

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
404681279

Receive Date:

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Report taken by:

**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 ECOM 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.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

**OPERATOR INFORMATION**

|  |  |                             |
|--|--|-----------------------------|
| Name of Operator: <u>LARAMIE ENERGY LLC</u>            | Operator No: <u>10433</u>                | <b>Phone Numbers</b>        |
| Address: <u>1700 LINCOLN ST STE 3950</u>               |  | Phone: <u>(970) 9019007</u> |
| City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80203</u> |  | Mobile: <u>( )</u>          |
| Contact Person: <u>Matt Kasten</u>                     | Email: <u>mkasten@laramie-energy.com</u> |                             |

**PROJECT, PURPOSE & SITE INFORMATION**

**PROJECT INFORMATION**

Remediation Project #: 13584 Initial Form 27 Document #: 402010154

**PURPOSE INFORMATION**

- Rule 913.c.(1): Pit or Cuttings Trench closure.
- Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- Rule 913.g: Changes of Operator.
- Rule 915.b: Request to leave elevated inorganics in situ.
- Other: Site Investigation as per 906.c

**SITE INFORMATION**

No  Multiple Facilities

|  |                            |                               |   |
|--|----------------------------|-------------------------------|---|
| Facility Type: <u>SPILL OR RELEASE</u>         | Facility ID: <u>463436</u> | API #: _____                  | County Name: <u>MESA</u>  |
| Facility Name: <u>Debeque Water Facility</u>   | Latitude: <u>39.326526</u> | Longitude: <u>-108.245922</u> |   |
| ** correct Lat/Long if needed: Latitude: _____ |                            | Longitude: _____              |   |
| QtrQtr: <u>SESW</u>                            | Sec: <u>29</u>             | Twps: <u>8s</u>               | Range: <u>97w</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u> |

**SITE CONDITIONS**

General soil type - USCS Classifications GM 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 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 type="checkbox"/> Pit Bottoms                 |  |
|  | <input type="checkbox"/> Other (as described by EPA) | _____                                  |

## **DESCRIPTION OF IMPACT**

| Impacted?    | Impacted Media | Extent of Impact | How Determined                     |
|--------------|----------------|------------------|------------------------------------|
| UNDETERMINED | GROUNDWATER    | Undetermined     | Sample collection and lab analysis |
| UNDETERMINED | SOILS          | Undetermined     | Sample collection and lab 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.

Fluids detected in leak detection sump 3/19/19. Both impoundment and fluids from sump collected for lab analysis. Filling of pond ceased. Residual fluids accumulating in LD sump are being pumped back into impoundment. Laramie arranged for electronic assessment of liner. Monitoring Wells installed by previous operator sampled. Electronic assessment of liner has detected a single compromise at SE corner approximately 10 feet from top of impoundment (see attached report). Results from analysis of fluids from Monitoring Wells indicates very low DRO hits, Laramie orders additional sampling of old MWs. The second round of sampling indicates DRO hits but Laramie suspects the existing geology may be contributing to the lab results or the lab methods may be contributing. The fact that the DRO hits are very low and no other constituents are identified in the results is inconsistent with Laramie's experience in assessing potential subsurface contamination. Laramie has ordered another set of samples collected on April 16, they will be sent to two separate labs for analysis. As of April 16 no fluid/water has accumulated in the newly drilled MWs. Laramie's assessment of potential subsurface contamination is ongoing.

## **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 ):

Soil samples were collected during the drilling of the new monitoring wells. See attached

### **Proposed Groundwater Sampling**

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

Water samples have been collected from the existing monitoring wells. see attached

### **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 ):

Delineation of the horizontal and vertical extent of any potential fluid migration is ongoing. Laramie has not discovered unambiguous evidence that fluids from the impoundments have migrated to the subsurface soils and groundwater. Root cause of the liner compromise is unknown. There is no evidence of a causative agent or action related to the compromise. Laramie surmises that a portion of the liner seam was weakened but there is no way to be certain if this resulted from a construction issue or a manufacturer defect. Laramie's implementation of our E&P Waste Management protocols include ongoing monitoring of leak detection systems/sumps. Laramie will also check the new (currently dry) monitoring wells on a weekly basis for any fluid accumulations. This is our best action to prevent reoccurrence and/or discover liner compromise(s).

# SITE INVESTIGATION REPORT

## **SAMPLE SUMMARY**

### **Soil**

Number of soil samples collected 0  
Number of soil samples exceeding 915-1 \_\_\_\_\_  
Was the areal and vertical extent of soil contamination delineated? \_\_\_\_\_  
Approximate areal extent (square feet) \_\_\_\_\_

### **NA / ND**

\_\_\_\_\_ Highest concentration of TPH (mg/kg) \_\_\_\_\_  
\_\_\_\_\_ Highest concentration of SAR \_\_\_\_\_  
\_\_\_\_\_ BTEX > 915-1 \_\_\_\_\_  
\_\_\_\_\_ Vertical Extent > 915-1 (in feet) \_\_\_\_\_

### **Groundwater**

Number of groundwater samples collected 2  
Was extent of groundwater contaminated delineated? Yes  
Depth to groundwater (below ground surface, in feet) 82  
Number of groundwater monitoring wells installed 0  
Number of groundwater samples exceeding 915-1 0

\_\_\_\_\_ ND Highest concentration of Benzene (µg/l) \_\_\_\_\_  
\_\_\_\_\_ ND Highest concentration of Toluene (µg/l) \_\_\_\_\_  
\_\_\_\_\_ ND Highest concentration of Ethylbenzene (µg/l) \_\_\_\_\_  
\_\_\_\_\_ ND Highest concentration of Xylene (µg/l) \_\_\_\_\_  
\_\_\_\_\_ NA Highest concentration of Methane (mg/l) \_\_\_\_\_

### **Surface Water**

0 Number of surface water samples collected  
0 Number of surface water samples exceeding 915-1  
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.

Source material not displaying impacts to be removed.

### **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.

Quarterly sampling will occur for life of facility. Outstanding COAs need reviewed as Laramie anticipates that REM could be closed when all due diligence is completed.

### **Soil Remediation Summary**

In Situ

Ex Situ

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

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

\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Air sparge / Soil vapor extraction  
\_\_\_\_\_ Natural Attenuation  
\_\_\_\_\_ Other \_\_\_\_\_

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_  
Name of Licensed Disposal Facility or ECMC 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

### Approved Reporting Schedule:

Quarterly     Semi-Annually     Annually     Other

### Request Alternative Reporting Schedule:

Semi-Annually     Annually     Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

**Report Type:**     Groundwater Monitoring     Land Treatment Progress Report     O&M Report  
 Other \_\_\_\_\_

## Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

Based on the current COI provided by Acord, Laramie Energy has a total of \$16MM of sudden & accidental pollution. The primary layer in the General Liability Policy is \$1MM per occurrence and a \$15MM umbrella totaling \$16MM. Estimated cost is less than \$7,000 p/y for sampling

Operator anticipates the remaining cost for this project to be: \$ 7000 \_\_\_\_\_

## 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 \_\_\_\_\_

ECMC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-ECMC Disposal Facility: \_\_\_\_\_

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_

E&P waste (liquid) description \_\_\_\_\_

ECMC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-ECMC Disposal Facility: \_\_\_\_\_

# REMEDIATION COMPLETION REPORT

## REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No \_\_\_\_\_

If YES:

Compliant with Rule 913.h.(1).

Compliant with Rule 913.h.(2).

Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards? \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? \_\_\_\_\_

Does Groundwater meet Table 915-1 standards? \_\_\_\_\_

Is additional groundwater monitoring to be conducted? \_\_\_\_\_

Operator shall comply with the ECMC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

## 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 of this location will occur at the time of facility closure.

Is the described reclamation complete? \_\_\_\_\_

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

Interim

Final

Did the Surface Owner provide the seed mix? \_\_\_\_\_

If YES, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

Did the local soil conservation district provide the seed mix? \_\_\_\_\_

### SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. \_\_\_\_\_

Proposed date of completion of Reclamation. \_\_\_\_\_

## IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

### PRIOR DATES

Date of Surface Owner notification/consultation, if required. \_\_\_\_\_

Actual Spill or Release date, or date of discovery. \_\_\_\_\_

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/20/2019

Proposed site investigation commencement. 03/20/2019

Proposed completion of site investigation. \_\_\_\_\_

### REMEDIAL ACTION DATES

Proposed start date of Remediation. \_\_\_\_\_

Proposed date of completion of Remediation. \_\_\_\_\_

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

\_\_\_\_\_

**OPERATOR COMMENT**

Q1 update. Operator missed Lab reports. MW 1, 4, & 5 dry.

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

Signed: Matt Kasten

Title: Sr. Env Coordinator

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

Email: mkasten@laramie-energy.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with ECMC Rules and applicable orders and is hereby approved.

ECMC Approved: \_\_\_\_\_

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

Remediation Project Number: 13584

**COA Type****Description**

| COA Type | Description |
|----------|-------------|
| 0 COA    |             |

**ATTACHMENT 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**

|           |                    |
|-----------|--------------------|
| 404681281 | ANALYTICAL RESULTS |
| 404681282 | SITE MAP           |

Total Attach: 2 Files

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

| User Group | Comment | Comment Date        |
|------------|---------|---------------------|
|            |         | Stamp Upon Approval |

Total: 0 comment(s)