

State of Colorado Oil and Gas Conservation Commission

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Report taken by:

Jason Kosola

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>P O & G OPERATING LLC</u>	Operator No: <u>10634</u>	Phone Numbers
Address: <u>5847 SAN FELIPE SUITE 3200</u>		Phone: <u>(713) 589-8186</u>
City: <u>HOUSTON</u>	State: <u>TX</u>	Zip: <u>77057</u>
Contact Person: <u>Mel Smith</u>	Email: <u>mel_smith@pogresources.cm</u>	Mobile: <u>()</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 13683 Initial Form 27 Document #: 402036678

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 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: <u>WELL</u>	Facility ID: _____	API #: <u>017-07463</u>	County Name: <u>CHEYENNE</u>
Facility Name: <u>HOFFMAN 5</u>	Latitude: <u>38.795900</u>	Longitude: <u>-102.385300</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWNW</u>	Sec: <u>31</u>	Twp: <u>14S</u>	Range: <u>44W</u>
Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>		

SITE CONDITIONS

General soil type - USCS Classifications SM 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? Yes

Other Potential Receptors within 1/4 mile

Depth to groundwater is unknown.

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	See Attached Data	Soil Samples / Lab Analysis

INITIAL ACTION SUMMARY

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

Pumper arrived on location during his normal route 12/1/2018 and discovered that there was a ~100'x60' area with 1" of produced water with skim oil standing behind the pumping unit. The pumper quickly shut down all wells that flowed into the pipeline and the leak was stopped. The lease was shut in until roustabout crews arrived on 12/3/2018 and found/repairs the failure. A 45-degree fitting ruptured from improper installment. A new fitting was installed, and wooded stakes were installed to reinforce the 45 degree fitting to help with any future ground shifting.

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):

On April 4, 2019, four samples (SS01@6-12", SS02@6-12", SS03@6-12", SS04@6-12") were collected from soil borings inside of the impacted area originally noted the initial form 19 to delineate the spill. Lab analysis was conducted for TPH-GRO, TPH-DRO, Benzene, Toluene, Ethylbenzene, Xylenes, EC, and PH). Laboratory analytical results indicated that all samples are in compliance with the COGCC Table 910-1 except for SS03 which was out of compliance for TPH-DRO levels (711 mg/kg). The excavation site map depicting the soil sample locations is attached as Figure 2. The soil sample analytical results are summarized on Table 1. In accordance with rule 910(3)D, as the EC values are in compliance with COGCC Table 910-1, SAR analysis was not completed.

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 4

Number of soil samples exceeding 910-1 1

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

Approximate areal extent (square feet) 0

NA / ND

-- Highest concentration of TPH (mg/kg) 711

NA Highest concentration of SAR

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 0

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

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)

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.

As the laboratory analytical results showed, all soil samples except for SS03 (TPH-DRO) were in compliance with COGCC table 910-1. PO&G Operating proposes to conduct an in-situ bioremediation of the impacted soil for TPH and not remove any soil.

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.

As all samples are in compliance with COGCC table 910-1 allowable limits except for SS03 TPH-DRO value of 711 mg/kg. PO&G Operating proposes to conduct an in-situ bioremediation of the impacted soil. As SS03 resulted in a value of TPH-DRO 711 mg/kg, it is highly likely that by utilizing the soils natural properties along with applying Revive O to help speed up the process (Attachment 1), that the value of the TPH-DRO will be able to drop below the allowable concentration of 500 mg/kg given enough time. Revive O is a biodegradable dispersant that does not contain bacteria, but rather changes the wettability allowing the hydrocarbons to be broken down easier. The plan is to aerate the soil and apply Revive O after given approval from the COGCC. As all other quadrants of the impacted area were in full compliance with COGCC Table. PO&G Proposes that all other quadrants be alleviated from any further testing, and that the SS03 quadrant be tested every 180 days for TPH-DRO to check the status of the remediation.

Soil Remediation Summary

☒ In Situ

Yes _____ 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.

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other 180 days

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

☒ Other impacted soil

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? Yes _____

Does the previous reply indicate consideration of background concentrations? Yes _____

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? 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.

As all samples are in compliance with COGCC table 910-1 allowable limits except for SS03 TPH-DRO value of 711 mg/kg. PO&G Operating proposes to conduct an in-situ bioremediation of the impacted soil. As SS03 resulted in a value of TPH-DRO 711 mg/kg, it is highly likely that by utilizing the soils natural properties along with applying Revive O to help speed up the process (Attachment 1), that the value of the TPH-DRO will be able to drop below the allowable concentration of 500 mg/kg given enough time. Revive O is a biodegradable dispersant that does not contain bacteria, but rather changes the wettability allowing the hydrocarbons to be broken down easier. The plan is to aerate the soil and apply Revive O after given approval from the COGCC. As all other quadrants of the impacted area were in full compliance with COGCC Table. PO&G Proposes that all other quadrants be alleviated from any further testing, and that the SS03 quadrant be tested every 180 days for TPH-DRO to check the status of the remediation.

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. 12/01/2018

Actual Spill or Release date, if known. 12/01/2018

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). _____

Date of commencement of Site Investigation. _____

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 05/26/2019

Date of completion of Remediation. 05/26/2020

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

The proposed remediation is in SS03 area which was out of compliance for TPH-DRO levels (711 mg/kg). There is an area approximately 10'x15' where there is no vegetation growth and shows signs of discoloration. We proposed to till the area to expose the soil and apply 5 gallons of Revie-O mixed with 5 gallons of fresh water by Pro-Stil Chemicals, LLC. We then propose to take samples at 180 days to check results and progress

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

Signed: Wendy Colotta

Title: Regulatory Advisor

Submit Date: 07/29/2020

Email: wendy_colotta@pogresources.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: Jason Kosola

Date: 07/29/2020

Remediation Project Number: 13683

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

402455135	FORM 27-SUPPLEMENTAL-SUBMITTED
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Total Attach: 1 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)