

State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



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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>GUNNISON ENERGY LLC</u>	Operator No: <u>10515</u>	Phone Numbers
Address: <u>1801 BROADWAY #1200</u>		Phone: <u>(303) 888-4862</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Jessica Donahue</u>	Email: <u>Jessica.Donahue@oxbow.com</u>	Mobile: <u>(303) 888-4862</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 11424Initial Form 27 Document #: 401666950

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>SPILL OR RELEASE</u>	Facility ID: <u>455150</u>	API #: _____	County Name: <u>GUNNISON</u>
Facility Name: <u>Narrows Hi-vent release</u>		Latitude: <u>39.046550</u>	Longitude: <u>-107.406600</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>SENE</u>	Sec: <u>2</u>	Twp: <u>12S</u>	Range: <u>90W</u>
		Meridian: <u>6</u>	Sensitive Area? <u>No</u>

SITE CONDITIONS

General soil type - USCS Classifications MLMost Sensitive Adjacent Land Use Non crop land cattle grazingIs domestic water well within 1/4 mile? NoIs surface water within 1/4 mile? YesIs groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

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) _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
No	GROUNDWATER	Not applicable	Not applicable
Yes	SOILS	Salt & hydrocarbons 1' below srfc	Site investigation & soil sample analysis
No	SURFACE WATER	Not applicable	Not applicable
Yes	VEGETATION	Grass & shrub die off	Visual determination

INITIAL ACTION SUMMARY

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

Area of dead and stressed vegetation was discovered. Water line vent valve had separated likely due to ice formation. Water line was excavated, and valve was replaced and blocked as immediate response. The extent of damage was determined by third party soil sampling and visual investigation. A soil sample location map and preliminary analytical results were included as an attachment to the Supplemental Form 19 submittal.

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):

Preliminary soil samples were collected on May 17, 2018 from the impacted area. A total of five grab samples (two – analyzed for full Table 910-1; two – analyzed for Sodium adsorption ratio (SAR) and Electrical conductivity (EC); and one background sample analyzed for Table 910-1 list (minus hydrocarbons) were collected from approximately 0 to 1 feet below ground surface (ft-bgs). Results show mainly elevated SAR/EC levels within the impacted area. Elevated levels of DRO are present near the release origin. A soil sample location map and preliminary analytical results were included as an attachment to the Supplemental Form 19 submittal.

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

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

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 5

Number of soil samples exceeding 910-1 4

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

Approximate areal extent (square feet) 2300

NA / ND

-- Highest concentration of TPH (mg/kg) 682

-- Highest concentration of SAR 42

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) 0

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 910-1 0

NA Highest concentration of Benzene (µg/l) 0

NA Highest concentration of Toluene (µg/l) 0

NA Highest concentration of Ethylbenzene (µg/l) 0

NA Highest concentration of Xylene (µg/l) 0

NA Highest concentration of Methane (mg/l) 0

Surface Water

0 Number of surface water samples collected

0 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 background grab soil sample was collected outside of impacted area at an approximated depth of 0-1 feet below ground surface. The sample was analyzed for Table 910-1 minus hydrocarbons and will be referenced during final closure request. A soil sample location map and preliminary analytical results were included as an attachment to the Supplemental Form 19 submittal.

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

Volume of solid waste (cubic yards) 0

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.

Impacted soils will be removed from release area with track hoe or similar long reach excavation equipment. Stormwater controls (soil collection ditches/berms) will be placed down-gradient of the impacted area prior to source removal. Impacted soils will be disposed of at the Adobe Buttes Landfill operated by Delta County – a non COGCC facility. The cleanup will begin once disposal has been authorized by Adobe Buttes Landfill.

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.

Impacted soils will be removed from release area with track hoe or similar long reach excavation equipment. Stormwater controls (soil collection ditches/berms) will be placed down-gradient of the impacted area prior to source removal. Impacted soils will be removed in approximate 1 foot lifts and will either be temporarily stockpiled pending disposal transport or immediately hauled to the Adobe Buttes Landfill for disposal. The cleanup will begin once disposal has been authorized by Adobe Buttes Landfill.

After the first 1 foot lift is removed, three to four grab soil samples will be collected and analyzed for EC and SAR (where previously above the Table 910 allowable concentrations). If the results continue to exceed Table 910-1 allowable concentrations, additional 1-foot lifts will be removed, and samples collected until Table 910-1 concentrations have been reached or until the excavation has reached a depth of 3 ft-bgs, whichever occurs first. In addition, at the sample location near the release origin, TPH DRO will be analyzed until compliance with Table 910-1 concentrations has been reached.

When Table 910-1 concentrations have been achieved, the excavation will be backfilled with topsoil from GEC's topsoil stockpile area. Proper stormwater and stabilization BMPs will be installed during this reclamation phase. The area will be re-seeded with a landowner approved seed mix in the fall of 2018.

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) _____ 85

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

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.

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:

No beneficial reuse is anticipated.

Volume of E&P Waste (solid) in cubic yards 85

E&P waste (solid) description Salt and hydrocarbon impacted soils

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Adobe Buttes Landfill operated by Delta County

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? 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? 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.

Excavation will be backfilled with topsoil located at GEC's topsoil stockpile. Erosion control measures such as straw wattles and erosion control mats will be utilized for slope stabilization. The area will be seeded with a landowner approved mix during the fall of 2018.

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? Yes

If NO, does the seed mix comply with local soil conservation district recommendations? Yes

IMPLEMENTATION SCHEDULE

PRIOR DATES

Date of Surface Owner notification/consultation, if required. 05/17/2018

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 05/17/2018

Date of commencement of Site Investigation. 05/17/2018

Date of completion of Site Investigation. 05/17/2018

REMEDIAL ACTION DATES

Date of commencement of Remediation. 06/19/2018

Date of completion of Remediation. 08/14/2018

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

All contaminated soils have been removed to a depth of 36". Results show that salt is the only remaining contaminant at this depth. Location has been backfilled. The latest soil sampling results are attached.

Seeding will occur this fall.

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

Signed: Jessica Donahue

Title: Regulatory Supervisor

Submit Date: _____

Email: Jessica.Donahue@oxbow.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: 11424

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

401741643	ANALYTICAL RESULTS
401741651	ANALYTICAL RESULTS

Total Attach: 2 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)