

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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401902642
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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 INFORMATON

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) 515-1698</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80217-3779</u>
Contact Person: <u>Greg Hamilton</u>	Email: <u>Gregory.Hamilton@anadarko.com</u>	Mobile: <u>()</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION
Remediation Project #: 12295 Initial Form 27 Document #: 401892336

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 Facilites (in accordance with Rule 909.c.)

Facility Type: <u>LOCATION</u>	Facility ID: <u>311459</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>BAJA-62N67W 35SESW</u>	Latitude: <u>40.089840</u>	Longitude: <u>-104.860020</u>	
** correct Lat/Long if needed: Latitude: <u>40.091707</u>		Longitude: <u>-104.863026</u>	
QtrQtr: <u>SESW</u>	Sec: <u>35</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>319349</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>UPRR 22 PAN AM P-TRUE-63N66W 35SESE</u>	Latitude: <u>40.177170</u>	Longitude: <u>-104.738670</u>	
** correct Lat/Long if needed: Latitude: <u>40.176498</u>		Longitude: <u>-104.738594</u>	
QtrQtr: <u>SESE</u>	Sec: <u>35</u>	Twp: <u>3N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>
Facility Type: <u>LOCATION</u>	Facility ID: <u>323481</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>LUHMAN UPRR-63N66W 13NENE</u>	Latitude: <u>40.230780</u>	Longitude: <u>-104.718220</u>	
** correct Lat/Long if needed: Latitude: <u>40.225412</u>		Longitude: <u>-104.722306</u>	
QtrQtr: <u>NENE</u>	Sec: <u>13</u>	Twp: <u>3N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: LOCATION Facility ID: 328448 API #: County Name: WELD
Facility Name: LUHMAN UPRR-63N66W 13SENE Latitude: 40.226670 Longitude: -104.718110
** correct Lat/Long if needed: Latitude: 40.226561 Longitude: -104.718399
QtrQtr: SENE Sec: 13 Twp: 3N Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION Facility ID: 331930 API #: County Name: WELD
Facility Name: PSC-63N67W 9NENW Latitude: 40.246290 Longitude: -104.897730
** correct Lat/Long if needed: Latitude: 40.243739 Longitude: -104.900412
QtrQtr: NENW Sec: 9 Twp: 3N Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION Facility ID: 332327 API #: County Name: WELD
Facility Name: SHAFER-62N66W 25NENW Latitude: 40.115336 Longitude: -104.727766
** correct Lat/Long if needed: Latitude: 40.116294 Longitude: -104.727630
QtrQtr: NENW Sec: 25 Twp: 2N Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION Facility ID: 332888 API #: County Name: WELD
Facility Name: HSR-PSC-63N67W 3SWSE Latitude: 40.249580 Longitude: -104.875140
** correct Lat/Long if needed: Latitude: 40.250245 Longitude: -104.875255
QtrQtr: SWSE Sec: 3 Twp: 3N Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION Facility ID: 336409 API #: County Name: WELD
Facility Name: BRETT-62N67W 18NWSE Latitude: 40.136814 Longitude: -104.931253
** correct Lat/Long if needed: Latitude: 40.134962 Longitude: -104.929018
QtrQtr: NWSE Sec: 18 Twp: 2N Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: TANK BATTERY Facility ID: 446076 API #: County Name: WELD
Facility Name: DONALD K.NORGREN UNIT B-63N67W 24NENE Latitude: 40.213398 Longitude: -104.835019
** correct Lat/Long if needed: Latitude: 40.213430 Longitude: -104.835044
QtrQtr: Sec: 24 Twp: 3N Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: TANK BATTERY Facility ID: 446892 API #: County Name: WELD
Facility Name: WINDELL1-13&4&5-18 O SA 34003778 Latitude: 40.144889 Longitude: -104.828946
** correct Lat/Long if needed: Latitude: 40.144905 Longitude: -104.828969
QtrQtr: NWNW Sec: 18 Twp: 2N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SW Most Sensitive Adjacent Land Use Irrigation Ditch and Agriculture
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

[Empty box for other potential receptors within 1/4 mile]

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|---|
| <input type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste | <input checked="" type="checkbox"/> Non-E&P Waste |
| <input type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | No Waste Generated _____ |
| <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
No	SOILS	See 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 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):

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 0

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

Approximate areal extent (square feet) 0

NA / ND

-- Highest concentration of TPH (mg/kg) 33.4

NA Highest concentration of SAR

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 0

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet)

Number of groundwater monitoring wells installed

Number of groundwater samples exceeding 910-1

 Highest concentration of Benzene (µg/l)

 Highest concentration of Toluene (µg/l)

 Highest concentration of Ethylbenzene (µg/l)

 Highest concentration of Xylene (µg/l)

 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

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 excavations for laboratory analysis of TPH, BTEX, pH, and EC. Soil samples were in full compliance with COGCC Table 910-1 allowable levels. 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.

Soil impacts were not encountered above COGCC Table 910-1 allowable levels. 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

_____ 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

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

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: Quarterly Semi-Annually Annually Other Final Report _____

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? 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? Yes _____

Do all soils meet Table 910-1 standards? Yes _____

Does the previous reply indicate consideration of background concentrations? No _____

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? 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). 09/05/2018

Date of commencement of Site Investigation. 10/19/2018

Date of completion of Site Investigation. 10/19/2018

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: ` Greg Hamilton _____

Title: Sr. Staff HSE Rep. _____

Submit Date: ` 01/14/2019 _____

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: 01/14/2019 _____

Remediation Project Number: 12295 _____

COA Type**Description**

	Based on the information presented, it appears that no further action is necessary at this time and the COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if ground water is found to be impacted, then further investigation and/or further remediation activities may be required. In addition, the surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules.
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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**

401902642	FORM 27-SUPPLEMENTAL-SUBMITTED
401902725	SITE INVESTIGATION REPORT
401902729	SITE INVESTIGATION REPORT
401902730	SITE INVESTIGATION REPORT
401902731	SITE INVESTIGATION REPORT
401902733	SITE INVESTIGATION REPORT
401902735	SITE INVESTIGATION REPORT
401902738	SITE INVESTIGATION REPORT
401902740	SITE INVESTIGATION REPORT
401902743	SITE INVESTIGATION REPORT
401902744	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)