

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Laurel Anderson

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.

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

OPERATOR INFORMATION

Name of Operator: <u>CRESTONE PEAK RESOURCES OPERATING LLC</u>	Operator No: <u>10633</u>	Phone Numbers Phone: <u>(303) 2947864</u> Mobile: <u>(303) 8293811</u>
Address: <u>555 17TH STREET SUITE 3700</u>		
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Jacob Evans</u>	Email: <u>jevans@civiresources.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 6559 Initial Form 27 Document #: 2216571

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 INFORMATION

No Multiple Facilities

Facility Type: <u>TANK BATTERY</u>	Facility ID: <u>453315</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Bangert 2-19 battery 2-19</u>	Latitude: <u>40.127462</u>	Longitude: <u>-104.814164</u>	
** correct Lat/Long if needed: Latitude: <u>40.126933</u>		Longitude: <u>-104.813002</u>	
QtrQtr: <u>NENE</u>	Sec: <u>19</u>	Twp: <u>2N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications GW Most Sensitive Adjacent Land Use Cropland
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

Water well 440', surface water 570'.

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 checked="" type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input checked="" 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
Yes	GROUNDWATER	To be determined	Laboratory Analysis
Yes	SOILS	To be determined	Laboratory 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.

In 2008, impacted soil was discovered beneath the buried line between the separator and condensate tank. In response to the soil impacts, multiple excavations were performed between 2008 and 2012 to remove impacted soil. Soil impacts were not delineated or entirely removed by excavation efforts. Excavation bases were not characterized, and soil impacts were left in place on the sidewall adjacent to the partially buried produced water vessel. Impacted groundwater was encountered when monitoring wells were installed in 2011. To address impacted groundwater, a mixture of activated carbon, nitrite, sulfate, phosphorus, and nitrogen was applied to the groundwater prior to backfilling the 2012 excavation to encourage microbial and chemical remediation of groundwater impacts. Additionally, Crestone completed subsurface injections of activated carbon and oxidizers in 2019. Multiple iterations of groundwater monitoring wells have been installed and destroyed at the site by excavation or facility decommissioning activities. After the facility was decommissioned in 2014, groundwater samples were collected by hand augering potholes in accordance with landowner permissions. The last groundwater samples were collected March 2020, and indicated MW04 exceeded Table 910-1 allowable limits for ethylbenzene and xylenes. Between March 2020 and January 2022, the landowner revoked permission to access the property which halted remediation investigation. Access permission for additional investigation has been renegotiated and reinstated as of Q1 2022. All soil and groundwater samples collected to-date were submitted for analysis of Table 910-1 constituents and compared to Table 910-1 standards.

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):

A site assessment to determine if residual impacts are present at the site will be scheduled. Soil samples will be submitted for analysis of TPH C6-36, organics, metals, EC, SAR, EC, pH, and Boron.

Proposed Groundwater Sampling

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

Groundwater monitoring wells will be installed and samples will be analyzed for BTEX, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and inorganic parameters.

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 4
Number of soil samples exceeding 915-1 1
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 1000

NA / ND

-- Highest concentration of TPH (mg/kg) 1010
NA Highest concentration of SAR
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 12

Groundwater

Number of groundwater samples collected 74
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 12
Number of groundwater monitoring wells installed 0
Number of groundwater samples exceeding 915-1 39

-- Highest concentration of Benzene (µg/l) 1360
-- Highest concentration of Toluene (µg/l) 240
-- Highest concentration of Ethylbenzene (µg/l) 1840
-- Highest concentration of Xylene (µg/l) 6220
NA Highest concentration of Methane (mg/l)

Surface Water

0 Number of surface water samples collected
 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? Yes

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

The source was removed through excavation of impacted soil above COGCC standards. Additional source removal may be considered subsequent to site assessment activities. Soil samples collected will be analyzed for Table 915-1 TPH C6-36, organics, metals, EC, SAR, pH, and boron. Due to an active Eagle nest the assessment was scheduled for the summer/fall of 2023. Landowner has denied access to his property after several attempts by Crestone Land. No further work is scheduled at this time.

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.

Additional site remediation will be discussed subsequent to site assessment activities. Contingent on site assessment results and active remediation the proposed date to achieve a no further action will be in November 2025.

Soil Remediation Summary

In Situ Ex Situ

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

Yes Excavate and offsite disposal
If Yes: Estimated Volume (Cubic Yards)
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)
Yes Chemical oxidation
No Air sparge / Soil vapor extraction
Yes Natural Attenuation
Yes 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 monitoring wells will be installed to delineate dissolved phase impacts. Groundwater samples will be collected on a quarterly basis for analysis of BTEX, naphthalene, 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, and inorganic parameters.

Does the previous reply indicate consideration of background concentrations? _____

Does Groundwater meet Table 915-1 standards? No

Is additional groundwater monitoring to be conducted? Yes

Operator shall comply with the COGCC 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 will be in accordance with COGCC 1000 series rules.

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 provide the seed mix? No

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

Did the local soil conservation district provide the seed mix? No

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. 12/01/2008

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/01/2008

Proposed site investigation commencement. 12/01/2008

Proposed completion of site investigation. 12/01/2008

REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/01/2008

Proposed date of completion of Remediation. 11/28/2025

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:

The landowner is flood irrigating his crops. The remediation proposed completion date has been changed.

OPERATOR COMMENT

Landowner has denied access to his property. Annual reporting is proposed. If the landowner agrees to installation of monitoring wells, reporting will default back to quarterly.

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

Signed: Jacob Evans

Title: Environmental Advisor

Submit Date: 11/02/2023

Email: jevans@civiresources.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: Laurel Anderson

Date: 11/21/2023

Remediation Project Number: 6559

COA Type**Description**

	ECMC agrees to the alternative reporting schedule. Operator shall submit a Supplemental Form 27 within 45 days of the landowner granting access.
1 COA	

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**

403577856	FORM 27-SUPPLEMENTAL-SUBMITTED
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Total Attach: 1 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)