

State of Colorado Oil and Gas Conservation Commission

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Report taken by:

ROB YOUNG

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>HRM RESOURCES II LLC</u>	Operator No: <u>10548</u>	Phone Numbers
Address: <u>410 17TH STREET #1600</u>		Phone: <u>(303) 8936621</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Terry Pape</u>	Email: <u>tpape@hrmres.com</u>	Mobile: <u>(970) 7685700</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 9015 Initial Form 27 Document #: 2086926

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 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 checked="" type="checkbox"/> Other <u>Skim Pit Closure and Landfarm Closure</u> |

SITE INFORMATION

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

Facility Type: <u>PIT</u>	Facility ID: <u>107558</u>	API #: _____	County Name: <u>WASHINGTON</u>
Facility Name: <u>MARICK</u>		Latitude: <u>39.809004</u>	Longitude: <u>-103.193869</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>SENW</u>	Sec: <u>10</u>	Twp: <u>3S</u>	Range: <u>52W</u>
		Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications ML Most Sensitive Adjacent Land Use CULTIVATED

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

none

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
	SOILS	6500 yards	visual inspection, drilling results

INITIAL ACTION SUMMARY

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

A site inspection was conducted to assess the quantities of impacted soil and plan for the removal of the skim pits. Six borings were drilled adjacent to the skim pits to assess the potential depth of impacts beneath the two skim pits.

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 samples were collected semi-annually from the landfarm until March 2018. Footprint samples were collected from the subsoils after landfarm removal and are reported here

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):

Soil samples were collected semi-annually from the landfarm

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 18

Number of soil samples exceeding 910-1 8

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

Approximate areal extent (square feet) 15000

NA / ND

-- Highest concentration of TPH (mg/kg) 6460

-- Highest concentration of SAR 15.2

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 1

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

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) 3910

Volume of liquid waste (barrels) 0

☐ 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.

Excess oil was removed from the skim pits. The metal cages were removed and recycled. Impacted soils beneath the skim pits was excavated. Oily soils were transported to Waste Management Denver-Aurora Disposal Site (DADS) for disposal. Other impacted soils were placed in three bermed areas on the lease and landfarmed until May 2018, then transported to the landfill for disposal. The skim pit excavation was partially backfilled and converted into an evaporation pit.

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.

Impacted soils were landfarmed on site and then sent to the landfill. The skim pit excavayion was partially backfilled and converted to an evaporation pit.

Soil Remediation Summary

☒ In Situ

Yes _____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☒ Ex Situ

Yes _____ Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) _____ 3910

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.

Impacts to groundwater have not been identified at the site.

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other one time

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

☒ Other Landfarm Clsoure and Footprint Sampling report

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? Yes

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

none

Volume of E&P Waste (solid) in cubic yards 3910

E&P waste (solid) description petroleum containated soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Denver Arapahoe Disposal

Volume of E&P Waste (liquid) in barrels 0

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? No

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? No

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.

No interim reclamation other than ripping of the landfarm areas that were on crop land is required. Weeds will be controlled by spraying and mechanical removal as necessary.

Is the described reclamation complete? Yes

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? No

If NO, does the seed mix comply with local soil conservation district recommendations? No

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). _____

Date of commencement of Site Investigation. 08/01/2014 _____

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 04/15/2015 _____

Date of completion of Remediation. 05/18/2018 _____

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: ` David K Nicholson

Title: Consultant to HRM

Submit Date: ` 06/25/2018

Email: dknicholson@q.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: ROB YOUNG

Date: 07/20/2018

Remediation Project Number: 9015

COA Type**Description**

	Pit Facility ID 107558 (former oil skim pit) is no longer in active oil skimming use but has been converted to a produced water disposal pit. TPH impacted soil remains in the above Table 910-1 allowable levels in the south wall. Pit Facility IDs 107562, 107561, 107560 and 107559 are the active production pits. Pits 107560, 107561 and 107562 share northern walls with the southern walls of the former oil skim pit complex. The northern walls of pits 107560, 107561 and 107562 will require adequate remediation prior to their closure.
	Based on the information presented, it appears that no further action is necessary for the land treatment of oily waste (landfarm) portion of the project. 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 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.
	Unchecked "closure request" due to TPH impacts above Table 910-1 allowable levels. The remediation project will remain in active status until the the remaining TPH impacted soils have been adequately remediated.

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**

401684450	FORM 27-SUPPLEMENTAL-SUBMITTED
401684465	ANALYTICAL RESULTS

Total Attach: 2 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)