

State of Colorado  
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:  
402380652  
Receive Date:  
04/24/2020  
Report taken by:  
ROB YOUNG

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: WHITING OIL & GAS CORPORATION | Operator No: 96155               | Phone Numbers<br>Phone: (970) 4374113<br>Mobile: (432) 6616647 |
| Address: 1700 LINCOLN STREET SUITE 4700         |                                  |  |
| City: DENVER                                    | State: CO                        | Zip: 80290   |
| Contact Person: Kyle Waggoner                   | Email: kyle.waggoner@whiting.com |  |

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**  
Remediation Project #: 9146 Initial Form 27 Document #: 2314895

**PURPOSE INFORMATION**

|  |  |
|--|--|
| <input type="checkbox"/> 901.e. Sensitive Area Determination                                       | <input checked="" 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 type="checkbox"/> Other _____   |

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

|   |                     |                     |                        |
|---|---------------------|---------------------|------------------------|
| Facility Type: LOCATION                         | Facility ID: 328137 | API #: _____        | County Name: WELD      |
| Facility Name: NELSON RANCHES-610N58W<br>18NWSE |                     | Latitude: 40.836343 | Longitude: -103.905908 |
| QtrQtr: NWSE                                    |                     | Sec: 18             | Twp: 10N               |
| Range: 58W                                      |                     | Meridian: 6         | Sensitive Area? Yes    |

\*\* correct Lat/Long if needed: Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

SITE CONDITIONS

General soil type - USCS Classifications ML      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? No

Other Potential Receptors within 1/4 mile

none within 1/4 mile

# 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 checked="" 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 |
|-----------|----------------|-------------------------------------|----------------|
| Yes       | GROUNDWATER    | ~1,250'x400'                        | monitor wells  |
| Yes       | SOILS          | Full extnt unknown;known~125x65x10' | soil borings   |

## INITIAL ACTION SUMMARY

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

Form 19 (Document # 400817070) previously submitted. Initial action included repairing loose union, liquid was contained and impacted soil was excavated. Confirmatory soil borings indicate impact remains which needs to be further delineated.

## 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 ):

During the removal of flowlines additional soil impacts where discovered. A minimum of two bottom hole and four sidewall grab samples will be collected and analyzed for BTEX and TPH.

### Proposed Groundwater Sampling

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

Quarterly groundwater monitoring will be conducted at this sites that includes gauging and sampling all the monitor wells that do not contain phase seperated hydrocarbons (PSH). Groundwater samples will be analyzed for BTEX.

### 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 127

Number of soil samples exceeding 910-1 5

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) 1200

NA Highest concentration of SAR         

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 30

### Groundwater

Number of groundwater samples collected 313

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 30'

Number of groundwater monitoring wells installed 31

Number of groundwater samples exceeding 910-1 186

-- Highest concentration of Benzene (µg/l) 28000

-- Highest concentration of Toluene (µg/l) 38000

-- Highest concentration of Ethylbenzene (µg/l) 2500

-- Highest concentration of Xylene (µg/l) 12000

NA Highest concentration of Methane (mg/l)         

### Surface Water

0 Number of surface water samples collected

0 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?

Further soil sampling is required to delineate the extent of impacts.

# REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? Yes \_\_\_\_\_

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

The source area was excavated, sampled, and confirmation samples indicate the extents are < Table 910-1. The subsurface areas containing impacts will be remediated via in-situ.

## 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.

Currently, PSH is being recovered via hand bailing (winter) and an automated skimmer system. We are currently in discussion with several environmental consultants to evaluate and propose a more aggressive remediation solution. An in-situ remedial option will be implemented this summer.

## Soil Remediation Summary

**In Situ**

Yes \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

Yes \_\_\_\_\_ Chemical oxidation

Yes \_\_\_\_\_ Air sparge / Soil vapor extraction

Yes \_\_\_\_\_ Natural Attenuation

No \_\_\_\_\_ 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

No \_\_\_\_\_ Land Treatment

Yes \_\_\_\_\_ Bioremediation (or enhanced bioremediation)

Yes \_\_\_\_\_ Chemical oxidation

No \_\_\_\_\_ Other \_\_\_\_\_

## Groundwater Remediation Summary

Yes \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

No \_\_\_\_\_ Chemical oxidation

Yes \_\_\_\_\_ Air sparge / Soil vapor extraction

Yes \_\_\_\_\_ Natural Attenuation

Yes \_\_\_\_\_ Other \_\_\_\_\_ skimmer removal

## 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.

Quarterly groundwater monitoring to include gauging all 31 monitoring wells and sampling and analysis (BTEX) of all wells that do not contain PSH.

# 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:

NA

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 0

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

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

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

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_ 23

E&P waste (liquid) description \_\_\_\_\_ purge water and crude oil

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_ 440165

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

## REMEDIATION COMPLETION REPORT

### REMEDIATION 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.

Reclamation activities at the site will be compliant with COGCC regulations.

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). \_\_\_\_\_

Date of commencement of Site Investigation. 03/20/2015

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

|  |
|--|
|  |
|--|

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

Signed: Kyle Waggoner

Title: Field Regulatory Manager

Submit Date: 04/24/2020

Email: kyle.waggoner@whiting.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: 04/27/2020

Remediation Project Number: 9146

## COA Type

## Description

| <u>COA Type</u> | <u>Description</u> |
|-----------------|--------------------|
|                 |                    |

## **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

|           |                                |
|-----------|--------------------------------|
| 402380652 | FORM 27-SUPPLEMENTAL-SUBMITTED |
| 402380697 | MONITORING REPORT              |

Total Attach: 2 Files

## **General Comments**

### User Group

### Comment

### Comment Date

| <u>User Group</u> | <u>Comment</u> | <u>Comment Date</u> |
|-------------------|----------------|---------------------|
|                   |                | Stamp Upon Approval |

Total: 0 comment(s)