

# State of Colorado Oil and Gas Conservation Commission

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Document Number:

401216644

Receive Date:

02/23/2017

Report taken by:

CARLOS LUJAN

## 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             | <b>Phone Numbers</b><br>Phone: (970) 2855207<br>Mobile: (970) 9482785 |
| Address: 600 TRAVIS STREET #1400     |                                |   |
| City: HOUSTON State: TX Zip: 77002   |                                |   |
| Contact Person: Tom Hogelin          | Email: thogelin@linnenergy.com |   |

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 10076

Initial Form 27 Document #: 401216644

#### 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 checked="" type="checkbox"/> 909.c.(1), Rule 905: Pit or PW vessel closure                  | <input checked="" 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 checked="" 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: LAND APPLICATION SITE           | Facility ID: 443363 | API #: _____           | County Name: GARFIELD                      |
| Facility Name: Chevron C20 596                 | Latitude: 39.606065 | Longitude: -108.194801 |  |
| ** correct Lat/Long if needed: Latitude: _____ |                     | Longitude: _____       |  |
| QtrQtr: NENW                                   | Sec: 20             | Twp: 5S                | Range: 96W Meridian: 6 Sensitive Area? Yes |

#### SITE CONDITIONS

General soil type - USCS Classifications ML

Most Sensitive Adjacent Land Use Grazing

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

## 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    |
|-----------|----------------|-----------------------------------|-------------------|
| No        | SOILS          | Confined to bermed treatment area | Visual inspection |

### INITIAL ACTION SUMMARY

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

Composite sample of the material to be treated was analyzed to establish a baseline.

### 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 ):

Landfarming and pit bottom soil sample lab results attached.

#### 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 16

Number of soil samples exceeding 910-1 9

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

Approximate areal extent (square feet) 11250

### NA / ND

-- Highest concentration of TPH (mg/kg) 16051

-- Highest concentration of SAR 37

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 2

### 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.

Material was buried on site.

## 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.

Treated soils were buried on site with minimum 3' cover

## Soil Remediation Summary

☐ In Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Air sparge / Soil vapor extraction  
\_\_\_\_\_ Natural Attenuation  
\_\_\_\_\_ Other \_\_\_\_\_

☒ Ex Situ

\_\_\_\_\_ No Excavate and offsite disposal  
\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_  
\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_  
\_\_\_\_\_ Yes Excavate and onsite remediation  
\_\_\_\_\_ Yes Land Treatment  
\_\_\_\_\_ No Bioremediation (or enhanced bioremediation)  
\_\_\_\_\_ No Chemical oxidation  
\_\_\_\_\_ No 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.

## REMEDATION PROGRESS UPDATE

### PERIODIC REPORTING

**Frequency:** ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other Final reports attached

**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: \_\_\_\_\_

## 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.

Interim reclamation has previously taken place on this well pad. Treated drill cuttings were mixed with clean soil and buried in the pit with an excess of 3' of cover. Pad slopes were reclaimed not to exceed 3:1 slope. Horizontal ripping, stair-stepping, grooving, tracking, or pocketing on slopes were utilized to reduce erosion. Surface roughening was utilized on all areas receiving revegetation. Topsoil was spread over all areas to be revegetated. These areas are identified on the attached drawing. Seed applied by drill was covered by weed-free straw, mulched and crimped. A copy of the seed mix is attached. Monthly inspections for physical signs of compaction alleviation will be conducted by a qualified inspector while conducting stormwater inspections except when the location is in winter exclusion status. The location will be inspected during the growing season by a qualified contractor capable of identifying noxious weeds and selecting and applying the appropriate chemical to eradicate those noxious weeds.

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? \_\_\_\_\_

## 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. 07/08/2013

Date of completion of Remediation. 08/03/2014

### SITE RECLAMATION DATES

Date of commencement of Reclamation. 09/02/2014

Date of completion of Reclamation. 09/16/2014

### OPERATOR COMMENT

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

Signed: Tom Hogelin

Title: Construction Foreman

Submit Date: 02/23/2017

Email: thogelin@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: CARLOS LUJAN

Date: 03/03/2017

Remediation Project Number: 10076

### 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

|           |                           |
|-----------|---------------------------|
| 401216644 | FORM 27-INITIAL-SUBMITTED |
| 401216844 | RECLAMATION PLAN          |
| 401216853 | RECLAMATION PLAN          |
| 401216869 | REMEDIAL ACTION PLAN      |
| 401216872 | REMEDIAL ACTION PLAN      |

Total Attach: 5 Files

## **General Comments**

### User Group

### Comment

### Comment Date

|               |   |            |
|---------------|---|------------|
| Environmental | Reports submitted by Linn Energy indicate that impacted material was removed from the pit; material was land treated and spoil samples indicated compliance with Table 910-1 after treatment. Treated material mixed with clean soil was used to back fill the pit. No Further Action is Required. Pit Facility ID # 414666 and Land Treatment ID #443363 will be CLOSED. Form 27 Remediation Work Plan will have to be closed with a Supplemental e-form 27. | 03/03/2017 |
|---------------|---|------------|

Total: 1 comment(s)