

State of Colorado Oil and Gas Conservation Commission

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Document Number:

401185779

Receive Date:

Report taken by:

Site Investigation and Remediation Workplan (Initial 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: LINN OPERATING INC | Operator No: 10516 | Phone Numbers |
| Address: 600 TRAVIS STREET #5100 | | Phone: (281) 8404398 |
| City: HOUSTON State: TX Zip: 77002 | | Mobile: (720) 5455284 |
| Contact Person: Scott Canonico | Email: scanonico@linnenergy.com | |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: Initial Form 27 Document #: 401185779

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 checked="" 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: LOCATION | Facility ID: 335869 | API #: | County Name: GARFIELD |
| Facility Name: CHEVRON I19 596 | Latitude: 39.600079 | Longitude: -108.204080 | |
| ** correct Lat/Long if needed: Latitude: | | Longitude: | |
| QtrQtr: NESE | Sec: 19 | Twp: 5S | Range: 96W Meridian: 6 Sensitive Area? Yes |

SITE CONDITIONS

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

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? No

Other Potential Receptors within 1/4 mile

unnamed spring 1400' east

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 | drill cuttings contained w-in berm | observation and analysis |

INITIAL ACTION SUMMARY

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

Drill cuttings were excavated and tested for Table 910-1 parameters. The most recent testing showed all parameters except arsenic below the standards. These cuttings were landfarmed on site. In addition, the water storage pit on site was closed. Upon removal of water in the pit, a composite sample was collected from the pit bottom materials to evaluate compliance with Table 910-1 standards for this material.

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):

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):

Landfarm material analysis for Table 910-1 parameters

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 12

Number of soil samples exceeding 910-1 0

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

Approximate areal extent (square feet) 1000

NA / ND

-- Highest concentration of TPH (mg/kg) 2100

-- Highest concentration of SAR 25

BTEX > 910-1

Vertical Extent > 910-1 (in feet) 3

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) \

Number of groundwater monitoring wells installed

Number of groundwater samples exceeding 910-1

Highest concentration of Benzene (µg/l)

Highest concentration of Toluene (µg/l)

Highest concentration of Ethylbenzene (µg/l)

Highest concentration of Xylene (µg/l)

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

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Drill cuttings were excavated from the drilling pit and stockpiled on the well pad and enclosed by a soil berm. The water storage pit bottom materials were removed and mixed with the drill cuttings. All materials were landfarmed on site.

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.

Drill cuttings and water storage pit bottom materials were landfarmed on site. Landfarming methods could include tilling, application of fertilizer, and the addition of native soil or sawdust. Background soil samples will also collected and analyzed for arsenic in the vicinity of the pit to characterize natural soil arsenic concentrations.

Soil Remediation Summary

☐ In Situ

☐ 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
☐ Yes ☐ Land Treatment
☐ No ☐ Bioremediation (or enhanced bioremediation)
☐ No ☐ Chemical oxidation
☐ No ☐ Other _____

Groundwater Remediation Summary

☐ No ☐ Bioremediation (or enhanced bioremediation)
☐ No ☐ Chemical oxidation
☐ No ☐ Air sparge / Soil vapor extraction
☐ No ☐ Natural Attenuation
☐ No ☐ 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.

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:

Remediated drill cuttings and water pit bottom materials were blended with on site materials and used to backfill the cuttings pit.

Volume of E&P Waste (solid) in cubic yards _____ 0

E&P waste (solid) description _____

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: _____

Volume of E&P Waste (liquid) in barrels _____ 0

E&P waste (liquid) description _____

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: _____

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.

After treatment is completed, and background levels of arsenic in the landfarmed materials are demonstrated, drill cuttings and water storage pit bottom materials will be blended with non-contaminated on-site materials and buried in the pit and compacted. All cuttings with SAR greater than 12 will be buried at least three feet below the reclaimed ground surface. The remainder of the pit will be backfilled using native rock and soil, regraded to conform to the surrounding ground surface, and reseeded using an approved seed mix. Noxious weeds will be controlled as necessary using approved methods.

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). 07/06/2012

Date of commencement of Site Investigation. 07/06/2012

Date of completion of Site Investigation. 08/24/2012

REMEDIAL ACTION DATES

Date of commencement of Remediation. 08/24/2012

Date of completion of Remediation. 08/30/2013

SITE RECLAMATION DATES

Date of commencement of Reclamation. 09/04/2013

Date of completion of Reclamation. 09/21/2013

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

Signed: Scott Canonico

Title: EHS Manager

Submit Date: _____

Email: scanonico@linenergy.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: _____

COA Type

Description

| | |
|--|--|
| | |
|--|--|

Attachment Check List

Att Doc Num

Name

| | |
|-----------|--------------------|
| 401185846 | RECLAMATION PLAN |
| 401186758 | ANALYTICAL RESULTS |

Total Attach: 2 Files

General Comments

User Group

Comment

Comment Date

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

Total: 0 comment(s)