

State of Colorado
Oil and Gas Conservation Commission

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Report taken by:
Kari Oakman

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>CONFLUENCE DJ LLC</u>	Operator No: <u>10518</u>	Phone Numbers
Address: <u>1001 17TH STREET #1250</u>		Phone: <u>(303) 226-9517</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u>		Mobile: <u>()</u>
Contact Person: <u>Michael Dickinson</u>	Email: <u>mdickinson@confluencelp.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION
Remediation Project #: 10338 Initial Form 27 Document #: 401290538

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 checked="" type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation	<input checked="" 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>320274</u>	API #: _____	County Name: <u>ADAMS</u>
Facility Name: <u>HASKINS-61S65W 4SWSW</u>	Latitude: <u>39.989750</u>	Longitude: <u>-104.674895</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSW</u>	Sec: <u>4</u>	Twp: <u>1S</u>	Range: <u>65W</u> Meridian: <u>6</u> Sensitive Area? <u>No</u>

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Dryland pasture, farming

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? No

Other Potential Receptors within 1/4 mile

There is a domestic water well (DWR Permit #142528) reportedly located in the SW 1/4 SW 1/4 Section 4, T1S R65W and is expected to lie at higher elevation than the Haskins 1, and is upgradient to cross gradient of the Haskins 1 site. The Denver Hudson Canal is located approximately 950 feet to the northwest of the Haskins 1 site.

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 checked="" 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
No	GROUNDWATER	Four Consecutive Clean Quarters	Quarterly groundwater sampling
No	SOILS	Not Impacted	Excavation / Confirmation 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.

In April 2017, Olsson performed a subsurface investigation to evaluate impacts related to a historical release from a former concrete produced water vault. In September 2017, excavation activities were conducted at the Site to remove hydrocarbon impacted soil. In addition to soil excavation, BOS 200®, an activated carbon-based in situ remediation technology, was mixed into the base of the excavation at the groundwater and soil interface prior to backfilling. In October 2017, four groundwater monitoring wells were installed to monitor remediation performance and effectiveness. An additional subsurface investigation was conducted in April 2019 to identify specific intervals with remaining hydrocarbon impacted soil located west of the September 2017 excavation area. In situ remediation activities were performed in June 2019 to inject BOS 200® into targeted intervals between 26 – 32 feet below ground surface (bgs).

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):

No additional soil sampling is proposed at the Site.

Proposed Groundwater Sampling

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

The Site has four monitoring wells. In the approved Form 27 Supplemental (401967410) the monitoring well network was reduced. All four wells are used for measuring groundwater elevations and field parameters, but groundwater samples from two wells, MW-3 and MW-4, were submitted for laboratory analysis and analyzed for BTEX.

Proposed Surface Water Sampling

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

Surface water has not been impacted.

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

NA / ND

NA Highest concentration of TPH (mg/kg) _____
NA Highest concentration of SAR _____
BTEX > 910-1 No
Vertical Extent > 910-1 (in feet) 32

Groundwater

Number of groundwater samples collected 2
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 28'
Number of groundwater monitoring wells installed 4
Number of groundwater samples exceeding 910-1 0

ND Highest concentration of Benzene (µg/l) _____
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
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?

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 excavated in September 2017 and disposed at a licensed disposal facility, and sampled for Table 910-1 parameters. The top soil, unimpacted overburden were stockpiled onsite. Soils meeting the Table 910-1 concentrations/levels were reused onsite. Approximately 700 cubic yards of impacted soil was disposed at Buffalo Ridge landfill located in Keenesburg, Colorado.

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.

Additional Site remediation activities were conducted in June 2019. Fourteen injection points were advanced and 3,150 pounds of BOS200 (activated carbon) along with supplemental bacteria and sulfate was injected west of the initial excavation conducted in September 2017 to address residual impacted soil between 26 - 32 feet below ground surface.

Soil Remediation Summary

In Situ

Yes _____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

Yes _____ Other In situ treatment of BOS200 (activated carbon)

Ex Situ

Yes _____ Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) _____ 2500

Name of Licensed Disposal Facility or COGCC Facility ID # _____

Yes _____ Excavate and onsite remediation

Yes _____ Land Treatment

Yes _____ Bioremediation (or enhanced bioremediation)

No _____ Chemical oxidation

No _____ Other _____

Groundwater Remediation Summary

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

Yes _____ Other In situ treatment of BOS200 (activated carbon)

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.

Groundwater monitoring has been conducted at the Site on a quarterly schedule since October 2017. The April 29, 2020 sampling event represents the fourth consecutive quarter of groundwater analytical results below COGCC Table 910-1 concentration levels for BTEX since the injection event in June 2019.

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 700

E&P waste (solid) description Impacted soils from historic concrete vault - produced water

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: WM Buffalo Ridge, Keenesburg, CO

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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

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 Site will be restored in accordance with Rule 1000 Reclamation Rules.

Is the described reclamation complete? Yes

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? Yes

If NO, does the seed mix comply with local soil conservation district recommendations? Yes

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). 04/06/2017

Date of commencement of Site Investigation. _____

Date of completion of Site Investigation. 04/19/2017

REMEDIAL ACTION DATES

Date of commencement of Remediation. 04/08/2019

Date of completion of Remediation. 06/07/2019

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

The April 29, 2020 quarterly sampling event was the fourth consecutive quarter of groundwater results below COGCC Table 910-1 concentration levels for BTEX. No further action is being requested.

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

Signed: Trent Watne _____

Title: Senior Scientist _____

Submit Date: 06/17/2020 _____

Email: twatne@olsson.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: Kari Oakman _____

Date: 06/18/2020 _____

Remediation Project Number: 10338 _____

COA Type**Description**

	<p>Based on the information presented, it appears that no further action is necessary at this time and the COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if groundwater is found to be impacted, then further investigation and/or remediation activities may be required.</p> <p>The surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules. For locations with active ongoing oil and gas operations, comply with Rule 1003 interim reclamation requirements and for locations that will no longer have active oil and gas operations, comply with Rule 1004 Final Reclamation requirements.</p>
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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**

402423988	FORM 27-SUPPLEMENTAL-SUBMITTED
402424131	MONITORING REPORT

Total Attach: 2 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)