FORM 27 Rev 3/16

State of Colorado
Oil and Gas Conservation Commission

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Document Number: 401803470
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 INFORMATON

Name of Operator: TOP OPERATING COMPANY Operator No: 39560
Address: 3609 S WADSWORTH BLVD STE 340
City: LAKEWOOD State: CO Zip: 80235
Contact Person: Paul Herring Email: paul.herring@topoperating.com

Phone Numbers
Phone: (720) 6631698
Mobile: ( )

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

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

PURPOSE INFORMATION

- [ ] 901.e. Sensitive Area Determination
- [ ] 909.c.(1), Rule 905: Pit or PW vessel closure
- [x] 909.c.(2), Rule 906: Spill/Release Remediation
- [ ] 909.c.(3), Rule 907.e.: Land treatment of oily waste
- [ ] 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure
- [ ] 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
- [ ] Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
- [ ] Rule 909.e.(2)B.: Closure of remediation project
- [ ] Rule 906.c.: Director request
- [ ] Other

SITE INFORMATION

N Multiple Facilites (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/ST. VRAIN CREEK. approximately 0.5 miles north of site

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
  - [x] Produced Water
  - [x] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
No	GROUNDWATER	NA	laboratory analytical
Yes	SOILS	approximately 10'x10'	laboratory analytical

INITIAL ACTION SUMMARY

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

Conducted further limited site investigation using a backhoe to determine the extents of soil impacts beneath the site. Excavation was completed around soil boring B9 during completion of test pit 1. Installed an infiltration gallery for soil washing and petroleum hydrocarbon removal in test pit 1. A network of seven monitoring wells has been installed at the site to define any potential groundwater impacts.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

- [x] Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

Advance four soil borings around the test pit 1/soil boring B9 area and advance one soil boring within test pit 1. One grab soil sample will be collected from each soil boring from the depth interval exhibiting the highest photoionization detector reading above the groundwater table. The soil samples will be analyzed for BTEX, GRO, DRO, ORO, and if collected from 0-3 feet bgs they will also be analyzed for Table 910-1 inorganics. Soil boring locations are presented in Figure 3 of the attached work plan.

Proposed Groundwater Sampling

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

The soil boring advanced within test pit 1 will be completed as a 2-inch monitoring well (SGU-MW08). Groundwater samples will be collected from eight monitoring wells (SGU-MW01, SGU-MW02R, and SGU-MW03 through SGU-MW08) on a quarterly basis. The groundwater samples will be analyzed for BTEX. The proposed location of monitoring well SGU-MW08 is presented in Figure 3 of the attached work plan. Locations of monitoring wells that currently exist at the site are presented in Figures 4 and 5 of the attached work plan.

Proposed Surface Water Sampling

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

Additional Investigative Actions

- [x] 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: 15

Number of soil samples exceeeding 910-1: 2

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

Approximate areal extent (square feet): 50

NA / ND

-- Highest concentration of TPH (mg/kg): 880

NA Highest concentration of SAR:

BTEX > 910-1: Yes

Vertical Extent > 910-1 (in feet): 3

Groundwater

Number of groundwater samples collected: 54

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet): 5`

Number of groundwater monitoring wells installed: 7

Number of groundwater samples exceeding 910-1: 6

-- Highest concentration of Benzene (µg/l): 110

-- Highest concentration of Toluene (µg/l): 16

-- Highest concentration of Ethylbenzene (µg/l): 140

-- Highest concentration of Xylene (µg/l): 3500

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?

Advance five soil borings around and within test pit 1. Complete one soil boring as a groundwater monitoring well. See attached work plan.

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.

Soil was excavated around soil boring B9.

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 laboratory analytical results for the five proposed soil borings will determine soil impacts beneath the site. If soil impacts exist at the site, excavation activities will be completed to remove soil impacts above Table 910-1 limits. Currently no groundwater impacts above Table 910-1 exist at the site. Once monitroing well SGU-MW08 is installed and sampled, if groundwater impacts exist in SGU-MW08 TOP will determine the best remedial approach to address the groundwater based on the extents and concentration of the impacts. A supplemental form 27 will be submitted with detailed soil and groundwater remedial approaches if necessary.

Soil Remediation Summary

☒ **In Situ**

- No — 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

- ☐ 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.

Quarterly groundwater sampling of monitoring wells SGU-MW01, SGU-MW02R, SGU-MW03 through SGU-MW08 through the 4th quarter 2019. Analyze all groundwater samples for BTEX. Groundwater monitoring wells are presented in Figures 3, 4, and 5 of attached work plan.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other Quarterly Progress Reports, Annual Monitoring Report, see attached work plan.

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? No

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? 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? No

Does Groundwater meet Table 910-1 standards? Yes

Is additional groundwater monitoring to be conducted? Yes

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.

Reclamation will be in accordance with COGCC 1000 series rules.

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). 07/06/2012

Date of commencement of Site Investigation. 12/17/2010

Date of completion of Site Investigation.

REMEDIAL ACTION DATES

Date of commencement of Remediation. 07/06/2012

Date of completion of Remediation.

SITE RECLAMATION DATES

Date of commencement of Reclamation.

Date of completion of Reclamation.

OPERATOR COMMENT

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

Signed:` Paul Herring

Title: Landman

Submit Date:`

Email: paul.herring@topoperating.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

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
401803598	SITE INVESTIGATION PLAN

Total Attach: 1 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)