

State of Colorado Oil and Gas Conservation Commission

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Receive Date:

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Report taken by:

CHRIS CANFIELD

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 Phone: <u>(720) 929-4306</u> Mobile: <u>()</u>
Address: <u>P O BOX 173779</u>		
City: <u>DENVER</u>	State: <u>CO</u> Zip: <u>80217-3779</u>	
Contact Person: <u>Erik Mickelson</u>	Email: <u>Erik.Mickelson@anadarko.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 10883 Initial Form 27 Document #: 401508705

PURPOSE INFORMATION

- | | |
|--|--|
| <input type="checkbox"/> 901.e. Sensitive Area Determination | <input 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 type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation | <input checked="" 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>306029</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>POTMESIL-61N66W 9SESE</u>		Latitude: <u>40.060850</u>	Longitude: <u>-104.774850</u>
		** correct Lat/Long if needed: Latitude: <u>40.061859</u>	Longitude: <u>-104.779733</u>
QtrQtr: <u>SESE</u>	Sec: <u>9</u>	Twp: <u>1N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>
Facility Type: <u>LOCATION</u>	Facility ID: <u>317819</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>JOSEPH HUETT UNIT-61N67W 23NWNE</u>		Latitude: <u>40.040340</u>	Longitude: <u>-104.853230</u>
		** correct Lat/Long if needed: Latitude: <u>40.040695</u>	Longitude: <u>-104.852298</u>
QtrQtr: <u>NWNE</u>	Sec: <u>23</u>	Twp: <u>1N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>
Facility Type: <u>LOCATION</u>	Facility ID: <u>318821</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>ANDERSON FAMILY TRUST C-63N68W 34SWSE</u>		Latitude: <u>40.178520</u>	Longitude: <u>-104.984810</u>
		** correct Lat/Long if needed: Latitude: <u>40.178099</u>	Longitude: <u>-104.985094</u>
QtrQtr: <u>SWSE</u>	Sec: <u>34</u>	Twp: <u>3N</u>	Range: <u>68W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: LOCATION		Facility ID: 319253		API #:		County Name: WELD	
Facility Name: CARL A. MILLER D-61N67W 5NENW		Latitude: 40.083980		Longitude: -104.918290			
		** correct Lat/Long if needed: Latitude: 40.084518		Longitude: -104.917785			
QtrQtr: NENW	Sec: 5	Twp: 1N	Range: 67W	Meridian: 6	Sensitive Area? Yes		

Facility Type: LOCATION		Facility ID: 320442		API #:		County Name: ADAMS	
Facility Name: HSR-NOAH BASS-61S65W 21NESW		Latitude: 39.947808		Longitude: -104.672472			
		** correct Lat/Long if needed: Latitude: 39.948056		Longitude: -104.672310			
QtrQtr: NESW	Sec: 21	Twp: 1S	Range: 65W	Meridian: 6	Sensitive Area? Yes		

Facility Type: LOCATION		Facility ID: 320443		API #:		County Name: ADAMS	
Facility Name: HSR-FULENWIDER-61S65W 21SEW		Latitude: 39.953419		Longitude: -104.672614			
		** correct Lat/Long if needed: Latitude: 39.953321		Longitude: -104.672350			
QtrQtr: SENW	Sec: 21	Twp: 1S	Range: 65W	Meridian: 6	Sensitive Area? Yes		

Facility Type: LOCATION		Facility ID: 320445		API #:		County Name: ADAMS	
Facility Name: HSR-LOMA ALTA-61S65W 21NENE		Latitude: 39.954231		Longitude: -104.664208			
		** correct Lat/Long if needed: Latitude: 39.954102		Longitude: -104.663949			
QtrQtr: NENE	Sec: 21	Twp: 1S	Range: 65W	Meridian: 6	Sensitive Area? Yes		

Facility Type: LOCATION		Facility ID: 323105		API #:		County Name: WELD	
Facility Name: CHAMPLIN 86 K AMOCO-61N68W 9NWSW		Latitude: 40.062880		Longitude: -105.014540			
		** correct Lat/Long if needed: Latitude: 40.062866		Longitude: -105.014208			
QtrQtr: NWSW	Sec: 9	Twp: 1N	Range: 68W	Meridian: 6	Sensitive Area? Yes		

Facility Type: LOCATION		Facility ID: 327855		API #:		County Name: WELD	
Facility Name: NELSON 30-35		Latitude: 40.098210		Longitude: -104.974500			
		** correct Lat/Long if needed: Latitude: 40.097782		Longitude: -104.974443			
QtrQtr: SENW	Sec: 35	Twp: 2N	Range: 68W	Meridian: 6	Sensitive Area? Yes		

Facility Type: LOCATION		Facility ID: 331348		API #:		County Name: WELD	
Facility Name: HSR-WELD-62N68W 2NENW		Latitude: 40.173740		Longitude: -104.972740			
		** correct Lat/Long if needed: Latitude: 40.171386		Longitude: -104.976712			
QtrQtr: NENW	Sec: 2	Twp: 2N	Range: 68W	Meridian: 6	Sensitive Area? Yes		

SITE CONDITIONS

General soil type - USCS Classifications CL Most Sensitive Adjacent Land Use Agriculture

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

NA

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	See attached Sump Closure Reports	Groundwater sample results provided, if applicable
Yes	SOILS	See attached Sump Closure Reports	Soil sample results provided

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

The objective of the soil and groundwater (if present) sampling was to determine if petroleum hydrocarbon impacts to the subsurface media resulted from operating a produced water sump at the site.

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 sampling was conducted to determine if petroleum hydrocarbon impacts to subsurface soil resulted from operating a produced water sump at the respective sites. For each sump closure site, one or more soil samples were collected for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), total petroleum hydrocarbons (TPH), pH, and specific conductivity (EC). The soil sampling activities, laboratory analytical results, and conclusions are summarized in the attached Sump Closure Reports.

Proposed Groundwater Sampling

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

If groundwater was encountered in the sump excavation, a groundwater sample was collected and submitted for laboratory analysis of BTEX. The groundwater sampling activities are summarized in the attached Sump Closure Reports, as applicable.

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 16

Number of soil samples exceeding 910-1 3

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

Approximate areal extent (square feet) 304

NA / ND

-- Highest concentration of TPH (mg/kg) 103.5
9

NA Highest concentration of SAR

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 1

Groundwater

Number of groundwater samples collected 3

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 910-1 0

-- Highest concentration of Benzene (µg/l) 4.68

-- Highest concentration of Toluene (µg/l) 26.4

ND Highest concentration of Ethylbenzene (µg/l)

-- Highest concentration of Xylene (µg/l) 34.9

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?

A background sample was collected from the Champlin 86 K Amoco 1 site and analyzed for pH to determine if soil pH in the area is naturally high; however, the background sample was compliant with the COGCC Table 910-1 allowable level. Therefore, further excavation was necessary.

☐ 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.

Soil samples were collected from the sump excavation for laboratory analysis of TPH, BTEX, pH, and EC. Impacted soil, if encountered, was transported to either the Kerr-McGee Land Treatment Facility in Weld County, Colorado, or to a licensed disposal facility, as applicable. The Sump Closure Reports are attached.

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.

Source removal, as applicable, has been completed at the sump closure sites as summarized in the attached Sump Closure Reports. Groundwater impacts were not encountered. No further action is required for these sites.

Soil Remediation Summary

☐ In Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☒ Ex Situ

Yes _____ Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) _____ 10

Name of Licensed Disposal Facility or COGCC Facility ID # _____

No _____ Excavate and onsite remediation

_____ 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.

NA

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other Produced water vessel closure

Report Type: ☐ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report

☒ Other Produced water vessel closure

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 10

E&P waste (solid) description Petroleum hydrocarbon impacted soil

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Front Range Regional 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: _____

REMEDATION COMPLETION REPORT

REMEDATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes

Do all soils meet Table 910-1 standards? No

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? Yes

Does Groundwater meet Table 910-1 standards? Yes

Is additional groundwater monitoring to be conducted? No

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.

Sump closure sites have been reclaimed (interim) or are in the process of being reclaimed (final) 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. _____

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/07/2017

Date of commencement of Site Investigation. 02/07/2017

Date of completion of Site Investigation. 09/25/2017

REMEDIAL ACTION DATES

Date of commencement of Remediation. _____

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

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

Signed: Erik Mickelson

Title: Senior HSE Representative

Submit Date: 01/22/2018

Email: Erik.Mickelson@anadarko.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: CHRIS CANFIELD

Date: 01/29/2018

Remediation Project Number: 10883

COA Type**Description**

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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.

Att Doc Num**Name**

401519288	FORM 27-SUPPLEMENTAL-SUBMITTED
401519458	SITE INVESTIGATION REPORT
401519460	SITE INVESTIGATION REPORT
401519462	SITE INVESTIGATION REPORT
401519464	SITE INVESTIGATION REPORT
401519468	SITE INVESTIGATION REPORT
401519471	SITE INVESTIGATION REPORT
401519473	SITE INVESTIGATION REPORT
401519485	SITE INVESTIGATION REPORT
401519491	SITE INVESTIGATION REPORT
401519497	SITE INVESTIGATION REPORT

Total Attach: 11 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)