

State of Colorado Oil and Gas Conservation Commission

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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 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>LARAMIE ENERGY LLC</u>	Operator No: <u>10433</u>	Phone Numbers
Address: <u>1401 17TH STREET SUITE #1400</u>		Phone: <u>(970) 9019007</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Matt Kasten</u>	Email: <u>mkasten@laramie-energy.com</u>	Mobile: <u>(970) 9019007</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 5132 Initial Form 27 Document #: 2607960

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 checked="" 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 Facilities (in accordance with Rule 909.c.)

Facility Type: <u>LOCATION</u>	Facility ID: <u>334537</u>	API #: _____	County Name: <u>MESA</u>
Facility Name: <u>YT Ranch 17-5 Pad</u>		Latitude: <u>39.192611</u>	Longitude: <u>-107.910931</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>SWNW</u>	Sec: <u>17</u>	Twp: <u>10S</u>	Range: <u>94W</u>
		Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications GC Most Sensitive Adjacent Land Use IRRIGATED

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? Yes

Other Potential Receptors within 1/4 mile

SURFACE WATERS ~139' WEST TO GROVE CREEK.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- ☐ E&P Waste ☒ Other E&P Waste ☐ Non-E&P Waste
- ☐ Produced Water ☐ Workover Fluids
- ☐ Oil ☐ Tank Bottoms
- ☐ Condensate ☐ Pigging Waste
- ☐ Drilling Fluids ☐ Rig Wash
- ☐ Drill Cuttings ☐ Spent Filters
- ☐ Pit Bottoms
- ☒ Other (as described by EPA) Historical Pit

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	TBD	VISUAL AND SAMPLING
Yes	SOILS	TBD	BELL HOLE EXCAVATIONS
Yes	SURFACE WATER	300 FEET OF CREEK	VISUAL AND WATER SAMPLING

INITIAL ACTION SUMMARY

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

ON 7/12 BOOMS WERE IMMEDIATELY PLACED IN GROVE CREEK. A WATER SAMPLE WAS COLLECTED FROM A PRIMARY SEEP FOR QUALITATIVE ASSESSMENT. ON 7/15, NINE BELL HOLES WERE DUG AND SAMPLED DOWN GRADIENT OF THE PAD TO GAUGE GROUNDWATER AND TO AID IN DETERMINING THE SOURCE OF THE RELEASE. THE CREEK AND OBSERVED SEEPS DIRECTLY ADJACENT TO THE LOCATION HAVE BEEN FLAGGED AND SAMPLED. COMPLETE RESULTS ARE PENDING. GROUNDWATER AND SOME SOURCE MATERIAL WAS PUMPED FROM THE BELL HOLES TO ASSESS AQUIFER FLOW CHARACTERISTICS FOR POTENTIAL REMEDIATION METHOD SELECTION. SEE ATTACHED SITE DIAGRAM.

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):

2021 update. Over years of operator changes of project, water sampling and soil sampling has been conducted. Recent due diligence on soil excavation has determined that one area needs to be excavated and will be sampled accordingly. Excavation clearance will consist of sidewalls (4) and one bottom sample. Due to REM 5132 being open prior to Jan 15, 2021: Laramie is requesting all sampling to remain under Table 910-1, in anticipation of closure of 5132 for this calendar year.

Proposed Groundwater Sampling

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

Laramie is requesting Ground water sampling to remain quarterly and for previously granted reduced suite of BTEX analysis.

Proposed Surface Water Sampling

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

Laramie is requesting Surface water sampling to remain quarterly and for previously granted reduced suite of BTEX analysis.

Additional Investigative Actions

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

Remining impacted soils are determined to be in center of original excavation. With low water years, excavation is deemed best approach to remove remaining impacts and will confirm clearance with soil sampling. Impacted soil is not found below 13' from previous drilling delineation. Estimate of 25'x25'x10' (~220cy) will be removed for disposal at Greenleaf. The top 3' of material was imported in and will be stripped aside for beneficial reuse. Top 3' of material will be field screened, and if found impacted will be added to disposal pile.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 30

Number of soil samples exceeding 910-1 14

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 12000

NA / ND

-- Highest concentration of TPH (mg/kg) 3960

-- Highest concentration of SAR 11

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 13

Groundwater

Number of groundwater samples collected 547

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 15

Number of groundwater monitoring wells installed 12

Number of groundwater samples exceeding 910-1 10

-- Highest concentration of Benzene (µg/l) 3

-- Highest concentration of Toluene (µg/l) 7.4

-- Highest concentration of Ethylbenzene (µg/l) 0.57

-- Highest concentration of Xylene (µg/l) 9

NA Highest concentration of Methane (mg/l)

Surface Water

339 Number of surface water samples collected

14 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?

Up-gradient surface water and soil background samples were previously collected.

☐ 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?

After excavation efforts in 2019 approximately 585cy of soil was disposed of at Greenleaf (Tracking spreadsheet attached of documented loads from 8/20/2019 - 11/26/2019) Disposal tickets not located during due diligence but Laramie is still searching for documentation other than tracking sheet (tracking sheet sent to Greenleaf for ticket copies). Due diligence of past activities it is determined that there is impacted soil remaining within excavation. Drilling delineation to determine depth was completed 2020 along with sidewalls. Additional excavation is needed to removed impacted area. Impacted soils will be disposed of at Greenleaf. Soil samples will be collected to determine effectiveness.

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.

Remaining soil will be removed heavy machinery and disposed of at Greenleaf. Surface soil removed to access impacted area will be field screened via PID, and will be set aside for backfill if hydrocarbons are not detected during excavation. It is assumed that approximately 0' - 5' will be reused for backfill from comparison of recent boring log and PID field screening events. Total depth will be approximately 13' BGS, replicating recent boring samples and obtaining clearance at 13-15' (soil sample will be collected to ensure impact removal). Remaining impacts within water have had 2 quarters of compliance. At this moment, Laramie assumes during the 2019 excavation, source area of contamination (~585cy) was removed and depleted migration (Plume) of impacts. After excavation efforts, soil samples will be collected to ensure effectiveness of excavation.

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.

Laramie is requesting Ground/surface water will remain on quarterly sampling schedule to ensure compliance for 4 quarters and analyzed for BTEX. Soil excavation will commence after approval from COGCC (Request for reduced soil analysis on submittal tab for soil excavation clearance). Soil samples will be collected to ensure effectiveness. With low water year and winter, Laramie would want to pursue excavation winter/spring 2021. Once excavation begins, soil remediation will be completed within 1 month (sampling results, disposal, etc.). After succesful soil rememdiation, water sampling will be conducted with compliance for 4 quarters. Life of Remediation is expected to take 6 - 8 months total, since 2 quarters of clean water sampling has been displayed.

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) _____ 220

Name of Licensed Disposal Facility or COGCC Facility ID # _____

No _____ 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

Yes _____ 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.

A total of 12 wells are sampled quarterly for project. Up-gradient and down gradient compliance discovered by early personel. Due to multiple operator changes, length of project, a summary of analytical has been located but not all lab reports. Due diligence in finding reports envolved: aquisition data search, Lab records research, and cogcc database search. Lab reports for water sampling located only for 2018 to present and are attached. Due diligence in locating lab reports for ground water sampling are still ongoing.

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☒ Quarterly ☐ Semi-Annually ☐ Annually ☐ Other _____

Report Type: ☒ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report

☒ Other Remediation progress _____

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:

N/A

Volume of E&P Waste (solid) in cubic yards 220

E&P waste (solid) description soil with hydrocarbon impacts

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 N/A

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: _____

REMEDATION COMPLETION REPORT

REMEDATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No _____

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? No _____

Does Groundwater meet Table 910-1 standards? Yes _____

Is additional groundwater monitoring to be conducted? Yes _____

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.

After excavation, location will be recontoured to natural setting and seeded appropriately. Seed mix and weed prevention will be submitted in supplemental form 27 after landowner approval.

Answer to below questions is "NO" due to seeding/reclamation is TBD.

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? 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). _____ 07/21/2010

Date of commencement of Site Investigation. _____ 07/12/2010

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. _____ 07/17/2010

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

Updates/progress/data/next phase to REM 5132 attached and/or either outlined within Form 27 supplemental. Primary submittal of Form 27 is to get update of project and phase approach to excavate remaining soils for disposal. Laramie plans to have REM 5132 completed within 2021 and requests that project remains under Table 910-1 for both Soil and Water. Laramie is also requesting that remaining of SOIL impacts have a reduced analyte suite for TPH/BTEX for excavation clearance on upcoming soil removal. Water for project to remain as quarterly sampling and BTEX analysis as requested and granted in previous form submittals.

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: ` _____

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: _____

Date: _____

Remediation Project Number: 5132

COA Type**Description**

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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**

402579185	ANALYTICAL RESULTS
402579186	ANALYTICAL RESULTS
402579187	ANALYTICAL RESULTS
402579188	LOGS
402579189	MAP
402579190	MAP
402579199	ANALYTICAL RESULTS
402579212	ANALYTICAL RESULTS
402579213	ANALYTICAL RESULTS
402579217	ANALYTICAL RESULTS
402579320	OTHER
402579325	ANALYTICAL RESULTS
402586968	OTHER

Total Attach: 13 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)