

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) 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 #: 12301 Initial Form 27 Document #: 401873149

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>318971</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>LISA-62N67W 18NESW</u>	Latitude: <u>40.136856</u>	Longitude: <u>-104.935711</u>	
	** correct Lat/Long if needed: Latitude: <u>40.136623</u>	Longitude: <u>-104.935584</u>	
QtrQtr: <u>NESW</u>	Sec: <u>18</u>	Twp: <u>2N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>No</u>
Facility Type: <u>LOCATION</u>	Facility ID: <u>328645</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>DINNEL-63N66W 14NENE</u>	Latitude: <u>40.230970</u>	Longitude: <u>-104.737360</u>	
	** correct Lat/Long if needed: Latitude: <u>40.230511</u>	Longitude: <u>-104.735093</u>	
QtrQtr: <u>NENE</u>	Sec: <u>14</u>	Twp: <u>3N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>No</u>
Facility Type: <u>LOCATION</u>	Facility ID: <u>329899</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>CAMENISCH-64N67W 33NWSE</u>	Latitude: <u>40.268120</u>	Longitude: <u>-104.893820</u>	
	** correct Lat/Long if needed: Latitude: <u>40.269363</u>	Longitude: <u>-104.891590</u>	
QtrQtr: <u>NWSE</u>	Sec: <u>33</u>	Twp: <u>4N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: LOCATION Facility ID: 330051 API #: County Name: WELD
Facility Name: HSR-PAUL SCHMIDT-63N66W 33SESE Latitude: 40.176110 Longitude: -104.775090
** correct Lat/Long if needed: Latitude: 40.177945 Longitude: -104.779725
QtrQtr: SESE Sec: 33 Twp: 3N Range: 66W Meridian: 6 Sensitive Area? No

Facility Type: LOCATION Facility ID: 330070 API #: County Name: WELD
Facility Name: HSR-SALAZAR-63N67W 20SWNW Latitude: 40.212650 Longitude: -104.920260
** correct Lat/Long if needed: Latitude: 40.213456 Longitude: -104.918312
QtrQtr: SWNW Sec: 20 Twp: 3N Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION Facility ID: 330474 API #: County Name: WELD
Facility Name: VARRA 20-32 Latitude: 40.176394 Longitude: -104.906000
** correct Lat/Long if needed: Latitude: 40.175391 Longitude: -104.906244
QtrQtr: SESE Sec: 32 Twp: 3N Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION Facility ID: 336625 API #: County Name: WELD
Facility Name: ZADEL 16C-35HZ Latitude: 40.263880 Longitude: -104.883610
** correct Lat/Long if needed: Latitude: 40.264261 Longitude: -104.881978
QtrQtr: SWSW Sec: 34 Twp: 4N Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION Facility ID: 429183 API #: County Name: WELD
Facility Name: NICHOLS TANK BATTERY 37N-31HZ Latitude: 40.161280 Longitude: -104.704962
** correct Lat/Long if needed: Latitude: 40.160947 Longitude: -104.704905
QtrQtr: SWSE Sec: 6 Twp: 2N Range: 65W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Rangeland, Cropland
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? No

Other Potential Receptors within 1/4 mile

Residential areas are located north of NICHOLS TANK BATTERY 37N-31HZ, east of ZADEL 16C-35HZ, southeast of HSR-SALAZAR-63N67W 20SWNW, northwest of VARRA 20-32, and south of LISA-62N67W 18NESW. A wetland is located east of ZADEL 16C-35HZ and VARRA 20-32, and west of CAMENISCH-64N67W 33NWSE.

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
No	SOILS	No impacts	Sampling 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.

The objective of the soil sampling was to determine if the operation of produced water sumps at the sites resulted in petroleum hydrocarbon impacts to the subsurface media.

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 the operation of produced water sumps resulted in petroleum hydrocarbon impacts at the respective sites. For each sump closure site, one or more samples were collected for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), total petroleum hydrocarbons (TPH) – gasoline range organics (GRO) by USEPA Method 8260C, TPH – diesel range organics and residual range organics (DRO and RRO, respectively) by USEPA Method 8015C, electrical conductivity (EC), and pH. The soil sampling activities, laboratory analytical results, and conclusions will be summarized in a Sump Closure Report for each site.

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 11

Number of soil samples exceeding 910-1 0

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

Approximate areal extent (square feet) 960

NA / ND

-- Highest concentration of TPH (mg/kg) 1.32

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?

Background samples were collected from each site. Laboratory analytical results indicate that pH and EC levels were compliant or samples were collected below the designated root zone (>3 feet bgs) at the extent of the excavation; therefore, the background soil samples were not submitted for laboratory analysis.

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. No impacted soil was encountered.

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, completed at the sump closure sites will be summarized in the Sump Closure Reports. Groundwater was not encountered at any of the locations. No further action is requested 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

- _____ 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

Frequency: Quarterly Semi-Annually Annually Other Produced water sump closure

Report Type: Groundwater Monitoring Land Treatment Progress Report O&M Report
 Other Produced water sump 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). 09/10/2018

Date of commencement of Site Investigation. 09/10/2018

Date of completion of Site Investigation. 01/29/2019

REMEDIAL ACTION DATES

Date of commencement of Remediation. 09/10/2018

Date of completion of Remediation. 01/29/2019

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: Senior Environmental Rep. _____

Submit Date: ` 01/30/2019 _____

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: 01/30/2019 _____

Remediation Project Number: 12301 _____

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**

401904397	FORM 27-SUPPLEMENTAL-SUBMITTED
401910873	SITE INVESTIGATION REPORT
401910885	SITE INVESTIGATION REPORT
401910903	SITE INVESTIGATION REPORT
401910905	SITE INVESTIGATION REPORT
401910907	SITE INVESTIGATION REPORT
401910910	SITE INVESTIGATION REPORT
401910912	SITE INVESTIGATION REPORT
401923769	SITE INVESTIGATION REPORT

Total Attach: 9 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)