

State of Colorado Oil and Gas Conservation Commission

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Document Number:

401475283

Receive Date:

10/08/2018

Report taken by:

PETER GINTAUTAS

Site Investigation and Remediation Workplan (Initial 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>(720) 336-3500</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80217-3779</u>
Contact Person: <u>Gregory Hamilton</u>	Email: <u>Gregory.Hamilton@anadarko.com</u>	Mobile: <u>(970) 515-1698</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 11889 Initial Form 27 Document #: 401475283

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 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>318054</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>RICHARDSON-62N67W 3NENE</u>	Latitude: <u>40.171500</u>	Longitude: <u>-104.871500</u>	
** correct Lat/Long if needed: Latitude: <u>40.171210</u>		Longitude: <u>-104.871650</u>	
QtrQtr: <u>NENE</u>	Sec: <u>3</u>	Twp: <u>2N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>
Facility Type: <u>LOCATION</u>	Facility ID: <u>318794</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>UPRR 62 PAN AM C-62N65W 13SWSE</u>	Latitude: <u>40.134570</u>	Longitude: <u>-104.608750</u>	
** correct Lat/Long if needed: Latitude: <u>40.134703</u>		Longitude: <u>-104.607956</u>	
QtrQtr: <u>SWSE</u>	Sec: <u>13</u>	Twp: <u>2N</u>	Range: <u>65W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>
Facility Type: <u>LOCATION</u>	Facility ID: <u>328163</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>CAMENISCH-63N67W 4SWNW</u>	Latitude: <u>40.256600</u>	Longitude: <u>-104.901840</u>	
** correct Lat/Long if needed: Latitude: <u>40.259180</u>		Longitude: <u>-104.899220</u>	
QtrQtr: <u>SWNW</u>	Sec: <u>4</u>	Twp: <u>3N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: LOCATION		Facility ID: 336192		API #:		County Name: WELD	
Facility Name: WELD COUNTY B UNIT-62N67W 26NENE				Latitude: 40.113711		Longitude: -104.850926	
				** correct Lat/Long if needed: Latitude: 40.111690		Longitude: -104.855700	
QtrQtr: NENE	Sec: 26	Twp: 2N	Range: 67W	Meridian: 6	Sensitive Area? Yes		

Facility Type: TANK BATTERY		Facility ID: 442144		API #:		County Name: WELD	
Facility Name: POWERS TANK BATTERY 2C-23HZ				Latitude: 40.119667		Longitude: -104.628406	
				** correct Lat/Long if needed: Latitude: 40.119631		Longitude: -104.628243	
QtrQtr: SWSE	Sec: 23	Twp: 2N	Range: 65W	Meridian: 6	Sensitive Area? Yes		

Facility Type: TANK BATTERY		Facility ID: 446398		API #:		County Name: WELD	
Facility Name: MAGNESS-63N67W 26NESE				Latitude: 40.193095		Longitude: -104.850161	
				** correct Lat/Long if needed: Latitude: 40.192857		Longitude: -104.850555	
QtrQtr: NESE	Sec: 26	Twp: 3N	Range: 67W	Meridian: 6	Sensitive Area? Yes		

Facility Type: TANK BATTERY		Facility ID: 446820		API #:		County Name: WELD	
Facility Name: HEIN W19-11, 12 O SA 36159173				Latitude: 40.120792		Longitude: -104.827971	
				** correct Lat/Long if needed: Latitude: 40.120778		Longitude: -104.827916	
QtrQtr:	Sec: 19	Twp: 2N	Range: 66W	Meridian: 6	Sensitive Area? Yes		

Facility Type: TANK BATTERY		Facility ID: 446896		API #:		County Name: WELD	
Facility Name: LORENZ L30-3, 5#2-30 O SA 36149578				Latitude: 40.199518		Longitude: -104.827126	
				** correct Lat/Long if needed: Latitude: 40.199574		Longitude: -104.827134	
QtrQtr: SWNW	Sec: 30	Twp: 3N	Range: 66W	Meridian: 6	Sensitive Area? Yes		

Facility Type: TANK BATTERY		Facility ID: 446900		API #:		County Name: WELD	
Facility Name: INOUE 12-31/VYNCKIE O SA 34002848				Latitude: 40.090474		Longitude: -104.825042	
				** correct Lat/Long if needed: Latitude: 40.090445		Longitude: -104.825053	
QtrQtr: SWSW	Sec: 31	Twp: 2N	Range: 66W	Meridian: 6	Sensitive Area? Yes		

Facility Type: TANK BATTERY		Facility ID: 451589		API #:		County Name: WELD	
Facility Name: Magness Red 6-4, 6-6 & 6-2D battery				Latitude: 40.169484		Longitude: -104.827160	
				** correct Lat/Long if needed: Latitude: 40.169497		Longitude: -104.827221	
QtrQtr: SWNW	Sec: 6	Twp: 2N	Range: 66W	Meridian: 6	Sensitive Area? Yes		

SITE CONDITIONS

General soil type - USCS Classifications SC Most Sensitive Adjacent Land Use Various

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

Various

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 sampling and laboratory analysis
Yes	SOILS	19' (E-W) x 13' (N-S) x 5' bgs.	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.

As required by COGCC rule 905.b, soil and groundwater (if present) samples will be collected when buried or partially buried produced water vessels are removed from service. One soil sample will be collected for laboratory analysis from the area most likely to be impacted directly beneath the water vessel upon removal. If groundwater is encountered below the water vessel, a groundwater sample will be collected for laboratory analysis. Additionally, if groundwater is encountered, four sidewall samples will be collected for field screening. The sidewall sample exhibiting the highest apparent impacts will be submitted for laboratory analysis. The soil samples will be analyzed for total petroleum hydrocarbons (TPH-C6-C36); benzene, toluene, ethylbenzene, total xylenes (BTEX); electrical conductivity (EC); and pH. Analysis for sodium adsorption ratio (SAR) will be conducted should the initial EC concentration exceed the Table 910-1 standards. Groundwater samples will be analyzed for BTEX.

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 each Site and submitted for laboratory analysis. The soil samples were analyzed for total petroleum hydrocarbons (TPH-C6-C36); benzene, toluene, ethylbenzene, total xylenes (BTEX); electrical conductivity (EC); and pH.

Proposed Groundwater Sampling

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

If groundwater was encountered below the water vessel, a groundwater sample (GW01) was collected for analysis of BTEX.

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 12

Number of soil samples exceeding 910-1 0

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

Approximate areal extent (square feet) 247

NA / ND

-- 1 Highest concentration of TPH (mg/kg) 153.3

NA Highest concentration of SAR

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 5

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

ND Highest concentration of Benzene (µg/l)

ND Highest concentration of Toluene (µg/l)

ND Highest concentration of Ethylbenzene (µg/l)

ND Highest concentration of Xylene (µg/l)

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?

REMEDIAL ACTION PLAN

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Any impacted soils above the concentration levels listed in Table 910-1 will be removed from the excavation. Impacted soils exceeding Table 910-1 standards for only EC, pH, and SAR will not be removed below the root zone, established as 3 feet below ground surface (per COGCC guidance).

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.

Impacted soils (if present) will be taken to either a licensed disposal facility or to Kerr-McGee's land treatment facility. A site-specific groundwater monitoring plan will be developed for COGCC approval (as appropriate) in the event that groundwater impacts exceeding the Table 910-1 Concentrations Levels are detected.

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) _____ 20
_____ 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.

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 Report

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 20

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: _____

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.

If the facility remains in place, reclamation will not be necessary. If a facility is removed, the site will be restored as closely as possible to its pre-existing grade and reclaimed in accordance with COGCC 1004 series 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). 05/05/2017

Date of commencement of Site Investigation. 05/05/2017

Date of completion of Site Investigation. 09/29/2017

REMEDIAL ACTION DATES

Date of commencement of Remediation. 06/13/2017

Date of completion of Remediation. 06/13/2017

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: Gregory Hamilton

Title: Sr. Staff HSE Rep

Submit Date: 10/08/2018

Email: Gregory.Hamilton@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: PETER GINTAUTAS

Date: 10/09/2018

Remediation Project Number: 11889

COA Type**Description**

	Submit reports of site investigation and progress of remediation including results of sampling and analysis on an annual basis or more often until remediation is closed.
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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**

401475283	FORM 27-INITIAL-SUBMITTED
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Total Attach: 1 Files

General Comments

User Group	Comment	Comment Date
Environmental	coordinates provided for 423666 Powers are those of battery 442144. changed to 442144	10/09/2018
Environmental	coordinates provided for 336438 Sherwood are those of battery 446896. changed to 446896	10/09/2018
Environmental	coordinates provided for 336424 Hein are those of battery 446820. changed to 446820	10/09/2018
Environmental	coordinates provided for 330999 Richardson are those of location 318054. changed to 318054	10/09/2018
Environmental	Coordinates provided fro 317974 Vynkier are those of Battery 446900 on location 446418. changed to 446900	10/09/2018
Environmental	Coordinates provided for 317883 UPRR 62 Pan Am are those of battery at location 318794 (123-09961) changed to 318794	10/09/2018

Total: 6 comment(s)