

# State of Colorado Oil and Gas Conservation Commission

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Document Number:

401300367

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

### 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 CUTTING MANAGEMENT   |

#### SITE INFORMATION

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

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

#### 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 ):

Follow up sampling was conducted on June 21, 2017. One sample was collected from each cuttings pile and analyzed for BETX, TPH (GRO and DRO), pH, EC, SAR, and arsenic as per the approved limited analysis plan (Document # 401196593), also three back ground samples were collected and analyzed for arsenic. The results are attached to this supplemental Form 27.

# 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.

## REMEDICATION 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.

July 18, 2017: PRM requests the application of 2008 FAQ #31 as it pertains to the Arsenic values. The background values average 2.4 mg/Kg and the cuttings values average 4.3 mg/Kg. The difference is minimal. PRM also requests the application of 2008 FAQ #32 as it pertains to the SAR and EC values encountered.

PRM requests permission to bury the cuttings in piles 2, 3, 4, and 5 since they are below the Table 910-1 parameters for TPH. PRM will turn and continue to monitor the cuttings in pile 1 until the TPH level can be shown to meet the Table 910-1 parameter for TPH. The cuttings will be buried in the existing cut bank of the well pad (southwest corner) and covered with at least 3 feet of subsoil. The cuttings in pile 1 will be turned and located in the current remediation area. Additional sampling of this pile is planned for late August 2017.

## 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

PRM respectfully requests expedited review of this Form 27. The cuttings in piles 2, 3, 4, and 5 are below the Table 910-1 parameters. A drilling rig is scheduled to arrive on August 1, 2017 and it would greatly help in siting the rig if the four cuttings piles could be moved to their burial site. Additional comments are contained in the Remedial Action Plan tab.

The PDF attachments include: (1) the laboratory analyses for the 5 cuttings pile samples and for 3 background samples taken on June 21, 2017, (2) the location plat showing the cuttings and background sampling sites; and (3) a table summarizing the analytical results for all 8 samples to compare to the COGCC Table 910-1 parameters.

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: \_\_\_\_\_

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: \_\_\_\_\_

Date: \_\_\_\_\_

Remediation Project Number: 9706

### 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

401345841	SOIL SAMPLE LOCATION MAP
401345858	ANALYTICAL RESULTS
401345882	ANALYTICAL RESULTS

Total Attach: 3 Files

### General Comments

### User Group

### Comment

### Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)