

State of Colorado
Oil and Gas Conservation Commission

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Receive Date:

Report taken by:

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
Address: 1801 CALIFORNIA ST #1200		
City: DENVER	State: CO	Zip: 80202
Contact Person: Kyle Waldron	Email: KAWaldron@Marathonpetroleum.com	Phone: (253) 896-8731
		Mobile: (907) 529-0297

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:

- | | | |
|--|--|--|
| <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 checked="" 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
Yes	SOILS	60'x45'x32' 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.

On November 5 and 6, 2015, LTE personnel advanced six soil borings to depths ranging from 16.5 feet to 32 feet below ground surface (bgs) in the location of the south pit at the site (Figure 1) using a truck-mounted drill rig. Each soil boring was advanced until field measurements indicated clearance or auger refusal was encountered. Soil from each borehole was characterized by visually inspecting soil samples and field screened using a photoionization detector (PID) to monitor soil headspace for the presence of volatile organic vapors. Each sample location was logged using a global positioning system (GPS). Following sample collection, each soil boring was backfilled with sand, bentonite and soil to match the surrounding grade. Boring Logs are included as Attachment 1. Soil boring and sample locations are detailed in the attached Figure 2. Laboratory analytical results of soil confirmation samples collected north, east, and west of the Powder Wash North Compressor Station south pit area indicated compliance with COGCC Table 910-1 allowable concentrations. Laboratory analytical results and field observations to south of the pit and within the pit area indicated petroleum hydrocarbon impacted soil to a depth of approximately 27 feet bgs. A conservative estimate of petroleum hydrocarbon impacted soil volume for the south pit is 60 feet long by 60 feet wide and 27 feet bgs (3,600 cubic yards). Figure 2 illustrates the TPH and benzene concentrations detected within each soil boring in the east pit. Laboratory analytical results are summarized in Table 2 and the laboratory analytical reports are 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, soil sampling was conducted in October 2018 indicating SVE succes in the southeast. Soil sampling is proposed in Fall 2019 to evaluate remediation progress throughout the remaining areas of the pit. Three soil borings are proposed to be resampled (SB-02, SB-03, SB-04) 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. 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 deepest depth that impact was encountered. Two samples will be collected from each boring from the with the highest observed PID measurement. Grab samples will be submitted for analysis of BTEX, TPH-GRO, TPH-DRO, 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 investigations.

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 14

Number of soil samples exceeding 910-1 8

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

Approximate areal extent (square feet) 2700

NA / ND

-- Highest concentration of TPH (mg/kg) 17370

-- Highest concentration of SAR 5.7

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 32

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. Four SVE wells were installed on April 25, 2016 and an SVE pilot test was conducted on site on May 23, 2016.

In July 2017, two additional SVE wells were installed at the site to ensure SVE influence throughout the impacted zone.

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 samples are collected to ensure compliance with CDPHE. CDPHE deemed the site air pollution emission notice (APEN) exempt. 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 Figure are included as an attachment. An estimated 5 tons of petroleum hydrocarbons have been removed from July 2017 to December 2018.

In October 2018, four soil borings were advanced to assess the impacted zone remediation progress. Soil samples were collected from each boring and the results are tabulated in the attached table. One additional SVE well was installed at the site to ensure SVE influence throughout the impacted zone. Sample results proved remediation success occurred in the SVE-05 area, and the SVE system will continue operations in the zones that are still impacted. Drilling logs and analytical results are included as attachments. The site location, well layout, and soil analytical results are included in the attached Figures 2 and 3 and Table 2.

Soil Remediation Summary

In Situ

Ex Situ

No _____ Bioremediation (or enhanced bioremediation)

_____ Excavate and offsite disposal

No _____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____

Yes _____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____

No _____ Natural Attenuation

_____ Excavate and onsite remediation

No _____ Other _____

_____ 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.

REMEDIATION 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: _____

REMEDIATION COMPLETION REPORT

REMEDIATION 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 was backfilled to match surrounding grade. The site is an active gas compressor facility and final reclamation will be conducted with closure of the facility.

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

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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: Kyle Waldron _____

Title: Remediation Manager _____

Submit Date: _____

Email: KAWaldron@Marathonpetroleum.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: _____

Date: _____

Remediation Project Number: 10389 _____

COA Type**Description**

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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**

401933778	REMEDATION PROGRESS REPORT
401933780	REMEDATION PROGRESS REPORT
401933797	LOGS
401933801	ANALYTICAL RESULTS
401933810	ANALYTICAL RESULTS
401933814	ANALYTICAL RESULTS
401933815	SITE MAP
401933816	SOIL SAMPLE LOCATION MAP
401933817	ANALYTICAL RESULTS
401933819	REMEDIAL ACTION PLAN
401933820	OTHER

Total Attach: 11 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)