

State of Colorado Oil and Gas Conservation Commission

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Report taken by:

KRIS NEIDEL

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: ANDEAVOR FIELD SERVICES LLC	Operator No: 10551	Phone Numbers Phone: (253) 896-8731 Mobile: (907) 529-0297
Address: 1801 CALIFORNIA ST #1200		
City: DENVER	State: CO Zip: 80202	
Contact Person: Kyle Waldron	Email: Kyle.A.Waldron@andeavor.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 10389

Initial Form 27 Document #: 401207719

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 checked="" 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

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

Facility Type: PIT	Facility ID: 449140	API #: _____	County Name: MOFFAT
Facility Name: Powder North CS South Pit		Latitude: 40.963472	Longitude: -108.310401
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENE	Sec: 32	Twp: 12n	Range: 97w Meridian: 6 Sensitive Area? No

SITE CONDITIONS

General soil type - USCS Classifications ML

Most Sensitive Adjacent Land Use Rangeland

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? No

Other Potential Receptors 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	60' by 60' by 27' bgs (estimated)	Soil Sampling

INITIAL ACTION SUMMARY

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

Please refer to the eForm 27 submitted to the Colorado Oil and Gas Conservation Commission (COGCC) on May 18, 2017. In addition, a site summary is included as an attachment.

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):

The SVE remediation system has been operating since July 2017 and soil sampling is proposed to evaluate remediation progress. Four soil borings are proposed (figure attached) to evaluate remediation progress and close the site if the soil samples meet Table 910-1, if the samples are in exceedance than system operation will continue or additional remedial measures will be implemented. Proposed soil boring locations are illustrated on an attached figure. Each soil boring will be continuously screened with a PID and logged with any staining and/or odor noted. The borings will be advanced to 32 feet below ground surface, which was the previous deepest depth that impact was encountered during site investigations. Two samples will be collected from each boring from the intervals with the highest observed PID measurement. The samples will be collected as a grab sample and submitted for analysis of BTEX, TPH-GRO, TPH-DRO, PAHs, pH, EC, and SAR.

Proposed Groundwater Sampling

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

No groundwater was encountered during the previous site investigation.

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 7

Number of soil samples exceeding 910-1 4

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

Approximate areal extent (square feet) 3600

NA / ND

-- Highest concentration of TPH (mg/kg) 3270

-- Highest concentration of SAR 5.7

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 31

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 0

Number of groundwater samples exceeding 910-1

NA Highest concentration of Benzene (µg/l)

NA Highest concentration of Toluene (µg/l)

NA Highest concentration of Ethylbenzene (µg/l)

NA 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

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 will be remediated in-situ and remediation success will be demonstrated through sample collection and laboratory analysis.

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.

The petroleum hydrocarbon impacts associated with the pit will be remediated in-situ using a solar powered soil vapor extraction (SVE) system. An SVE pilot test was conducted on site on May 23, 2016. Please refer to the supplemental eForm 27 submitted to the COGCC on May 18, 2017, for additional details regarding pilot test results and SVE well installation.

In July 2017, two additional SVE wells were installed at the site to ensure SVE influence throughout the impacted zone. Drilling logs and a well completion table are included as attachments. The well layout is included as a site figure.

The solar SVE system was installed and began operation on July 19, 2017. The solar SVE system consists of a five horsepower blower, a variable frequency drive, and 20 solar panels providing 6 kilowatts (kw) of power. Average system throughput flow throughout the day is 30 cubic feet per minute (cfm) at 75 inches of water vacuum. The stack is vented to the atmosphere, air emissions are reported to the CDPHE as an air pollution emission notice (APEN) to ensure compliance. The system is scheduled to operate for a one to two year period. Field operation and maintenance (O&M) activities include stack effluent air monitoring, maintaining equipment, and adjustments to the system to optimize efficiency. The updated air emissions table and graph are included as an attachment.

Soil Remediation Summary

☒ **In Situ**

No Bioremediation (or enhanced bioremediation) _____

No Chemical oxidation _____

Yes Air sparge / Soil vapor extraction _____

No Natural Attenuation _____

No 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.

Groundwater was not encountered during assessment activities associated with this pit.

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

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

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

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.

Any disturbances associated with this project will be reclaimed to match preexisting grade. Site reclamation will be carried out when appropriate, based on productivity and plans for future development.

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). 11/05/2015

Date of commencement of Site Investigation. 11/05/2015

Date of completion of Site Investigation. 11/06/2015

REMEDIAL ACTION DATES

Date of commencement of Remediation. 07/10/2017

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

The field work is tentatively scheduled for the week of October 8, 2018 pending COGCC approval of the scope of the drilling and confirmation sampling.

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

Signed: Kyle Waldron

Title: Env. Rem. Administrator

Submit Date: 09/24/2018

Email: Kyle.A.Waldron@Andeavor.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: KRIS NEIDEL

Date: 09/27/2018

Remediation Project Number: 10389

COA Type

Description

	Work plan is approved; however additional information and remediation may be required during the course of investigation and remediation.
	Soil bore samples should be taken from similar depths of initial characterization 11/6/2015 (and 11/5/2015).

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

401768268	FORM 27-SUPPLEMENTAL-SUBMITTED
401768454	OTHER
401768456	OTHER
401770067	SITE INVESTIGATION PLAN

Total Attach: 4 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)