

State of Colorado  
Oil and Gas Conservation Commission

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Document Number:  
401203752

Receive Date:

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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: <u>LINN OPERATING INC</u>	Operator No: <u>10516</u>	<b>Phone Numbers</b>
Address: <u>600 TRAVIS STREET #1400</u>		Phone: <u>(970) 2855207</u>
City: <u>HOUSTON</u> State: <u>TX</u> Zip: <u>77002</u>		Mobile: <u>(907) 9482785</u>
Contact Person: <u>Tom Hogelin</u>	Email: <u>thogelin@linnenergy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**  
Remediation Project #: \_\_\_\_\_ Initial Form 27 Document #: 401203752

**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>Update landfarming plan for drill cuttings</u>

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

Facility Type: <u>LAND APPLICATION SITE</u>	Facility ID: <u>443343</u>	API #: _____	County Name: <u>GARFIELD</u>
Facility Name: <u>Long Ridge M15 595</u>	Latitude: <u>39.610318</u>	Longitude: <u>-108.048274</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSW</u>	Sec: <u>15</u>	Twp: <u>5S</u>	Range: <u>95W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

**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:

- |                                                          |                                                                |                                                   |
|----------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------|
| <input checked="" type="checkbox"/> <b>E&amp;P Waste</b> | <input checked="" type="checkbox"/> <b>Other E&amp;P Waste</b> | <input type="checkbox"/> <b>Non-E&amp;P Waste</b> |
| <input type="checkbox"/> Produced Water                  | <input type="checkbox"/> Workover Fluids                       | _____                                             |
| <input type="checkbox"/> Oil                             | <input type="checkbox"/> Tank Bottoms                          |                                                   |
| <input type="checkbox"/> Condensate                      | <input type="checkbox"/> Pigging Waste                         |                                                   |
| <input type="checkbox"/> Drilling Fluids                 | <input type="checkbox"/> Rig Wash                              |                                                   |
| <input checked="" type="checkbox"/> Drill Cuttings       | <input type="checkbox"/> Spent Filters                         |                                                   |
|                                                          | <input checked="" type="checkbox"/> Pit Bottoms                |                                                   |
|                                                          | <input type="checkbox"/> 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 will be 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 ):

Samples will be taken semi-annually (twice a year) in the summer and fall.

- Phase I - Composite sample will be taken from 8 locations on the spoil pile in early summer and analyzed.
  - o If composite sample passes, discrete samples will be taken to confirm the composite samples.
  - o If discrete samples pass, spoil will be buried per COGCC rules and interim reclamation of the pad will take place.
  - o If discrete samples fail, landfarming will continue.
  - o If composite sample fails, landfarming will continue.
- Phase II - Composite sample will be taken from 8 locations on the spoil pile in late fall and analyzed.
  - o Procedure will be the same as Phase I

### 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 9

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) 6100

--          Highest concentration of SAR 25

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 will be treated 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.

Treated soils will be buried on site with minimum 3' cover.

## Soil Remediation Summary

In Situ

Ex Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

\_\_\_\_\_ Excavate and offsite disposal

\_\_\_\_\_ Chemical oxidation

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_

\_\_\_\_\_ Air sparge / Soil vapor extraction

\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_

\_\_\_\_\_ Natural Attenuation

Yes \_\_\_\_\_ Excavate and onsite remediation

\_\_\_\_\_ Other \_\_\_\_\_

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? 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.

This well pad has perviously had a partial interim reclmatin performed with an allowance for approximatley 2,600 cubic yards of material that will be landfarmed. When all COGCC Table 910-1 standards are met, this material will be buried on site with a minimum of 3' of cover. Topsoil will be spread over the buried material, the surface roughened, seeded, and weed-free certified straw will be spread over the area and crimped in place. 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? 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? 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. 04/17/2012

Actual Spill or Release date, if known. \_\_\_\_\_

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/06/2012

Date of commencement of Site Investigation. \_\_\_\_\_

Date of completion of Site Investigation. \_\_\_\_\_

### REMEDIAL ACTION DATES

Date of commencement of Remediation. 06/27/2012

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: Tom Hogelin

Title: Construction Foreman

Submit Date: \_\_\_\_\_

Email: thogelin@linnenergy.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

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### Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
401203783	REMEDIAL ACTION PLAN
401203786	RECLAMATION PLAN
401203788	RECLAMATION PLAN

Total Attach: 3 Files

### General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)