FORM 27 Rev 3/16

State of Colorado
Oil and Gas Conservation Commission

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Document Number: 402648138
Receive Date: 04/05/2021
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: LARAMIE ENERGY LLC Operator No: 10433
Address: 1401 17TH STREET SUITE #1400
City: DENVER State: CO Zip: 80202
Contact Person: Matt Kasten Email: mkasten@laramie-energy.com

Phone Numbers
Phone: (970) 9019007
Mobile: (970) 9019007

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 4622 Initial Form 27 Document #: 200220428

PURPOSE INFORMATION

- [ ] 901.e. Sensitive Area Determination
- [ ] 909.c.(1), Rule 905: Pit or PW vessel closure
- [x] 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.
- [ ] 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: LOCATION Facility ID: 323903 API #: County Name: GARFIELD
Facility Name: CC 0605-01 Pad Latitude: 39.555766 Longitude: -108.247731
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SENW Sec: 5 Twp: 6S Range: 97W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications GC
Most Sensitive Adjacent Land Use RANGELAND
Is domestic water well within 1/4 mile? Yes
Is surface water within 1/4 mile? Yes
Is groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
  - [x] Produced Water
  - [ ] Oil
  - [x] 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	GROUNDWATER	2 springs	visual and water samples
Yes	SURFACE WATER	springs discharge into unnamed trib	visual and water samples

INITIAL ACTION SUMMARY

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

Installed Hesco containment berms around both springs and followed up with a dam downstream of the springs. Clean upstream water was bypassed around the affected area by flowing through a 6" poly pipe. Tracer dye was placed into the 605-1 production pit, confirming both leaks in pit liner and seepage of liquids from lined pit into shallow groundwater flow discharging into both springs. all contained water is being pumped to a frac tank and further trucked into Mesa water management storage ponds. installed both series of absorbent booms and straw bales to contain and capture any hydrocarbon liquids. Currently conducting daily suction of any floating hydrocarbon liquids at boom/straw bale locations as required. See workplan for additional info

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):

Proposed Groundwater Sampling

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

Continual quarterly groundwater sampling of wells when water and travel is permitted from installed wells. See attached diagrams

Proposed Surface Water Sampling

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

Continual quarterly surface water sampling of previously identified areas. See attached diagrams.

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: 0

Number of soil samples exceeeding 910-1: 0

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

Approximate areal extent (square feet): 0

NA / ND

Highest concentration of TPH (mg/kg):

Highest concentration of SAR:

BTEX > 910-1:

Vertical Extent > 910-1 (in feet):

Groundwater

Number of groundwater samples collected: 113

Was extent of groundwater contaminated delineated?: Yes

Depth to groundwater (below ground surface, in feet): 10`

Number of groundwater monitoring wells installed: 10

Number of groundwater samples exceeding 910-1: 5

-- Highest concentration of Benzene (µg/l): 507

-- Highest concentration of Toluene (µg/l): 344

-- Highest concentration of Ethylbenzene (µg/l): 164

-- Highest concentration of Xylene (µg/l): 2610

NA Highest concentration of Methane (mg/l):

Surface Water

41 Number of surface water samples collected

10 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?

Laramie will continue surface water monitoring in the drainage and springs. SVE operations on site are focused during warmer weather and previous o&m readings are attached.

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 removal of remaining impacts will be addressed by SVE trailer.

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.

Active SVE has had limited time to produce results for data, After 2021 data is collected from SVE trailer, Laramie will determine if SVE is effective for remediation approach and will be able to give an updated timeline on project.

Soil Remediation Summary

☒ **In Situ**

- ____ Bioremediation (or enhanced bioremediation)
- ____ Chemical oxidation
- Yes 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
- Yes 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.

Groundwater monitroing has been conducted since project discovery. Data located and is presented in Supplemental form 27 and attached. Continual quarterly monitoring is requested at site. See attached figures.

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? No

Do all soils meet Table 910-1 standards? _____

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? _____

Does Groundwater meet Table 910-1 standards? _____

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.

Reclamation will not be part of this project. If reclamation must occur, 1000 series rules will be followed and Reclamation Planning section will be updated accordingly.

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 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.

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/17/2008

Date of commencement of Site Investigation. 06/17/2008

Date of completion of Site Investigation.

REMEDIAL ACTION DATES

Date of commencement of Remediation. 06/19/2008

Date of completion of Remediation.

SITE RECLAMATION DATES

Date of commencement of Reclamation.

Date of completion of Reclamation.

OPERATOR COMMENT

Rock Springs update: Data missing from 2015 - 2016 not located. All attachements are corresponded to continual work from project aquisition from Oxy to Laramie. SVE O&M will be completed 2021 and presented in supplemental form 27(s) from data obtained. 2020 SVE Readings attached, comparison of data for 2021 needed to establish trend.

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

Signed:` Matt Kasten

Title: Project Manager

Submit Date:` 04/05/2021

Email: mkasten@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: 06/01/2021

Remediation Project Number: 4622

Condition of Approval

COA Type	Description
	Under Initial Action Summary, Operator writes "See workplan for additional info." No workplan is attached to this report. Operator shall submit a comprehensive project summary and workplan via a Supplemental Form 27. The Operator's project summary shall include initial delineation of impacts to soil, surface water, and groundwater as well as source removal/pit abandonment, soil boring advancement and SVE/monitoring well construction with corresponding logs. The Operator's workplan shall address evaluation of SVE system effectiveness and path forward for assessment of soil impacts.
	Per Rule 913.b.(2), the Operator will conduct sampling and analysis of soil, surface water, and groundwater to determine the horizontal and vertical extent of any contamination in excess of the cleanup concentrations in Table 915-1 for soil and groundwater. The Operator shall analyze samples for the complete Table 915-1 list and shall delineate the extent of impacts using the Table 915-1 Protection of Groundwater Soil Screening Level Concentrations.
	Operator shall collect sample(s) from comparable, nearby non-impacted native soil for purposes of establishing background soil conditions including pH, electrical conductivity (EC) and sodium adsorption ratio (SAR), per Rule 915.e.(2).D.

	In addition to BTEX, TPH-GRO, and TDS, the Operator shall analyze groundwater and surface water samples for napthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene, chloride, and sulfate in order to comply with Table 915-1.
	Operator shall provide quarterly updates via a Supplemental Form 27, per Rule 913.e.
5 COAs	

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
402648138	FORM 27-SUPPLEMENTAL-SUBMITTED
402648194	ANALYTICAL RESULTS
402648197	ANALYTICAL RESULTS
402648199	ANALYTICAL RESULTS
402648200	ANALYTICAL RESULTS
402648208	ANALYTICAL RESULTS
402648261	ANALYTICAL RESULTS
402648265	MAP
402648266	MAP
402648298	OTHER

Total Attach: 10 Files

General Comments

User Group	Comment	Comment Date
Environmental	COGCC GIS Online topographic map layer documents the location of a spring in the vicinity of the subject well pad. Under Description of Impact, Operator indicates that 2 springs are impacted.	06/01/2021

Total: 1 comment(s)