FORM 27 Rev 3/16

State of Colorado
Oil and Gas Conservation Commission

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Report taken by: ALEX FISCHER

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: LARAMIE ENERGY LLC Operator No: 10433
Address: 1401 SEVENTEENTH STREET #1401
City: DENVER State: CO Zip: 80202
Contact Person: Joan Proulx

Phone Numbers
Phone: (970) 263-3641
Mobile: ( )
Email: jproulx@laramie-energy.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 15898 Initial Form 27 Document #: 402458711

PURPOSE INFORMATION

- [ ] 901.e. Sensitive Area Determination
- [ ] 909.c.(1), Rule 905: Pit or PW vessel closure
- [ ] 909.c.(2), Rule 906: Spill/Release Remediation
- [ ] 909.c.(3), Rule 907.e.: Land treatment of oily waste
- [ ] 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure
- [ ] 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
- [ ] Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
- [x] Rule 909.e.(2)B.: Closure of remediation project
- [ ] Rule 906.c.: Director request
- [ ] Other

SITE INFORMATION

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

Facility Type: SPILL OR RELEASE Facility ID: 476992 API #: County Name: MESA
Facility Name: Piceance 28-05 Pad Latitude: 39.250660 Longitude: -107.779118
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SWNW Sec: 28 Twp: 9S Range: 93W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications GW
Most Sensitive Adjacent Land Use Ranching
Is domestic water well within 1/4 mile? No
Is surface water within 1/4 mile? Yes
Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
  - [x] Produced Water
  - [ ] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	approx. 293 sq ft	sampling results/visual

INITIAL ACTION SUMMARY

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

During normal operations, pumper discovered the 3" nipple between the produced water tank and load out valve was leaking, the tank was isolated and the produced water transferred to another tank in the containment ring. The nipple was thrn removed and a corrosion hole was discoverd in the threaded section (see attached photo). Initial estimate is 1-5 bbls leaked into the containment. Approximately one bbl or less leaked out of the containment on to the ground. Fluids in side the containment will be place back into the produced water tanks. Laramie is investigating the cause of the discharge including pulling the tank out of containmnet and pulling the liner back to determine impact below liner. Laramie will inspect the tank for any additional possibility of holes and if found the tank will be replaced and Laramie will follow-up with a Form 19 supplemental with the results of the investigation.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

- [x] Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

Three grab samples were collected 6/18/2020 at the origin and terminus of the spill, as well as below the excavation and a background sample. On 6/30/2020, two grab samples were obtained below the containment.

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

- [x] Additional alternative investigative actions described in attached Site Investigation Plan (summary):

Additional sampling occurred due to the elevated readings of SAR.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected: 12

Number of soil samples exceeeding 910-1: 5

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

Approximate areal extent (square feet): 293

NA / ND

-- Highest concentration of TPH (mg/kg): 0.114

-- Highest concentration of SAR: 81.1

BTEX > 910-1: No

Vertical Extent > 910-1 (in feet): 1

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?

One grab sample was obtained for a background sample.

☒ Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards): 16

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.

After the additional sampling for SAR, approximately 16 cu yards of the impacted soils were loaded onto trucks and delivered to Greenleaf for disposal.

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.

Dirt was excavated from the spill area on the pad to a depth of 18"-24". The excavated dirt was temporarily stored on the pad on a liner. Samples were collected 6/18/20.

The containment and 4 of the tanks were pulled the week of 6/20/2020. The containment was reduced in size to accommodate 4 tanks (rather than the original 8 tanks) due to decreased production on the pad. Samples were collected 6/30/2020 from below the containment.

Due to some of the sample results showing elevated SAR results, additional samples were collected 8/11/2020. No additional excavation occurred for the additional sampling.

All excavated dirt was sent to Greenleaf (16 cu yds).

No historical impacts were discovered during the remediation of this spill.Clean soil was brought to the pad to replace the excavated soil. The tank battery liner was replaced, and the tank was inspected for holes and returned to the battery.

Soil Remediation Summary

☐ **In Situ**

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

☒ **Ex Situ**

- Yes Excavate and offsite disposal
  - If Yes: Estimated Volume (Cubic Yards) 16
  - 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

- 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.

Groundwater was not impacted.

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:

There was no beneficial use of the E&P waste derived from this remediation project.

Volume of E&P Waste (solid) in cubic yards 16

E&P waste (solid) description Impacted soils

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Greenleaf

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

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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

Are the only residual soil impacts pH, SAR, or EC at depths greater than 3 feet below ground surface?

Does Groundwater meet Table 910-1 standards? Yes

Is additional groundwater monitoring to be conducted? No

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.

Final reclamation will occur at the end of the life of the facility.

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?

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. 06/17/2020

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/18/2020

Date of commencement of Site Investigation. 06/18/2020

Date of completion of Site Investigation. 08/11/2020

REMEDIAL ACTION DATES

Date of commencement of Remediation.

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:` Joan Proulx Title: Regulatory Analyst

Submit Date:` 10/28/2020 Email: jproulx@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: ALEX FISCHER Date: 10/28/2020

Remediation Project Number: 15898

COA Type	Description
	After review of the data presented, elevated levels of [SAR and pH] exist deeper than three feet below ground surface. Per guidance in FAQ 32, elevated levels of [SAR and pH] at three feet below ground surface or deeper should not adversely affect the successful reclamation of the site. If groundwater is found to be impacted, or if reclamation is not compliant with the 1000-series rules, additional remediation activities may be required at the site. It appears that no further action is necessary at this time and COGCC approves the closure request.
	Provide a written description of the area(s) excavated or a diagram illustrating the area (s) excavated and the depth of the excavation. Sixteen (16) cubic yards of impacted material were disposed of at GreenLeaf on 8/11/2020 at 11:22 a.m. and 2:09 p.m. Samples were collected in the area of the spill path and within the tank battery on 8/11/2020 from 10:00 a.m. to 10:40 a.m. Provide clarification.

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
402496724	FORM 27-SUPPLEMENTAL-SUBMITTED
402496729	ANALYTICAL RESULTS
402498895	OTHER
402498897	OTHER

Total Attach: 4 Files

General Comments

User Group	Comment	Comment Date
Environmental	Pushed to Draft.	10/09/2020
Environmental	Sample SS5 collected on 6/30/2020 at 6" bgs Constituents above Table 910-1 SAR=67.7 pH=9.37 On 8/11/2020 16 cubic yards of impacted material disposed at Greenleaf.	10/09/2020

Total: 2 comment(s)