

State of Colorado Oil and Gas Conservation Commission

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Report taken by:

PETER GINTAUTAS

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: NOBLE ENERGY INC | Operator No: 100322 | Phone Numbers |
| Address: 1001 NOBLE ENERGY WAY | | Phone: (970) 3045329 |
| City: HOUSTON State: TX Zip: 77070 | | Mobile: () |
| Contact Person: Jacob Evans | Email: jacob.evans@nblenergy.com | |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 12471

Initial Form 27 Document #: 401935594

PURPOSE INFORMATION

- | | |
|--|--|
| <input checked="" 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 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

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

| | | | |
|--|---------------------|------------------------|--|
| Facility Type: LOCATION | Facility ID: 328125 | API #: _____ | County Name: WELD |
| Facility Name: AGRICULTURAL PROD INC-64N66W 32SWNE | Latitude: 40.269520 | Longitude: -104.799510 | |
| ** correct Lat/Long if needed: Latitude: _____ | | Longitude: _____ | |
| QtrQtr: SWNE | Sec: 32 | Twp: 4N | Range: 66W Meridian: 6 Sensitive Area? Yes |
| Facility Type: SPILL OR RELEASE | Facility ID: 462437 | API #: _____ | County Name: WELD |
| Facility Name: Agricultural Products Federal 32-17 | Latitude: 40.269576 | Longitude: -104.797120 | |
| ** correct Lat/Long if needed: Latitude: _____ | | Longitude: _____ | |
| QtrQtr: SWNE | Sec: 32 | Twp: 4N | Range: 66W Meridian: 6 Sensitive Area? Yes |

SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Crop Land

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? Yes

Other Potential Receptors within 1/4 mile

Occupied Building 425'

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 | GROUNDWATER | 75' X 75' | Laboratory Analytical |
| Yes | SOILS | 30' X 30' X 13' bgs | 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.

During tank battery dismantlement impacted media was discovered between the tanks and separators. Confirmation sidewall excavation samples were collected above the phreatic zone and submitted under proper chain of custody procedures to Origins Laboratory for analysis of TPH-DRO, TPH-GRO, BTEX, and Naphthalene by EPA Methods 8015 and 8260c. A base groundwater sample was also collected and analyzed for BTEX.

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):

Twelve grab soil samples were collected by Eagle Environmental during site investigation activities for analysis of TPH-DRO, TPH-GRO, BTEX, and Naphthalene by EPA Methods 8015 and 8260c. Additionally, SS-02@3' was also analyzed for SAR by 20B Saturated Paste, EC by specific conductance by Modified 9050A, and pH by EPA 9045D.

Proposed Groundwater Sampling

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

Seven groundwater samples were collected by Eagle Environmental during site investigation activities and were submitted to Origins Laboratory for analysis of BTEX by EPA Method 8260c.

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 12

Number of soil samples exceeding 910-1 2

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 900

NA / ND

-- Highest concentration of TPH (mg/kg) 628

-- Highest concentration of SAR 9.55

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 12

Groundwater

Number of groundwater samples collected 7

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 13'

Number of groundwater monitoring wells installed 6

Number of groundwater samples exceeding 910-1 6

-- Highest concentration of Benzene (µg/l) 8250

ND Highest concentration of Toluene (µg/l)

-- Highest concentration of Ethylbenzene (µg/l) 898

-- Highest concentration of Xylene (µg/l) 8890

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?

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.

The source will be removed through excavation of impacted soil above COGCC Table 910-1 standards. Eagle Environmental will collect confirmation grab soil samples above the phreatic zone to determine the lateral and vertical extent of the excavation. Excavation or additional site assessment activities will be scheduled prior to September 1, 2019, pending landowner approval.

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.

A post groundwater site assessment will be scheduled following source excavation.

Soil Remediation Summary

☐ In Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☒ Ex Situ

Yes _____ Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) _____ 500

Name of Licensed Disposal Facility or COGCC Facility ID # _____

No _____ Excavate and onsite remediation

_____ Land Treatment

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Other _____

Groundwater Remediation Summary

No _____ Bioremediation (or enhanced bioremediation)

No _____ Chemical oxidation

No _____ Air sparge / Soil vapor extraction

Yes _____ Natural Attenuation

Yes _____ Other A groundwater amendment will be applied to the base of the excavation in the groundwater table. _____

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.

A groundwater site assessment will be scheduled subsequent to excavation completion.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☐ Annually ☐ Other _____

Report Type: ☒ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report

☒ Other Site Investigation Data _____

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? No _____

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 1004 Rule.

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). 02/11/2019

Date of commencement of Site Investigation. _____

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. _____

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. 02/11/2019

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: Jacob Evans

Title: Environmental Coordinator

Submit Date: 05/20/2019

Email: jacob.evans@nblenergy.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: PETER GINTAUTAS

Date: 05/26/2019

Remediation Project Number: 12471

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

| | |
|-----------|--------------------------------|
| 402049358 | FORM 27-SUPPLEMENTAL-SUBMITTED |
| 402049438 | SITE INVESTIGATION REPORT |

Total Attach: 2 Files

General Comments

User Group

Comment

Comment Date

| | | |
|--|---|------------|
| | Submit reports of site investigation and progress of remediation including results of sampling and analysis on an annual basis or more often until remediation is closed. | 05/26/2019 |
|--|---|------------|

Total: 1 comment(s)