

State of Colorado  
Oil and Gas Conservation Commission

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Document Number:  
402267551

Receive Date:

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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: WHITING OIL & GAS CORPORATION	Operator No: 96155	Phone Numbers Phone: (970) 4374113 Mobile: (432) 6616647
Address: 1700 BROADWAY STE 2300		
City: DENVER	State: CO	Zip: 80290
Contact Person: Kyle Waggoner	Email: kyle.waggoner@whiting.com	

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**

Remediation Project #: 14378 Initial Form 27 Document #: \_\_\_\_\_

**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 Drill Cuttings

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

Facility Type: WELL	Facility ID: _____	API #: 103-40196	County Name: RIO BLANCO
Facility Name: MCLAUGHLIN 67	Latitude: 40.089626	Longitude: -108.858745	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENE	Sec: 5	Twp: 1N	Range: 102W Meridian: 6 Sensitive Area? Yes

Facility Type: WELL	Facility ID: _____	API #: 103-40191	County Name: RIO BLANCO
Facility Name: MCLAUGHLIN 68	Latitude: 40.089556	Longitude: -108.858135	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENE	Sec: 5	Twp: 1N	Range: 102W Meridian: 6 Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications GM Most Sensitive Adjacent Land Use livestock grazing

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

# 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 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 checked="" 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	~20' x 30' x 1' deep cuttings	visual inspection

## INITIAL ACTION SUMMARY

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

The two wells McLaughlin 67 (API# 103-40196) and McLaughlin 68 (API# 103-40191) have plugged and abandoned. What appears to be historical drill cuttings remains adjacent to the former wells. This Form 27 workplan is being submitted to address the cuttings.

## 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 ):

A minimum of 1 grab sample from below the cuttings after removal will be collected and submitted for laboratory analysis of Table 910-1 to confirm that the extents of the cuttings have been removed to < Table 910-1 Concentrations Levels. In addition, a minimum of 1 (5-part composite) sample will be collected from the treated cuttings and submitted for laboratory analysis of Table 910-1 to document that any potential residual impacts are <Table 910-1 Concentration Levels.

### 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 11

Number of soil samples exceeding 910-1 4

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

Approximate areal extent (square feet) 1600

### NA / ND

-- Highest concentration of TPH (mg/kg) 720

-- Highest concentration of SAR 6.26

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 4

### 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

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?

Three background samples (BKGD 1, BKGD 2, and BKGD 3) were collected from nearby undisturbed and analyzed for arsenic and inorganics (SAR/EC/pH) as part of this assessment. The sample locations are depicted on the Sample Location Map and the analytical results are summarized on the Mclaughlin 67-68 Data Tracker table attached.

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.

The cuttings will be removed via a combination of mechanical and hand excavation in an effort to minimize disturbing the surrounding vegetation. The removed cuttings will be staged onsite.

## 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.

The former wells are located ~150' apart and the cuttings will staged and shredded onsite in between the two wells. The cuttings will then be processed through a soil shredder with a combination of soil and/or amendments at a ratio necessary to achieve Table 910-1 Concentrations Levels.

## Soil Remediation Summary

### In Situ

- \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )
- \_\_\_\_\_ Chemical oxidation
- \_\_\_\_\_ Air sparge / Soil vapor extraction
- \_\_\_\_\_ Natural Attenuation
- \_\_\_\_\_ Other \_\_\_\_\_

### Ex Situ

- No \_\_\_\_\_ Excavate and offsite disposal
- If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_
- Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_
- Yes \_\_\_\_\_ Excavate and onsite remediation
- No \_\_\_\_\_ Land Treatment
- Yes \_\_\_\_\_ Bioremediation (or enhanced bioremediation)
- No \_\_\_\_\_ Chemical oxidation
- Yes \_\_\_\_\_ Other soil shredder 99 yd3

## 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 Final Closure Report  
Report Type:  Groundwater Monitoring  Land Treatment Progress Report  O&M Report  
 Other Notice of Completion

## 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:

The cuttings (~99 yd3 total) were mechanically removed, staged onsite, and shredded into three separate piles onsite (see map). During shredding the drill cuttings were blended at a 1:1 ratio. The post-shredding volumes for Pile 1 (40.089726, -108.858278), Pile 2 (40.089729, -108.858387), and Pile 3 (40.089633, -108.858399) are 53yd3, 78 yd3, and 65 yd3 respectively. The shredded cuttings are < Table 910-1 except for one pile containing an arsenic concentration that is within the background concentrations. The shredded cutting piles will be used to backfill the excavation (40.089516991, -108.858329246) and all areas where arsenic and inorganics are located will be covered with at least 3 feet of clean material. No material has been or will be disposed of during this project.

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 0

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC 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? No

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? Yes

Does Groundwater meet Table 910-1 standards? Yes

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.

The location will be reclaimed to the present grade of the location or to the approximate original contour of the landscape and consistent with the 1000-series Rule. Seeding of the disturbed area will be performed in accordance with its intended use. The seed mix will be prescribed by the landowner. There are no known noxious weeds in the immediate area of the disturbance.

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). 10/01/2019

Date of commencement of Site Investigation. 10/14/2019

Date of completion of Site Investigation. 12/06/2019

## **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 11/30/2019

Date of completion of Remediation. 12/06/2019

## **SITE RECLAMATION DATES**

Date of commencement of Reclamation. 05/01/2020

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

**OPERATOR COMMENT**

Attached are the analytical lab reports, data tracking spreadsheets, and sample/excavation map for the McLaughlin 67 site. All results indicate that soils satisfy COGCC Table 910-1, with the exception of arsenic. All areas where arsenic are located will be covered with at least 3 feet of clean material. Whiting Petroleum is requesting consideration to the arsenic exceedances as outlined in FAQ 31 and 32 due to background concentrations being consistent with confirmation concentrations observed.

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: \_\_\_\_\_

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: \_\_\_\_\_

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

Remediation Project Number: 14378

**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**

402268291	ANALYTICAL RESULTS
402268293	ANALYTICAL RESULTS
402268295	ANALYTICAL RESULTS
402268296	ANALYTICAL RESULTS
402268297	ANALYTICAL RESULTS
402268301	ANALYTICAL RESULTS
402268305	ANALYTICAL RESULTS
402268307	SOIL SAMPLE LOCATION MAP

Total Attach: 8 Files

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

Environmental	Please include information on how much material was excavated out of the pit and if that material was treated on location or disposed of.	01/09/2020
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Total: 1 comment(s)