

State of Colorado  
Oil and Gas Conservation Commission

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Document Number:  
401864132  
Receive Date:  
12/06/2018

Report taken by:  
ROB YOUNG

Site Investigation and Remediation Workplan (Initial 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>H &amp; M PETROLEUM CORPORATION</u>	Operator No: <u>10032</u>	<b>Phone Numbers</b>
Address: <u>PO BOX 2487</u>		Phone: <u>(713) 632-4565</u>
City: <u>COLORADO SPRINGS</u>	State: <u>CO</u>	Zip: <u>80901</u>
Contact Person: <u>Dick Shanor</u>	Email: <u>dick.shanor@gmail.com</u>	Mobile: <u>( )</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 12191 Initial Form 27 Document #: 401864132

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 checked="" 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 type="checkbox"/> Other _____   |

SITE INFORMATION

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

Facility Type: <u>PIT</u>	Facility ID: <u>267957</u>	API #: _____	County Name: <u>LOGAN</u>
Facility Name: <u>CATHERINE #1</u>	Latitude: <u>40.970214</u>	Longitude: <u>-103.469472</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESW</u>	Sec: <u>36</u>	Twp: <u>12N</u>	Range: <u>55W</u>
Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>		

SITE CONDITIONS

General soil type - USCS Classifications ML Most Sensitive Adjacent Land Use Unnamed narrow wash approximately 350 feet to the east

Is domestic water well within 1/4 mile? Yes Is surface water within 1/4 mile? Yes

Is groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

domestic water well approximately 1,000 feet to the north, narrow wash of Sand Canyon approximately 1,000 feet to the west-northwest

# SITE INVESTIGATION PLAN

## TYPE OF WASTE:

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste             | <input type="checkbox"/> Non-E&P Waste |
| <input type="checkbox"/> Produced Water       | <input type="checkbox"/> Workover Fluids             | _____                                  |
| <input checked="" type="checkbox"/> Oil       | <input type="checkbox"/> Tank Bottoms                |  |
| <input type="checkbox"/> Condensate           | <input type="checkbox"/> Pigging Waste               |  |
| <input type="checkbox"/> Drilling Fluids      | <input type="checkbox"/> Rig Wash                    |  |
| <input type="checkbox"/> Drill Cuttings       | <input type="checkbox"/> Spent Filters               |  |
|   | <input type="checkbox"/> Pit Bottoms                 |  |
|   | <input type="checkbox"/> Other (as described by EPA) | _____                                  |

## DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
UNDETERMINED	SOILS	to be determined	soil sampling investigation

## INITIAL ACTION SUMMARY

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

Visually impacted soils have been excavated from the production pit and stockpiled on site. The adjacent skim tank has been removed from the skim pit.

## 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 ):

Surficial soil samples will be collected from within the production pit at approximately 45-foot centers. A soil boring will be advanced at one of the aforementioned surficial soil sample locations. An additional soil sample will be collected from the soil boring once native soil is encountered. One soil sample will also be collected from the floor of adjacent skim pit. The 4 sidewalls of the skim pit will be field-screen with a PID. The sidewall with the most impacts (PID, olfactory, and visual) will also be collected. All soil samples will be submitted for BTEX, DRO, GRO, ORO, EC, and pH analysis. If EC exceeds Table 910-1 standards, SAR will also be analyzed. The proposed soil sample locations are depicted on the attached Figure 1. A background soil sample will be collected from an undisturbed location off the lease.

### 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 ):

The stockpiled soil will be characterized per the disposal facility's requirements. In the meantime, it will be covered in plastic and bermed.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 0  
Number of soil samples exceeding 910-1 \_\_\_\_\_  
Was the areal and vertical extent of soil contamination delineated? \_\_\_\_\_  
Approximate areal extent (square feet) \_\_\_\_\_

### NA / ND

\_\_\_\_\_ Highest concentration of TPH (mg/kg) \_\_\_\_\_  
\_\_\_\_\_ Highest concentration of SAR \_\_\_\_\_  
\_\_\_\_\_ BTEX > 910-1 \_\_\_\_\_  
\_\_\_\_\_ Vertical Extent > 910-1 (in feet) \_\_\_\_\_

### 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) 75      Volume of liquid waste (barrels) 0

Is further site investigation required?

# REMEDIAL ACTION PLAN

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

If the results of the proposed investigation conclude that remediation is necessary, source removal will be addressed at that time.

## 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.

Soil sampling is scheduled for December 10, 2018.

## 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.

# 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:

None

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 75

E&P waste (solid) description impacted soil

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

Non-COGCC Disposal Facility: to be determined

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

E&P waste (liquid) description \_\_\_\_\_

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

Non-COGCC Disposal Facility: \_\_\_\_\_

## 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.

Once the production pit and skim pit are approved for closure, the site will be reclaimed in accordance with COGCC Rules. During the reclamation, the vegetation/weeds observed during the 8-13-18 inspection (Document #688000182) will be addressed.

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. \_\_\_\_\_

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

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/03/2018

Date of commencement of Site Investigation. 12/10/2018

Date of completion of Site Investigation. 12/10/2018

### REMEDIAL ACTION DATES

Date of commencement of Remediation. 12/10/2018

Date of completion of Remediation. \_\_\_\_\_

### 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: Steve Kahn \_\_\_\_\_

Title: Environmental Consultant \_\_\_\_\_

Submit Date: 12/06/2018 \_\_\_\_\_

Email: skahn@ltenv.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: 12/13/2018 \_\_\_\_\_

Remediation Project Number: 12191 \_\_\_\_\_

**COA Type****Description**

	In addition to the proposed sampling plan, collect a minimum of one soil sample from the berm footprint (ground level) on each side of the pit for pH, EC and SAR laboratory analysis.
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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**

401864132	FORM 27-INITIAL-SUBMITTED
401864167	SOIL SAMPLE LOCATION MAP

Total Attach: 2 Files

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

Environmental	This pit closure is related to the plugging of the Catherine 3 (075-09334).	12/13/2018
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Total: 1 comment(s)