

State of Colorado Oil and Gas Conservation Commission

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Receive Date:

12/27/2017

Report taken by:

ROB YOUNG

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>DIAMOND OPERATING, INC.</u> | Operator No: <u>24320</u> | Phone Numbers |
| Address: <u>6666 GUNPARK DR STE #200</u> | | Phone: <u>(303) 494-4420</u> |
| City: <u>BOULDER</u> | State: <u>CO</u> | Zip: <u>80301</u> |
| Contact Person: <u>Dave Peterson</u> | Email: <u>davep@flatironenergy.com</u> | Mobile: <u>(303) 517-3399</u> |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 9744Initial Form 27 Document #: 200439904

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 <u>land treatment area</u> |

SITE INFORMATION

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

| | | | |
|--|----------------------------|----------------------------|--------------------------------|
| Facility Type: <u>PIT</u> | Facility ID: <u>117631</u> | API #: _____ | County Name: <u>WASHINGTON</u> |
| Facility Name: <u>DECKER SKIM 1</u> | | Latitude: <u>39.706645</u> | Longitude: <u>-103.357073</u> |
| ** correct Lat/Long if needed: Latitude: _____ | | Longitude: _____ | |
| QtrQtr: <u>NWNE</u> | Sec: <u>18</u> | Twp: <u>4S</u> | Range: <u>53W</u> |
| Meridian: <u>6</u> | | Sensitive Area? <u>Yes</u> | |

SITE CONDITIONS

General soil type - USCS Classifications OLMost Sensitive Adjacent Land Use RANGELANDIs domestic water well within 1/4 mile? YesIs surface water within 1/4 mile? NoIs groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

Domestic well approx. 115 feet SE.

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 |
|-----------|----------------|-------------------------------------|------------------------------|
| Yes | SOILS | Refer to attached Figures and Table | Excavation and soil 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.

On February 19, 2016 as part of characterization and closure activities, six test pits were excavated and soil samples were collected at varying depths to determine the vertical and lateral extent of hydrocarbon impacts that exceed COGCC Table 910-1 (Table 910) standards for each 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):

See attached revised enhanced remediation work plan.

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 _____ 0

Number of soil samples exceeding 910-1 _____ 0

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 _____ 0

Was extent of groundwater contaminated delineated? No _____

Depth to groundwater (below ground surface, in feet) _____ 40` _____

Number of groundwater monitoring wells installed _____ 0

Number of groundwater samples exceeding 910-1 _____ 0

NA _____ Highest concentration of Benzene (µg/l) _____

NA _____ Highest concentration of Toluene (µg/l) _____

NA _____ Highest concentration of Ethylbenzene (µg/l) _____

NA _____ 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?

Sidewall and base confirmation sampling will be performed. Please see attached Enhanced Bioremediation Workplan and Exhibit A for analytical results to date.

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.

Please see attached Enhanced Bioremediation Workplan.

REMEDICATION 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.

See attached revised enhanced remediation work plan submitted 7/24/2017.

Soil Remediation Summary

☒ **In Situ**

Yes _____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ 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

_____ Other _____

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.

Groundwater was not encountered during characterization activities.

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other Operator will submit a report from test sites in Oct or Nov 2017

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: _____

REMEDATION COMPLETION REPORT

REMEDATION 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.

Please see attached Enhanced Bioremediation Workplan.

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. 02/19/2016

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 07/20/2016

Date of completion of Remediation. 07/20/2019

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

During 2017 Humic Balance has worked on the soil in three test plots. The soil that was near 500 mg/kg prior to these treatments is now below 500 mg/kg. The other two test plots after these treatments are still above 500 mg/kg -- in the range of 1430 mg/kg to 4845 mg/kg. The working interest owners have decided to pick up all the impacted soil in the surface remediation area and haul it to a disposal site and return clean dirt to fill the skim pit hole. This work will commence in January 2018 and we hope to have the pit filled and the project completed by mid-February.

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

Signed: Dave Peterson

Title: President

Submit Date: 12/27/2017

Email: davep@flatironenergy.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: ROB YOUNG

Date: 12/27/2017

Remediation Project Number: 9744

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

| | |
|-----------|--------------------------------|
| 401496112 | FORM 27-SUPPLEMENTAL-SUBMITTED |
|-----------|--------------------------------|

Total Attach: 1 Files

General Comments

User Group

Comment

Comment Date

| | | |
|--|--|---------------------|
| | | Stamp Upon Approval |
|--|--|---------------------|

Total: 0 comment(s)