

State of Colorado  
Oil and Gas Conservation Commission

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Report taken by:  
CHRIS CANFIELD

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 INFORMATON

Name of Operator: <u>CONFLUENCE DJ LLC</u>	Operator No: <u>10518</u>	<b>Phone Numbers</b>
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>
Contact Person: <u>Michael Dickinson</u>	Email: <u>mdickinson@confluencelp.com</u>	Mobile: <u>( )</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 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 checked="" 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 <u>Notification of Change of Operator for Remediation Project (REM 10338)</u>

**SITE INFORMATION** N Multiple Facilites ( 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
Yes	GROUNDWATER	Defined: ~60 ft NW tank battery	Quarterly groundwater sampling
Yes	SOILS	Approximate 40 ft by 60 ft by 30 ft	Limited subsurface 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.

Olsson performed a due diligence assessment of the Haskins 1 well location in April 2017 which included a limited subsurface investigation. The limited subsurface investigation identified subsurface soil and groundwater impacts at the location. The subsurface impacts are suspected of being the result of a former historic 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 ):

An additional subsurface investigation is proposed to further identify specific zones with remaining impacted soil for the purposes of developing an insitu injection design strategy. Soil samples will be collected and analyzed for BTEX at a non-accredited independent laboratory. Laboratory data will be used internally for performance and design development.

### Proposed Groundwater Sampling

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

Following the implementation of insitu injection activities of BOS 200 and microbial solution, performance groundwater sampling may be performed to assess the performance of injection activities. Four monitoring wells have been sampled on a quarterly basis since October 2017. Monitoring wells MW-1, MW-2, and MW-4 have not had a detection of BTEX for five consecutive quarterly sampling events. It is proposed that the monitoring well network be reduced from four wells to two wells. All four wells will be used for measuring groundwater elevations and field parameters, but only groundwater samples from two wells, MW-3 and MW-4, will be submitted for laboratory analysis. See attached Figure 1.

### Proposed Surface Water Sampling

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

Surface water is not suspected of being impacted.

## Additional Investigative Actions

Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

Excavation and landfill disposal of impacted soils were performed at the Haskins 1 site in 2017. Confirmation soil samples were collected to demonstrate that the lateral and vertical extent of the impacts had been defined. Grab groundwater samples indicated that groundwater was impacted beyond the extent of excavation; therefore, additional investigation including installation of groundwater monitoring wells was performed. Additional investigation is required to define impacts to the west of the excavation and MW-3.

# 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) 2400

### NA / ND

-- Highest concentration of TPH (mg/kg) \_\_\_\_\_  
-- Highest concentration of SAR \_\_\_\_\_  
BTEX > 910-1 Yes  
Vertical Extent > 910-1 (in feet) 29

### Groundwater

Number of groundwater samples collected 25  
Was extent of groundwater contaminated delineated? No  
Depth to groundwater (below ground surface, in feet) 30'  
Number of groundwater monitoring wells installed 4  
Number of groundwater samples exceeding 910-1 8

-- Highest concentration of Benzene (µg/l) 528  
-- Highest concentration of Toluene (µg/l) 948  
-- Highest concentration of Ethylbenzene (µg/l) 158  
-- Highest concentration of Xylene (µg/l) 1960  
-- Highest concentration of Methane (mg/l) 0

### 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?

Additional site investigation will be performed to assess residual impacts between the excavation's western extent and MW-3.

# 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 soils was excavated and disposed at a commercial landfill, 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. Impacted soil was disposed at a landfill.

## 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.

Impacted soils were excavated and disposed at a commercial landfill. Unimpacted top soil and overburden soils were segregated and reused to fill the excavation. The impacted soils were stockpiled onsite pending receipt of the soil analytical results and approval for commercial landfill disposal.

## Soil Remediation Summary

### In Situ

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

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

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

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

Yes \_\_\_\_\_ Other It is expected that an in situ treatment of BOS200 will be used.

### 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 Additional assessment and installation of groundwater monitoring wells will be evaluated.

## 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.

If groundwater impacts are expected beyond the excavation limits, an additional subsurface investigation to evaluate BOS 200 injection will be performed.

## 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? 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.

The excavation will be secured with construction fence pending receipt of the soil analytical results. Top soil and unimpacted overburden will be segregated and stockpiled. Clean soil or treated soils will be placed back into the excavation in two foot lifts and will be compacted with the excavator as it goes. The site will be restored to its previous contour and grade. The area will be seeded with a dryland pasture mix approved by the surface owner.

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. \_\_\_\_\_

## 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: Trent Watne

Title: Project Scientist

Submit Date: 03/11/2019

Email: twatne@olssonassociates.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: CHRIS CANFIELD

Date: 03/18/2019

Remediation Project Number: 10338

## 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.

<u>Att Doc Num</u>	<u>Name</u>
401967410	FORM 27-SUPPLEMENTAL-SUBMITTED
401968095	MONITORING REPORT
401968103	MONITORING REPORT
401968109	MONITORING REPORT
401968465	SOIL SAMPLE LOCATION MAP

Total Attach: 5 Files

## General Comments

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

Total: 0 comment(s)