

State of Colorado Oil and Gas Conservation Commission

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Report taken by:

John Heil

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
Address: 1700 BROADWAY STE 2300		
City: DENVER State: CO Zip: 80290		
Contact Person: Kyle Waggoner	Email: kyle.waggoner@whiting.com	
		Phone: (970) 4374113
		Mobile: (432) 6616647

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:

☒ 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
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.

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.

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: 02/03/2020

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: John Heil

Date: 02/03/2020

Remediation Project Number: 14378

COA Type**Description**

	Based on review of the information provided, it appears that no further action is necessary at this time and COGCC approves the closure request. Should conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards, or, if groundwater is found to be significantly impacted, further investigation and/or remediation activities may be required at the site.
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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**

402267551	FORM 27-SUPPLEMENTAL-SUBMITTED
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: 9 Files

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

Environmental	A total of 99 yd3 were removed from the pit mentioned on Doc #402268301.	01/09/2020
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Total: 1 comment(s)