

State of Colorado Oil and Gas Conservation Commission

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Receive Date:

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: TOP OPERATING COMPANY	Operator No: 39560	Phone Numbers Phone: (303) 727-9915 Mobile: ()
Address: 3609 S WADSWORTH BLVD STE 340		
City: LAKEWOOD	State: CO Zip: 80235	
Contact Person: Rodney Herring	Email: rod.herring@topoperating.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 6883 Initial Form 27 Document #: 2223152

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 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 type="checkbox"/> Other |

SITE INFORMATION

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

Facility Type: TANK BATTERY	Facility ID: 426982	API #:	County Name: WELD
Facility Name: Serafini GU #1 426982		Latitude: 40.143415	Longitude: -105.040710
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: NENE	Sec: 18	Twp: 2N	Range: 68W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use CULTIVATED

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? Yes

Other Potential Receptors within 1/4 mile

DRY CREEK OR ST. VRAIN CREEK.

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	UNKNOWN - 1 GEOPROBE HOLE TO 8' BGS	SOIL SAMPLE COLLECTED 12/17/10

INITIAL ACTION SUMMARY

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

CONDUCT FURTHER LIMITED SITE INVESTIGATION (LSI) USING EITHER BACKHOE, HYDROVAC, OR COMBINATION TO DETERMINE THE NATURE AND EXTENT OF THE SUBSURFACE SOIL IMPACTS NEAR THE SERAFNI G.U. #1 NORTH SIDE OF THAT TANK BATTERY. IF POSSIBLE DETERMINE THE SOURCE OF THE SOIL IMPACTS. COLLECT SOIL SAMPLES FOR BTEX, GRO, AND DRO.

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):

Grab soil samples will be collected near test pit TP-1 north of the tank battery to assess nature and extent of impacts. Soil borings will be advanced near TP-1 and also to the west and southwest of the tank battery to assess potential soil and groundwater impacts. If impacted soils are encountered above Table 910-1, additional assessment will be performed including installation of one or more monitor wells.

Proposed Groundwater Sampling

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

Groundwater sampling will be performed quarterly until monitoring demonstrates that BTEX concentrations are below Table 910-1 concentrations for four consecutive quarters.

Proposed Surface Water Sampling

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

No.

Additional Investigative Actions

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

See Attached workplan.

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)

NA / ND

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

Groundwater

Number of groundwater samples collected 3
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 6'
Number of groundwater monitoring wells installed 3
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
 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?

AN ADDITIONAL LSI IS REQUIRED TO DEFINE THE NATURE AND EXTENT OF IMPACT, AND IF POSSIBLE TO REMOVE AND REMEDIATE IMPACTED SOILS. THE VERITCAL EXTENT MAY BE LIMITED BY THE DEPTH OF BEDROCK OR SHALLOW GROUNDWATER.

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.

USE EITHER A BACKHOE OR HYDROVAC TO EXCAVATE IMPACTED SOILS AROUND THE NORTH SIDE OF THE TANK BATTERY. REQUEST PERMISSION TO LANDFARM THE SOILS ON LOCATION, OR COLLECT SOIL SAMPLES FOR WASTE CHARACTERIZATION AND PURSUE DISPOSAL AT A COMMERCIAL 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.

Test Pit 1 (TP-1) was completed as an infiltration sump in July 2012. If TP-1 is intact, enhanced fluid recovery (EFR) using a vacuum truck will be performed to address impacted soil and groundwater. If TP-1 is not intact, an additional monitor well will be installed and will be used to assess remediation through EFR. Other remediation options may include excavation and offsite disposal of impacted soil that is above Table 910-1 concentrations or levels. See attached workplan.

Soil Remediation Summary

☐ In Situ

Yes _____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

Yes _____ Natural Attenuation

_____ 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

_____ Land Treatment

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

No _____ Other _____

Groundwater Remediation Summary

Yes _____ Bioremediation (or enhanced bioremediation)

☐ _____ Chemical oxidation

☐ _____ Air sparge / Soil vapor extraction

Yes _____ 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.

GROUNDWATER WAS ENCOUNTERED BY TERRACON IN A SINGLE GEOPROBE HOLE ADVANCED ON THE NORTH SIDE OF THE SERAFINI GAS UNIT #1 TANK BATTERY LOADOUT IN DECEMBER 2010. A SOIL SAMPLE WAS SUBMITTED FROM THE HOLE, BUT A GRAB GROUNDWATER SAMPLE WAS NOT COLLECTED DUE TO INSUFFICIENT WATER QUANTITY. OLSSON PROPOSES CONDUCTING A LSI USING A BACKHOE OR A HYDROVAC TO EXCAVATE NEAR THE WELL TO DELINEATE THE LATERAL AND VERTICAL EXTENT OF IMPACTS AND TO IDENTIFY THE SOURCE IF POSSIBLE. IF THE IMPACTS EXTEND BEYOND WHAT IS REASONABLE TO EXCAVATE, A SECOND LEVEL INVESTIGATION MAY NEED TO BE PERFORMED USING A DRILL RIG.

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? _____

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Volume of E&P Waste (solid) in cubic yards _____

E&P waste (solid) description _____

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: _____

Volume of E&P Waste (liquid) in barrels _____

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.

FOLLOWING COMPLETION OF THE EXCAVATION, THE EXCAVATION WILL BE FILLED WITH CLEAN SOIL. IMPACTED SOIL WILL BE LANDFARMED ON LOCATION, OR PROFILED AND DISPOSED AT A COMMERCIAL LANDFILL FACILITY.

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. _____

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 03/12/2012

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: James Hix

Title: Olsson Senior Geologist

Submit Date: _____

Email: jhix@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: _____

Date: _____

Remediation Project Number: 6883

COA Type

Description

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Attachment Check List

Att Doc Num

Name

401216079

SITE INVESTIGATION PLAN

Total Attach: 1 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)