

State of Colorado
Oil and Gas Conservation Commission

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402890783
Receive Date:
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Report taken by:
CHRIS CANFIELD

Site Investigation and Remediation Workplan (Initial 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
Address: <u>1801 CALIFORNIA STREET #2500</u>	City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u>	Phone: <u>(303) 7744017</u>
Contact Person: <u>Schuyler Hamilton</u>	Email: <u>SHamilton@CiviResources.com</u>	Mobile: <u>(720) 9251820</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 21354 Initial Form 27 Document #: 402890783

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

Yes Multiple Facilities

Facility Type: <u>LOCATION</u>	Facility ID: <u>321484</u>	API #: _____	County Name: <u>BOULDER</u>
Facility Name: <u>HARSCH-62N69W 27NWNE</u>	Latitude: <u>40.114530</u>	Longitude: <u>-105.100390</u>	
** correct Lat/Long if needed: Latitude: <u>40.112761</u>		Longitude: <u>-105.101428</u>	
QtrQtr: <u>NWNE</u>	Sec: <u>27</u>	Twp: <u>2N</u>	Range: <u>69W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>480825</u>	API #: _____	County Name: <u>BOULDER</u>
Facility Name: <u>Harsch 42-27</u>	Latitude: <u>40.106048</u>	Longitude: <u>-105.096846</u>	
** correct Lat/Long if needed: Latitude: <u>40.112761</u>		Longitude: <u>-105.101428</u>	
QtrQtr: <u>SESE</u>	Sec: <u>27</u>	Twp: <u>2N</u>	Range: <u>69W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications SM

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

Irrigation canal, occupied structures, and residential area

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 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	Investigation pending
Yes	SOILS	To be determined	Investigation pending

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 September 14, 2021, a flowline between the well and separator failed a pressure test at the Harsch 42-27 Battery (Location ID: 321484), indicating a potential release of an unknown volume of production fluids. Form 19 Initial (document number 402811540) was submitted to notify the COGCC of the reportable release; however, due to miscommunication, the report incorrectly cited Location ID 321319 as the spill location instead of the correct Location ID 321484. A correction will be submitted in the Form 19 supplemental to close out the Spill/Release Point ID 480825. The location passed a pressure test in May 2020 and has been shut in since June 2021. Initial site investigation was conducted October 8, 2021 to characterize potential impacts associated with the release. Four characterization potholes (SB01-SB04) were advanced along the failed flowline path within the boundaries of the working surface. One background pothole (BKG01) was advanced outside of the working surface. Soil samples were collected from just beneath the depth of the buried line to characterize potential soil impacts. Groundwater was encountered during site investigation at approximately 4 feet below ground surface (bgs), and a groundwater sample was collected from the pothole location demonstrating the greatest degree of groundwater hydrocarbon sheen to characterize potential dissolved phase impacts. A background groundwater sample was also collected from BKG01. Soil and groundwater samples were submitted for analysis of Table 915-1 organic and inorganic constituents of concern. Characterization soil samples exceeded Table 915-1 allowable limits for soil suitability for reclamation constituents and metals. The characterization groundwater sample (SB01_GW) exceeded Table 915-1 allowable limits for benzene. See Figure 2 for sample locations and Tables 1 and 2 for analytical data.

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):

Crestone proposes to expose the failed flowline, to inspect the line for visual evidence of failure point(s), and to collect additional characterization samples from the areas displaying the greatest potential for impacts as determined by line integrity, soil staining, and odor. Collected soil samples will be field-screened with a photoionization detector (PID) and submitted for all Table 915-1 organic and inorganic constituents of concern. Analytical results will be screened against Table 915-1 Groundwater Protection Standards. A reduced analyte list may be requested in the future based on characterization sample analytical results. Additional soil background samples may be collected and analyzed for inorganic constituents of concern.

Proposed Groundwater Sampling

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

Additional groundwater samples may be collected during flowline exposure to further characterize confirmed groundwater impacts. Once soil impacts are characterized and delineated, Crestone will propose a groundwater remediation plan.

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 6
Number of soil samples exceeding 915-1 6
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 5000

NA / ND

ND Highest concentration of TPH (mg/kg) _____
-- Highest concentration of SAR 13.8
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 6

Groundwater

Number of groundwater samples collected 2
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 4'
Number of groundwater monitoring wells installed 0
Number of groundwater samples exceeding 915-1 2

-- Highest concentration of Benzene (µg/l) 88
-- Highest concentration of Toluene (µg/l) 27
-- Highest concentration of Ethylbenzene (µg/l) 2.1
-- Highest concentration of Xylene (µg/l) 42
NA Highest concentration of Methane (mg/l) _____

Surface Water

0 Number of surface water samples collected
0 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?

Soil and groundwater background samples were collected from pothole BKG01. Further characterization and delineation of soil and groundwater impacts are needed in order to determine the validity of the background sample location.

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?

Additional soil characterization and groundwater delineation investigations are needed. See Proposed Soil Sampling and Proposed Groundwater Sampling.

REMEDIAL ACTION PLAN

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Soils and groundwater may be removed and transported to a licensed facility. Transport and disposal records will be kept on file under usual and customary practice and are available upon request. Additional remediation methodologies may be proposed in future submittals.

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.

Soil inorganic impacts and groundwater organic impacts have been confirmed in the release area. Results of the initial site investigation are summarized in Initial Action Summary and site investigation documentation is attached. Crestone proposes to expose the failed flowline, to inspect the line for visual evidence of failure point(s), and to collect additional characterization samples from the areas displaying the greatest potential for impacts as determined by line integrity, soil staining, and odor. Collected soil samples will be field-screened with a photoionization detector (PID) and submitted for all Table 915-1 organic and inorganic constituents of concern. Site investigation is tentatively scheduled for the week of January 17, 2022 pending Boulder County approval of the soil grading plan. A soil and groundwater remediation plan will be devised and proposed once analytical data from additional characterization samples are evaluated and Boulder County grants approval to conduct groundwork activities.

Soil Remediation Summary

In Situ

_____ Bioremediation (or enhanced bioremediation)
_____ Chemical oxidation
_____ 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
_____ 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 impacts were identified by SB01_GW. A groundwater remediation plan is pending additional soil characterization and delineation. Crestone acknowledges the obligation to install groundwater monitoring wells as needed to delineate groundwater impacts and to monitor the affected remediation area until results fall within Table 915-1 allowable limits for four consecutive quarters.

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other

Request Alternative Reporting Schedule:

Semi-Annually Annually Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

Report Type: Groundwater Monitoring Land Treatment Progress Report O&M Report
 Other Site Investigation Proposal

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: _____

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.

All disturbance resulting from flowline excavation/daylighting will be reclaimed in accordance with 1000 Series regulations following investigation and remedial operations. Clean fill or topsoil will be imported if necessary and the disturbance will be recontoured to match preexisting and reference area grade. The surface will be prepared for return to irrigated crop cultivation by the surface owner or drill seeded by Crestone upon surface owner request.

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? _____

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

Did the local soil conservation district provide the seed mix? _____

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. 09/14/2021

Actual Spill or Release date, or date of discovery. 09/14/2021

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/08/2021

Proposed site investigation commencement. 10/08/2021

Proposed completion of site investigation. 06/30/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/01/2022

Proposed date of completion of Remediation. 06/30/2022

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:

OPERATOR COMMENT

This form has been submitted to open a Remediation Project Number for Spill/Release Point ID 480825 and to propose additional site investigation. Site investigation is tentatively planned for the week of January 17, 2022 pending Boulder County approval of the soil grading plan. Please find attached results from initial site investigation including Topographic Map, Site Map, Lab Results Tables, and Lab Reports.

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

Signed: Schuyler Hamilton

Title: Environmental Specialist

Submit Date: 12/13/2021

Email: SHamilton@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: CHRIS CANFIELD

Date: 12/20/2021

Remediation Project Number: 21354

Condition of Approval

COA Type

Description

<u>COA Type</u>	<u>Description</u>
0 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

<u>Att Doc Num</u>	<u>Name</u>
402890783	FORM 27-INITIAL-SUBMITTED
402897001	SITE INVESTIGATION REPORT

Total Attach: 2 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)