

State of Colorado  
Oil and Gas Conservation Commission

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



Document Number:  
402943009  
Receive Date:  
03/31/2022  
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>	<b>Phone Numbers</b>
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 #: 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:**

- 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
UNDETERMINED	GROUNDWATER	To be determined	Investigation pending
UNDETERMINED	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.

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 ):

To determine whether soil hydrocarbon impacts have naturally attenuated, Crestone proposes to advance approximately six investigative soil borings: four borings around the perimeter of the previous excavation boundary, one boring within the previous excavation area, and one background boring upgradient of the investigation area. See the attached Proposed Sample Locations Map for details. Additional soil borings may be installed at the discretion of field personnel based on field observations. Soil will be logged and field screened, and at least one soil sample from each boring will be submitted for analysis of Table 915-1 soil constituents of concern. Background soil sample(s) will be submitted for Table 915-1 inorganic soil constituents. A reduced analyte list may be requested in future submittals based on analytical results.

**Proposed Groundwater Sampling**

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

To determine whether groundwater hydrocarbon impacts have naturally attenuated, Crestone proposes to collect two grab groundwater samples: one characterization sample from SB04 and one background sample. SB04 was selected due to its proximity to soil impacts which were left in place in 2012 and proximity to the last documented groundwater exceedance in MW04. See the attached Proposed Sample Locations Map for details. Additional groundwater samples may be collected at the discretion of field personnel based on field observations. Investigation groundwater samples will be submitted for analysis of Table 915-1 groundwater constituents of concern, and the background sample will be submitted for analysis of Table 915-1 inorganic groundwater constituents. A reduced analyte list may be requested in future submittals based on analytical results.

**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?

See Proposed Sampling Plan.

## 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.

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 methodologies may be proposed in subsequent proposals.

### REMEDICATION 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.

See Initial Action Summary for a review of site investigation history. Between March 2020 and February 2022, the landowner revoked permission to access the property which halted remediation investigation. Access permission for additional investigation has been renegotiated with limited permissions. Crestone proposes to advance approximately 6 soil borings to collect soil and groundwater samples for Table 915-1 analysis to determine whether the previous impacts have naturally attenuated. See Proposed Sampling Plan and the attached Proposed Sample Locations Map for details. If analytical results for all soil and groundwater samples are within Table 915-1 allowable limits, Crestone intends to request closure for Remediation Project Number 6559. The described site investigation will be completed once the existing wildlife nesting conflict is no longer present, likely Q3 2022, pending continued landowner permission, weather, and safety considerations.

### **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**

- \_\_\_\_\_ No Bioremediation ( or enhanced bioremediation )
- \_\_\_\_\_ Yes Chemical oxidation
- \_\_\_\_\_ No Air sparge / Soil vapor extraction
- \_\_\_\_\_ Yes Natural Attenuation
- \_\_\_\_\_ Yes Other COGAC \_\_\_\_\_

### **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.

See Proposed Groundwater Sampling Plan.

# REMEDIATION 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: \_\_\_\_\_

# REMEDIATION COMPLETION REPORT

## REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No \_\_\_\_\_

If YES:

Compliant with Rule 913.h.(1).

Compliant with Rule 913.h.(2).

Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards? \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? \_\_\_\_\_

Does Groundwater meet Table 915-1 standards? \_\_\_\_\_

Is additional groundwater monitoring to be conducted? \_\_\_\_\_

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 activities will be completed in accordance with 1000 Series Rules, in collaboration with the landowner, and reported in a Form 4 (Sundry Notice) with proper documentation to demonstrate compliance with requirements for final reclamation.

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. 02/10/2009

Proposed completion of site investigation. 04/07/2022

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/01/2008

Proposed date of completion of Remediation. 10/01/2019

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 propose additional site investigation activities to determine whether previous soil and groundwater impacts have naturally attenuated. Please find a Topographic Map and Proposed Sample Locations Map attached.

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

Signed: Shuyler Hamilton

Title: Environmental Specialist

Submit Date: 03/31/2022

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: Laurel Anderson

Date: 04/20/2022

Remediation Project Number: 6559

**Condition of Approval****COA Type****Description**

	COGCC approves of the proposed soil boring locations. Soil samples collected from each boring will be from the interval(s) displaying the highest degree of impacts. Note: Operator did not indicate the proposed background soil boring location on the Proposed Sample Locations figure provided.
	Operator shall provide boring logs in accordance with standard environmental practices. This includes at a minimum; lithology description, USCS classifications, PID readings, sample collection depths, depth to water, and well construction details (when applicable).
	Operator shall submit reports of site investigation and progress of remediation including results of sampling activities on a quarterly basis or more often until the remediation project is closed. Operator shall include a site map, laboratory analytical analytical reports and an analytical summary table compared to Table 915-1 standards.
3 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**

402943009	FORM 27-SUPPLEMENTAL-SUBMITTED
403001061	SITE INVESTIGATION PLAN

Total Attach: 2 Files

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

		Stamp Upon Approval
--	--	---------------------

Total: 0 comment(s)