FORM 27 Rev 4/21

State of Colorado
Oil and Gas Conservation Commission

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Report taken by: CHRIS CANFIELD

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 INFORMATON

Name of Operator: CRESTONE PEAK RESOURCES OPERATING LLC Operator No: 10633

Phone Numbers

Address: 1801 CALIFORNIA STREET #2500 Phone: (303) 7743985
City: DENVER State: CO Zip: 80202 Mobile: (720) 2365525
Contact Person: David Tewkesbury Email: David.Tewkesbury@CrestonePR.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 13348 Initial Form 27 Document #: 402015162

PURPOSE INFORMATION

- [ ] Rule 913.c.(1): Pit or Cuttings Trench closure.
- [X] Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- [X] 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.
- [X] 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: LOCATION Facility ID: 329863 API #: County Name: WELD
Facility Name: MATHEWS 'B' UNIT-61N66W 14SWSE Latitude: 40.047219 Longitude: -104.740268
** correct Lat/Long if needed: Latitude: 40.046578 Longitude: -104.740144
QtrQtr: SWSE Sec: 14 Twp: 1N Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 467044 API #: County Name: WELD
Facility Name: Mathews B Unit 1 Latitude: 40.046578 Longitude: -104.740144
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SWSE Sec: 14 Twp: 1N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Idle field

Is domestic water well within 1/4 mile? Yes

Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

Occupied structures 1/4 mile to South

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [X] **E&P Waste**
  - [X] Produced Water
  - [ ] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	To be determined	Investigation pending
Yes	SOILS	76' x 123' x 32' bgs	Field-screening and 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.

Form 27 (doc #402015162) proposed to characterize the soils beneath the previously removed produced water vessel with a soil boring to 10 feet below ground surface (10' bgs) (SB-01). The soil sample collected from this boring at 7.5-10' bgs identified soil impacts in excess of Table 910-1 allowable limits. F19is (doc #402125356) was submitted to report soil impacts to the state. Soil impacts were further characterized by installation of soil borings B1-B7 in December 2020. Excavation and onsite soil treatment were used to delineate and remediate soil impacts under Table 910-1.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

[X] Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

Soil impacts were delineated with excavation and soil sampling in early 2021. Composite samples will be collected within the footprint of all contaminated and treatment stockpiles at a rate of one composite sample per 500 square feet. Stockpile footprint samples will be analyzed for Table 910-1 soil constituents of concern. A hollow stem auger will be utilized to advance monitoring wells in and around the former excavation area as needed to delineate groundwater impacts. Soils will be logged and field-screened using a photoionization detector (PID). If field-screening identifies suspected soil impacts, soil samples will be submitted as needed for characterization and delineation.

Proposed Groundwater Sampling

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

Approximately 7 additional monitoring wells will be installed to delineate groundwater impacts to the southeast. Groundwater samples will be analyzed for Table 915-1 groundwater constituents of concern. One or more background groundwater samples may be collected to establish allowable limits for inorganic constituents of concern.

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 **NA / ND**

Number of soil samples collected 93 -- Highest concentration of TPH (mg/kg) 15170

Number of soil samples exceeeding 915-1 7 -- Highest concentration of SAR 26.85

Was the areal and vertical extent of soil contamination delineated? Yes BTEX > 915-1 Yes

Approximate areal extent (square feet) 9300 Vertical Extent > 915-1 (in feet) 32

Groundwater

Number of groundwater samples collected 18 -- Highest concentration of Benzene (µg/l) 3390

Was extent of groundwater contaminated delineated? No -- Highest concentration of Toluene (µg/l) 6610

Depth to groundwater (below ground surface, in feet) 30` -- Highest concentration of Ethylbenzene (µg/l) 775

Number of groundwater monitoring wells installed 11 -- Highest concentration of Xylene (µg/l) 10100

Number of groundwater samples exceeding 915-1 12 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?

Groundwater sample BK-1 was collected May 14, 2021 to establish native levels of total dissolved solids, chloride ions, and sulfate ions in groundwater.

☐ 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?

Groundwater impacts will be delineated by additional monitoring well installation and will be monitored on a quarterly basis. Samples will be collected and analyzed for Table 915-1 constituents of concern.

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.

No soil has been removed from the site. Approximately 1600 cubic yards of impacted and potentially impacted soils were treated onsite with oxidizers.

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.

Grab soil samples were collected from the base and sidewalls of the excavation to verify vertical and horizontal delineation of impacts. Impacted soils were excavated, stockpiled, and treated on site via ex-situ oxidation. Treatment stockpiles were composite sampled to verify compliance with COGCC Table 910-1 allowable limits for TPH and BTEX prior to backfilling. Contaminated groundwater was encountered at approximately 30' bgs during excavation activities, and activated carbon (COGAC) was applied to the base of the excavation before backfilling.
Groundwater monitoring wells were installed May 6 through May 14, 2021. Additional monitoring wells will be installed as needed to delineate Table 915-1 groundwater constituents of concern. Additional in-situ treatments, such as COGAC, may be implemented to address groundwater contamination.

Soil Remediation Summary

☐ **In Situ**

Bioremediation (or enhanced bioremediation)

Chemical oxidation

☒ **Ex Situ**

Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards)

Air sparge / Soil vapor extraction

Natural Attenuation

Other

Name of Licensed Disposal Facility or COGCC Facility ID #

Yes Excavate and onsite remediation

No Land Treatment

No Bioremediation (or enhanced bioremediation)

Yes Chemical oxidation

No Other

Groundwater Remediation Summary

No Bioremediation (or enhanced bioremediation)

Yes Chemical oxidation

No Air sparge / Soil vapor extraction

Yes Natural Attenuation

Yes Other Activated carbon (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.

11 groundwater monitoring wells were installed May 2021, and approximately 7 additional monitoring wells will be installed to delineate groundwater impacts. Groundwater samples will be collected and submitted for Table 915-1 groundwater constituents of concern. Groundwater will continue to be monitored on a quarterly basis until all constituents of concern are within Table 915-1 allowable limits for four consecutive quarters.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

[X] 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

[X] Other Remedial Investigation Update

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 will be completed per the 1000 series rules.

Is the described reclamation complete? _____

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. 07/30/2019

Actual Spill or Release date, or date of discovery. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/29/2019

Proposed site investigation commencement. 04/29/2019

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 01/20/2021

Proposed date of completion of Remediation.

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 satisfy the quarterly reporting requirement. Please find monitoring well installation and Q2 2021 groundwater data attached. Additional monitoring wells will be installed in July 2021, treatment stockpile footprint samples are tentatively scheduled to be collected September 2021, and Q3 2021 groundwater samples are tentatively scheduled to be collected August 2021.

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

Signed:` Chris Rice Title: Environmental Technician

Submit Date:` 07/30/2021 Email: Christopher.Rice@CrestonePR.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: 08/26/2021

Remediation Project Number: 13348

Condition of Approval

COA Type	Description

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
402757122	FORM 27-SUPPLEMENTAL-SUBMITTED
402766479	REMEDIATION PROGRESS REPORT

Total Attach: 2 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)