

State of Colorado  
Oil and Gas Conservation Commission

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Report taken by:  
Steven Arauza

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 INFORMATON

Name of Operator: <u>LARAMIE ENERGY LLC</u>	Operator No: <u>10433</u>	<b>Phone Numbers</b>
Address: <u>1401 SEVENTEENTH STREET #1400</u>		Phone: <u>(970) 8125311</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u>		Mobile: <u>( )</u>
Contact Person: <u>Lorne c Prescott</u>	Email: <u>lprescott@laramie-energy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**  
Remediation Project #: 11426 Initial Form 27 Document #: 401564122

**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 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 type="checkbox"/> Other _____

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

Facility Type: <u>PIT</u>	Facility ID: <u>291970</u>	API #: _____	County Name: <u>GARFIELD</u>
Facility Name: <u>CC POND 3/604-41-32</u>	Latitude: <u>39.557361</u>	Longitude: <u>-108.218677</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>Lot 12</u>	Sec: <u>4</u>	Twp: <u>6S</u>	Range: <u>97W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

**SITE CONDITIONS**

General soil type - USCS Classifications OH Most Sensitive Adjacent Land Use Ranching

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**

None

# SITE INVESTIGATION PLAN

## TYPE OF WASTE:

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste      | <input checked="" type="checkbox"/> Other E&P Waste  | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" 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 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
UNDETERMINED	SOILS	Unknown	TBD subsequent to liner removal.

## INITIAL ACTION SUMMARY

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

This action/description is intended to accommodate the closure and reclamation of Pond 3, Facility 291970. Subsequent to dewatering the Pond the residual sediment was analyzed and determined to contain hydrocarbon constituents. Prior to liner removal, this materials will be removed and shipped to a licensed waste facility.

## 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 ):

Subsequent to the removal of the existing liner, the soils beneath the liner will be sampled at discrete locations. Samples will be gathered from both the sides and bottom of the Pond. Analytical results from the soil sampling will be assessed against the COGCC Table 910-1 constituent levels.

### Proposed Groundwater Sampling

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

There are no ground water wells in proximity to this location.

### Proposed Surface Water Sampling

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

There are no surface water features in proximity to this location.

## Additional Investigative Actions

Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

This location (Pond 3) has been used exclusively for storage of fresh water since 2015. Water samples were taken annually in order to confirm that only fresh water was in the Pond. Laramie was not pumping any water into the Pond, the fluids that have accumulated since Laramie acquired the asset have come from precipitation and snowmelt. The remaining water (fluid) has been pumped from the pond and the residual sediments were analyzed according to Table 910-1 criteria. The results indicated there were hydrocarbons in the sediment/sludge, thus Laramie will clean the liner, gather the sediment and ship it to a licensed waste disposal facility. The liner will also be shipped to a licensed waste disposal facility.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 10

Number of soil samples exceeding 910-1 4

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

Approximate areal extent (square feet) 16432

### NA / ND

--            Highest concentration of TPH (mg/kg) 973

--            Highest concentration of SAR 32

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 10

### 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) 10

Volume of liquid waste (barrels) 0

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.

If required, after the liner removal, any contaminated soils that cannot be remediated in place will be removed via back hoe or other earthmoving equipment.

## **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.

Laramie believes the integrity of the liner system was maintained throughout the use of the facility. As such, Laramie does not anticipate the soil beneath the liner will require remediation. If the criteria levels prohibit in place treatment, the materials will be hauled to a licensed facility for disposal.

## **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
- \_\_\_\_\_ 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.

# 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? \_\_\_\_\_

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? Yes \_\_\_\_\_

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? Yes \_\_\_\_\_

Does Groundwater meet Table 910-1 standards? Yes \_\_\_\_\_

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.

Laramie intends to remove this Pond and reclaim the facility. As noted in the Site Investigation portion of this report, this location (Pond 3) has been used exclusively for storage of fresh water since 2015. Water samples were taken annually in order to confirm that only fresh water was in the Pond. Laramie was not pumping any water into the Pond, the fluids that have accumulated since Laramie acquired the asset have come from precipitation and snowmelt. The remaining water (fluid) has been pumped from the pond and the residual sediments were analyzed according to Table 910-1 criteria. The results indicated there were hydrocarbons in the sediment/sludge, thus Laramie will clean the liner, gather the sediment and ship it to a licensed waste disposal facility. The liner will also be shipped to a licensed waste disposal facility. Proposed soil sampling points are included as an attachment to this document.

Sept 12, 2018: This facility was reclaimed. The liner was disposed of at a licensed facility as noted above. soils samples were collected at the points identified in the attached documents. Initial lab results from two soil sample locations (E Mid Bot, W Bot) indicated Table 910-1 exceedences for DRO and GRO. approximately 10 cu/yds of soil was removed from each sample point and sent to a disposal facility. subsequent sampling and analytical data demonstrated criteria levels were below Table 910-1. Additionally, samples demonstrated exceedences for Arsenic (which is characteristic of soils in this region) and for SAR. The entire pit location was filled in (to a depth greater than 3 feet) with clean fill material originally stored at this this location. This pit is closed/reclaimed and the location will be used for drilling operations in early 2019.

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? No \_\_\_\_\_

If NO, does the seed mix comply with local soil conservation district recommendations? No \_\_\_\_\_

## 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). 06/15/2018

Date of commencement of Site Investigation. 06/15/2018

Date of completion of Site Investigation. 06/20/2018

### **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 06/15/2018

Date of completion of Remediation. 06/22/2018

### **SITE RECLAMATION DATES**

Date of commencement of Reclamation. 06/15/2018

Date of completion of Reclamation. 07/13/2018

**OPERATOR COMMENT**

Sept 12, 2018: This facility was reclaimed. The liner was disposed of at a licensed facility as previously noted above. Soils samples were collected at the points identified in the attached documents. Initial lab results from two soil sample locations (E Mid Bot, W Bot) indicated Table 910-1 exceedences for DRO and GRO. approximately 10 cu/yds of soil was removed from each sample point and sent to a disposal facility. Subsequent sampling and analytical data demonstrated criteria levels were below Table 910-1. Additionally, all samples demonstrated exceedences for Arsenic (which is characteristic of soils in this region) and three demonstrated high SAR levels. Subsequent to the confirmation data from the second sample set, the entire pit location was filled in (to a depth greater than 3 feet) with clean fill material originally stored at this this location. This pit is closed/reclaimed and the location will be used for drilling operations in early 2019.

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

Signed: Lorne C Prescott \_\_\_\_\_

Title: Reg & Enviro Compliance \_\_\_\_\_

Submit Date: 10/10/2018 \_\_\_\_\_

Email: lprescott@laramie-energy.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: Steven Arauza \_\_\_\_\_

Date: 10/10/2018 \_\_\_\_\_

Remediation Project Number: 11426 \_\_\_\_\_

**COA Type****Description**

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**

401760168	FORM 27-SUPPLEMENTAL-SUBMITTED
401760245	ANALYTICAL RESULTS
401760246	ANALYTICAL RESULTS
401760247	ANALYTICAL RESULTS
401760248	AERIAL IMAGE
401760250	AERIAL IMAGE
401790662	ANALYTICAL RESULTS
401790689	OTHER

Total Attach: 8 Files

**General Comments****User Group****Comment****Comment Date**

Environmental	Analytical results table for W. Bot sample collected on 6/15/2018 has EC and pH swapped.	10/10/2018
Environmental	Based on review of information presented it appears that no further action is necessary at this time, and COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if surface and/or ground water is found to be impacted, then further investigation and/or remediation activities will be required at the site.	10/10/2018
Environmental	Updated Remediation Completion Report to document Operator's NFA request and SAR exceedances below 3'. Updated Implementation Schedule to provide remediation dates. Updated Soil Sample Summary based on confirmation sample results.	10/03/2018

Total: 3 comment(s)