

State of Colorado Oil and Gas Conservation Commission

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Document Number:

402516184

Receive Date:

11/06/2020

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.

Refer to Rules 340, 905, 906, 907, 908, 909, and 910

OPERATOR INFORMATION

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 #: 15751

Initial Form 27 Document #: 402444966

PURPOSE INFORMATION

- | | |
|--|--|
| <input type="checkbox"/> 901.e. Sensitive Area Determination | <input checked="" type="checkbox"/> 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water |
| <input checked="" 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

Y Multiple Facilities (in accordance with Rule 909.c.)

Facility Type: LOCATION	Facility ID: 321533	API #: _____	County Name: BROOMFIELD
Facility Name: ALAUX F UNIT-61N68W 26NWNW	Latitude: 40.026688	Longitude: -104.976525	
** correct Lat/Long if needed: Latitude: 40.026733		Longitude: -104.976917	
QtrQtr: NWNW	Sec: 26	Twp: 1N	Range: 68W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE	Facility ID: 477251	API #: _____	County Name: BROOMFIELD
Facility Name: ALAUX F UNIT-61N68W 26NWNW	Latitude: 40.026733	Longitude: -104.976917	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWNW	Sec: 26	Twp: 1N	Range: 68W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SC

Most Sensitive Adjacent Land Use Cropland

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? No

Other Potential Receptors within 1/4 mile

Occupied structures

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
Yes	GROUNDWATER	To be determined	Investigation pending
Yes	SOILS	24' x 29' x 4' bgs	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.

This form has been prepared to support removal of the partially-buried produced-water vessel associated with this location. In accordance with COGCC Rule 905.b, soil samples, and groundwater samples if present, will be collected during closure of the buried or partially-buried produced-water vessel to assure compliance with COGCC Table 910-1 allowable limits. The initial investigation will be conducted using excavation equipment. Field screening of disturbed soils will be conducted during equipment removal, and samples will be collected for laboratory analysis. A reportable release has been documented at this location and is reported via a Form19is (Document # 402444937).

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):

One discrete grab soil sample will be collected from directly beneath the produced-water vessel and one discrete grab soil sample will be collected from one of the sidewalls of the excavation upon removal. These samples will be submitted for laboratory analysis of organic constituents (TPH and BTEX) and at least one sample will be submitted for laboratory analysis of inorganics (SAR, EC and pH). If concentrations above COGCC Table 910-1 allowable limits are confirmed or suspected through soil screening and/or laboratory analysis, and/or groundwater is encountered during removal activities, additional excavations may be conducted to further delineate horizontally and vertically. If the extent of impacts is reached and/or remaining impact analytical results are needed for future remediation activities, discrete soil samples will be collected from the sidewalls and base (if groundwater is not present) and analyzed for organic (TPH and BTEX) and inorganic (SAR, EC and pH) constituents.

Proposed Groundwater Sampling

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

If groundwater is encountered during excavation activities, one sample will be collected and analyzed for BTEX.

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):

Additional monitoring wells will be installed as needed to delineate the extents of dissolved phase impacts.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 8
Number of soil samples exceeding 910-1 4
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 696

NA / ND

-- Highest concentration of TPH (mg/kg) 314
-- Highest concentration of SAR 17
BTEX > 910-1 Yes
Vertical Extent > 910-1 (in feet) 2

Groundwater

Number of groundwater samples collected 8
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 4'
Number of groundwater monitoring wells installed 7
Number of groundwater samples exceeding 910-1 2

-- Highest concentration of Benzene (µg/l) 5200
-- Highest concentration of Toluene (µg/l) 840
-- Highest concentration of Ethylbenzene (µg/l) 180
-- Highest concentration of Xylene (µg/l) 1200
NA Highest concentration of Methane (mg/l)

Surface Water

0 Number of surface water samples collected
 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?

☐ 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 monitoring wells will be installed as needed to delineate the extents of dissolved phase impacts. Groundwater quality will be monitored on a quarterly basis until the results are below the Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 concentration levels for four consecutive quarters. Collected groundwater samples will be submitted for laboratory analysis of benzene, toluene, ethylbenzene, and xylenes (total) (BTEX) using Method 8260B.

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.

Once soil impacts were confirmed, additional excavations were conducted, and impacted soil and groundwater were removed and transported to a disposal facility. Approximately 70 cubic yards of soil were disposed of at the Front Range Landfill in Erie, Colorado. Transport and disposal records will be kept on file under usual and customary practice and are available upon request. Groundwater samples were analyzed for BTEX. Soil samples were collected and analyzed for organic (TPH and BTEX) and inorganic (pH, EC, and SAR) constituents. Excavation continued until the horizontal and vertical extents of the excavation were within COGCC Table 910-1 allowable limits for TPH and BTEX. Minor EC exceedances remain at 2-feet below ground surface on the North and East sidewalls at 4.85 and 5.55 mmhos/cm, respectively. Crestone Peak Resources (CPR) proposes to leave the EC exceedances in place until the battery is decommissioned at a later date. When the battery is decommissioned, the EC exceedances will be managed with reclamation.

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.

High nitrogen fertilizer was distributed into the excavation to promote groundwater hydrocarbon bioremediation and natural attenuation prior to backfilling. A safety data sheet (SDS) is provided as Attachment C. On August 25, 2020 Remington Technologies installed seven semi-permanent groundwater monitoring wells at the Alaux/Sears site and will conduct quarterly groundwater sampling events. Groundwater quality will be monitored on a quarterly basis until the results are below the Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 concentration levels for four consecutive quarters.

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) _____ 70
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

Yes _____ Bioremediation (or enhanced bioremediation)
☐ _____ Chemical oxidation
☐ _____ Air sparge / Soil vapor extraction
Yes _____ 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 monitoring will be conducted on a quarterly basis. Samples will be submitted for laboratory analysis of BTEX by USEPA Method 8260 until concentrations remain in full compliance with Table 910-1 for four consecutive quarters. 2020 third quarter samples were collected between September 1 and October 1, 2020. No sample was collected from TMW-1 because the well was found to be dry.

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? _____

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 _____

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? No _____

Does Groundwater meet Table 910-1 standards? Yes _____

Is additional groundwater monitoring to be conducted? Yes _____

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.

No reclamation will be performed on the site unless the entire facility is removed from service or the activities migrate outside the original facility footprint. If these occur, the disturbance will be reclaimed 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. Remaining EC exceedances will be managed when the reclamation process is initiated.

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 approve the seed mix? _____

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

IMPLEMENTATION SCHEDULE

PRIOR DATES

Date of Surface Owner notification/consultation, if required. 07/16/2020

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/16/2020

Date of commencement of Site Investigation. 07/28/2020

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 07/28/2020

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

This form serves to update the COGCC on groundwater monitoring well installation and initial quarterly groundwater sampling data at this site. Additional groundwater monitoring wells will be installed as needed to define the downgradient extents of groundwater contamination. Groundwater monitoring will be conducted on a quarterly basis and will continue until BTEX concentrations remain below COGCC Table 910-1 groundwater standards for four consecutive quarters. Please find the attached topographic map, groundwater contour map, lab summary table, laboratory reports, Remington Technology's boring logs, and fertilizer SDS.

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

Signed: Maggie Graham

Title: Senior Project Manager

Submit Date: 11/06/2020

Email: Maggie.Graham@apexcoss.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: 11/06/2020

Remediation Project Number: 15751

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

402516184	FORM 27-SUPPLEMENTAL-SUBMITTED
402526920	REMEDATION PROGRESS REPORT

Total Attach: 2 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)