

State of Colorado Oil and Gas Conservation Commission

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401196593

Receive Date:

01/28/2017

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: <u>PETROLEUM RESOURCE MANAGEMENT</u>	Operator No: <u>10421</u>	Phone Numbers
Address: <u>1580 LINCOLN ST., STE 635</u>		Phone: <u>(303) 660-9633</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80203</u>
Contact Person: <u>Rick Obernolte</u>	Email: <u>rickobe1@aol.com</u>	Mobile: <u>(303) 810-4345</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 9706 Initial Form 27 Document #: 2526406

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>CUTTING MANAGEMENT</u> |

SITE INFORMATION

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

Facility Type: <u>WELL</u>	Facility ID: _____	API #: <u>081-07799</u>	County Name: <u>MOFFAT</u>
Facility Name: <u>WPU-36-1V H1</u>		Latitude: <u>40.860330</u>	Longitude: <u>-107.325016</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>Lot 19</u>	Sec: <u>36</u>	Twp: <u>11N</u>	Range: <u>89W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications SC 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? No

Other Potential Receptors within 1/4 mile

ROARING FORK CREEK APPROXIMATELY 700 FEET TO THE NORTH WEST

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
No	SOILS	None	Discussions with COGCC

INITIAL ACTION SUMMARY

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

PRM is requesting permission to spread and dry drill cuttings on the cut portion of the well pad immediately adjacent to the drill cuttings pit. The cuttings were dried during the drilling operation in December, but subsequent snow and rain fall has wetted them. PRM would like to spread the cuttings for drying starting on June 20, 2016. Drying will continue for approximately two months (July and August) and cuttings burial is planned for September.

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):

Nine drill cuttings samples and three background samples were taken and analyzed.

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 12

Number of soil samples exceeding 910-1 9

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

Approximate areal extent (square feet) 200

NA / ND

-- Highest concentration of TPH (mg/kg) 870

-- Highest concentration of SAR 15

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 0

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?

Three background samples were taken and analyzed, which are in addition to the nine drill cuttings samples taken and analyzed. The three background samples were taken in the area proposed for burial of the drill cuttings.

☐ 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.

Once the drill cuttings are approved for on-site burial then they will be buried in the approved area on the well pad.

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.

Once the drill cuttings are shown to meet COGCC Table 910-1 standards through sampling and laboratory analyses, then the operator will request COGCC permission to bury the drill cuttings in the designated area on the existing well pad.

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.

There have been no impacts to the environment. The operator is asking for permission to dry the drill cuttings prior to seeking approval from COGCC to permanently bury them.

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? _____

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.

A portion of the well pad immediately adjacent to the existing cuttings pit will be utilized as a drying area. The proposed area is approximately 120' wide by 150' long along the southern edge of the existing well pad (please see the attached map). Additional stormwater and containment features will be built into the area to divert storm water around the cuttings drying area into the existing storm water ditch collection system and to contain any precipitation that falls directly on the cuttings. The well pad is constructed on a clayey loam and has been heavily compacted by machinery during construction and during the drilling operations. The drying area is sufficiently impermeable in its current condition to prevent leaching of any potential contaminants into the soil and ground water. The ground water table is approximately 700' deep. The drill cuttings will be removed from the existing cuttings pit and evenly spread across the drying area to a depth of approximately one foot. The cuttings will be tilled/turned twice during the drying period to facilitate drying. The cuttings will be dried during July and August and once dried they will be sampled (3 to 5 representative composite samples) and analyzed for the same contaminants listed in Table 910-1. The analysis will be submitted to COGCC along with a Form 4 requesting permission to bury the cuttings in the cuttings pit to the requirements of COGCC. PRM expects to bury the cuttings in September.

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). 06/21/2016

Date of commencement of Site Investigation. _____

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. _____

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

The operator is working with Kris Neidel on this project to obtain permission to bury drill cuttings on the well pad.

Given the results of the 10/26/2016 laboratory analyses the operator would like to request that COGCC allow changes to the analytical parameters to test only for TPH in the next round of sampling which is planned for June 2017.

The attached ACZ analyses report is for the background samples taken in October 2016 to complement the earlier drilling cuttings samples analyses. A table summarizing the results for all of the drill cuttings sampling and background sampling events is attached for the convenience of the COGCC reviewer(s).

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

Signed: Rick Obernolte

Title: Agent

Submit Date: 01/28/2017

Email: rickobe1@aol.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: 01/30/2017

Remediation Project Number: 9706

COA Type**Description**

	In response for a request for an amend sample schedule, future sampling should be for; TPH (GRO and DRO), EC, SAR,PH and arsenic. (for clarity this is table 910-1, omitting; metals (other than arsenic), PAH's, BTEX)
	Taking additional offsite Arsenic samples should be considered. Background samples provided indicate low levels of Arsenic and may not be a good representation of local Arsenic levels.
	Please use this form for project updates (previously they were provided by email and uploaded to the project file).

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

401196593	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
401196597	ANALYTICAL RESULTS
401196598	ANALYTICAL RESULTS
401197603	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 4 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)