance with COGCC 1000 Series Reclamation Rules.

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 approve the seed mix? _____

If NO, does the seed mix comply with local soil conservation district recommendations? _____

IMPLEMENTATION SCHEDULE

PRIOR DATES

Date of Surface Owner notification/consultation, if required. 06/10/2019

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/04/2019

Date of commencement of Site Investigation. 06/04/2019

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 06/04/2019

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

Form 27 update reports will be submitted to COGCC on a quarterly basis until the extent of groundwater impacts have been fully delineated.

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 HSE Representative

Submit Date: 08/19/2019

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: PETER GINTAUTAS

Date: 08/20/2019

Remediation Project Number: 13673

COA Type

Description

	Submit reports of site investigation and progress of remediation including results of sampling and analysis at a minimum on a quarterly basis until extent of groundwater impacts including points of compliance are established by further site investigation.
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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.

<u>Att Doc Num</u>	<u>Name</u>
402137055	FORM 27-SUPPLEMENTAL-SUBMITTED
402137241	SOIL SAMPLE LOCATION MAP
402137243	ANALYTICAL RESULTS
402137247	ANALYTICAL RESULTS
402137251	ANALYTICAL RESULTS
402137253	OTHER

Total Attach: 6 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	added spill 465338 to site investigation as spill is what is being investigated in the project. Added quarterly reporting frequency as discussed in COA	08/20/2019

Total: 1 comment(s)