

**State of Colorado**  
**Oil and Gas Conservation Commission**

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Document Number:

401261792

Receive Date:

04/19/2017

Report taken by:

CHRIS CANFIELD

## 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>PETROSHARE CORPORATION</u>	Operator No: <u>10454</u>	<b>Phone Numbers</b>
Address: <u>9635 MAROON CIRCLE #400</u>		Phone: <u>(303) 500-1160</u>
City: <u>ENGLEWOOD</u>	State: <u>CO</u>	Zip: <u>80112</u>
Contact Person: <u>Bill Lloyd</u>	Email: <u>blloyd@petrosharecorp.com</u>	Mobile: <u>(720) 935-8256</u>

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 10128Initial Form 27 Document #: 401238952

#### 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>LOCATION</u>	Facility ID: <u>320460</u>	API #: _____	County Name: <u>ADAMS</u>
Facility Name: <u>EHLER-61S67W 4SESE</u>		Latitude: <u>39.987769</u>	Longitude: <u>-104.887102</u>
		** correct Lat/Long if needed: Latitude: <u>39.987780</u>	Longitude: <u>-104.886944</u>
QtrQtr: <u>SESE</u>	Sec: <u>4</u>	Twp: <u>1S</u>	Range: <u>67W</u>
		Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>

#### SITE CONDITIONS

General soil type - USCS Classifications SMMost Sensitive Adjacent Land Use ResidentialIs domestic water well within 1/4 mile? YesIs surface water within 1/4 mile? NoIs groundwater less than 20 feet below ground surface? Yes

#### Other Potential Receptors within 1/4 mile

A residence is located approximately 175 northeast.

## 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	TBD	Excavation and 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.

Excavation activities were initiated on February 20, 2017. Approximately 2,890 cubic yards of impacted material were removed and transported to the Front Range Regional Landfill for disposal under PetroShare waste manifests.

### 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 from the sidewalls of the final excavation extent to confirm unsaturated petroleum hydrocarbon impacts were successfully removed. A summary of soil analytical data is provided in Table 1 and the laboratory reports are included as Attachment A.

#### Proposed Groundwater Sampling

☒ Will groundwater samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

An excavation groundwater sample will be collected and submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (USEPA) Method 8260. Should analytical results indicate dissolved phase impacts are present, monitoring wells will be installed.

#### 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 29

Number of soil samples exceeding 910-1 11

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

Approximate areal extent (square feet) 13200

### NA / ND

-- Highest concentration of TPH (mg/kg) 2560

NA Highest concentration of SAR

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 7

### Groundwater

Number of groundwater samples collected 1

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 7

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 910-1 0

-- Highest concentration of Benzene (µg/l) 3.2

ND Highest concentration of Toluene (µg/l)

ND Highest concentration of Ethylbenzene (µg/l)

ND 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?

Petroleum hydrocarbon impacts in soil extended off-site into the private property located east of the tank battery. Analytical data collected from the excavation confirm that all hydrocarbon soil impacts off-site were successfully removed.

☐ 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) 2890

Volume of liquid waste (barrels) 800

☐ 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 soil was successfully removed during initial excavation activities.

### **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.

Organic compound concentrations are in compliance with COGCC Table 910-1 standards in both groundwater and soil within the excavation area. Consequently, no additional remediation activities are required.

### **Soil Remediation Summary**

☐ In Situ

\_\_\_\_\_ 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) \_\_\_\_\_ 2890

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.

Analytical results from the groundwater sample (GW01) collected from the excavation area indicated dissolved phase hydrocarbon concentrations were below COGCC Table 910-1 standards.

## 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? Yes \_\_\_\_\_

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

Not used for beneficial use.

Volume of E&P Waste (solid) in cubic yards 2890

E&P waste (solid) description Petroleum hydrocarbon impacted soil

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: Front Range Regional Landfill

Volume of E&P Waste (liquid) in barrels 800

E&P waste (liquid) description Groundwater

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: Licensed Disposal Facility

## REMEDIATION COMPLETION REPORT

### REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes \_\_\_\_\_

Do all soils meet Table 910-1 standards? Yes \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? No \_\_\_\_\_

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.

The excavation will be backfilled, compacted, and re-graded to match pre-existing conditions. The tank battery will be reconstructed.

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. 02/22/2017

Actual Spill or Release date, if known. \_\_\_\_\_

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 02/20/2017

Date of commencement of Site Investigation. 02/20/2017

Date of completion of Site Investigation. \_\_\_\_\_

### **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 02/20/2017

Date of completion of Remediation. 04/14/2017

### **SITE RECLAMATION DATES**

Date of commencement of Reclamation. 04/17/2017

Date of completion of Reclamation. \_\_\_\_\_

**OPERATOR COMMENT**

PetroShare is requesting a No Further Action (NFA) request for this location.

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

Signed: Bill Lloyd

Title: COO

Submit Date: 04/19/2017

Email: blloyd@petrosharecorp.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: CHRIS CANFIELD

Date: 04/24/2017

Remediation Project Number: 10128

**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**

401261792	FORM 27-SUPPLEMENTAL-SUBMITTED
401261815	DISPOSAL MANIFESTS
401262221	ANALYTICAL RESULTS
401262225	SITE MAP

Total Attach: 4 Files

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

Environmental	COGCC has reviewed, and is hereby approving, your 04-19-2017 request for No Further Action. However, should future conditions at the subject location indicate that contaminant concentrations in soils exceed COGCC standards, or if ground water is found to be impacted, further investigation and/or remediation activities may be required. Remediation Project 10128 will be closed in the COGIS database. Spill/Release Point 449320 (referenced in your request) was closed previously with the approval of your Form 27. Note that surface reclamation must meet the COGCC 1004 series rules.	04/24/2017
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Total: 1 comment(s)