

State of Colorado Oil and Gas Conservation Commission

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Receive Date:

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Report taken by:

CARLOS LUJAN

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>ENCANA OIL & GAS (USA) INC</u>	Operator No: <u>100185</u>	Phone Numbers
Address: <u>370 17TH ST STE 1700</u>		Phone: <u>(970) 2852925</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202-5632</u>		Mobile: <u>(970) 9019007</u>
Contact Person: <u>Matt Kasten</u>	Email: <u>matt.kasten@encana.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 8324 Initial Form 27 Document #: 2148478

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 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 checked="" type="checkbox"/> Other <u>WORKPLAN</u> |

SITE INFORMATION

N Multiple Facilities (in accordance with Rule 909.c.)

Facility Type: <u>PIT</u>	Facility ID: <u>277960</u>	API #: _____	County Name: <u>GARFIELD</u>
Facility Name: <u>N. PARACHUTE EF06D J27</u>	Latitude: <u>39.584384</u>	Longitude: <u>-108.037119</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWSE</u>	Sec: <u>27</u>	Twp: <u>5S</u>	Range: <u>95W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications MH

Most Sensitive Adjacent Land Use RANGELAND

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

ACCORDING TO COGCC GIS ONLINE MAPPING, THERE IS ONE STREAM AND NO WATER WELLS WITHIN 1/4 MILE.

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
Yes	SOILS	IMPACTS WILL BE DETAILED IN FORM 19	Soil Sampling via drill rig

INITIAL ACTION SUMMARY

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

In the event that the pit is open, the following activities have been, or will be carried out in support of pit closure

activities conducted in support of this project: 905.b(2) & 905.b(4) ? Above-liner fluids and solids will be removed from the pit and will be reused or disposed-of at an approved disposal facility with appropriate receipts and manifests. 905.b(3) ? Liner will be removed and reused/recycled or disposed of at an approved disposal facility with appropriate receipts and manifests. 905.b(4) ? Representative grab samples will be collected from the pit bottom following removal of the pit

liner and will be analyzed for compliance with COGCC Table 910-1. 905.c ? In the event the constituents of concern found below the liner are in excess of Table 910-1

allowable concentrations and above background concentrations, a Form 19 (Spill/Release Report) will be submitted to document the failure of the pit liner. In the event that the pit was physically closed without appropriate permitting, the following activities have been, or will be carried out in support of pit closure activities conducted in support of this project: In-situ characterization of potential impacts using heavy equipment or a drilling/direct push rig. 905.b(4) ? Representative grab samples will be collected from the pit area and will be analyzed for compliance with COGCC Table 910-1. 905.c ? In the event the constituents of concern are in excess of Table 910-1 allowable concentrations and

above background concentrations, a Form 19 (Spill/Release Report) will be submitted to document the failure of the pit liner.

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):

See previous sundries for sampling plan.

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 36

Number of soil samples exceeding 910-1 7

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

Approximate areal extent (square feet) 6000

NA / ND

-- Highest concentration of TPH (mg/kg) 3704

NA Highest concentration of SAR

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 22

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

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

0 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?

The site investigation for this project will be carried out as described above. All analytical data collected in support of this remediation project will be provided to the COGCC in a Form 19 (Spill / Release Report) and/or in the Form 4 (Report of Work Completed and Notification of Completion). A site diagram showing the location of collected samples will also be provided.

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.

Impacted material would be evaluated, and based on extent would be remediated in-situ, or removed using heavy equipment for onsite remediation or offsite disposal at an approved disposal facility documented with appropriate receipts and manifesting. Remediation success will be demonstrated through sample collection and laboratory

analysis. The selected remediation approach, clearance sample results, and final disposition of material will be

provided in a Form 4 (Report of Work Completed and Notification of Completion).

Any impacts identified below the liner would be documented and reported on a Form 19 (Spill/Release Report).

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.

Please see attached.

Soil Remediation Summary

☒ **In Situ**

Yes _____ 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.

In the event that impacts to groundwater are identified, a vertical and lateral extent would be determined by a third party contractor and an appropriate in-situ remediation and monitoring plan would be prepared and submitted to the COGCC.

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☒ Annually ☐ Other _____

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

☒ Other Additional Soil Sampling/Borings _____

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: _____

REMEDATION COMPLETION REPORT

REMEDATION 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 pit will be, or has been backfilled to grade. Pad reclamation will be carried out when appropriate, based on well productivity and plans for future development.

Is the described reclamation complete? _____

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). 09/08/2014

Date of commencement of Site Investigation. 09/08/2014

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 09/08/2014

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

Attn: Carlos Lujan

J27 Pit Progress Report

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

Signed: Matt Kasten

Title: Env. Consultant

Submit Date: 02/10/2017

Email: matt.kasten@encana.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: CARLOS LUJAN

Date: 02/28/2017

Remediation Project Number: 8324

COA Type**Description**

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Attachment Check List**Att Doc Num****Name**

401207150	FORM 27-SUPPLEMENTAL-SUBMITTED
401207157	REMEDIATION PROGRESS REPORT
401207225	OTHER

Total Attach: 3 Files

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

Environmental	2017 will be the third year since remediation with Wind Powered SVE has been implemented at this location and it is not clear how much progress has been accomplished. Please submit by the end of March 2017 a boring and sampling plan to assess the current soil conditions, including sampling near the walls where TPH (DRO range) was originally measured in the order of ten to twenty thousand mg/kg. Include a discussion 1) about the effectiveness of the Wind Powered SVE system to remediate DRO; and 2) Expected number of years to achieve compliance with Table 910-1.	02/28/2017
Environmental	COGCC agrees with the conclusion of the report: "For a more complete understanding of soil conditions at the site, and possible effects of wind-powered SVE wells in augmenting natural attenuation, Apex recommends that a larger number of soil borings and samples be collected in close proximity, and at distance from the installed SVE wells."	02/28/2017

Total: 2 comment(s)