FORM 27 Rev 3/16

State of Colorado
Oil and Gas Conservation Commission

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

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Report taken by: PETER GINTAUTAS

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 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 #: 6559 Initial Form 27 Document #: 2216571

PURPOSE INFORMATION

- [ ] 901.e. Sensitive Area Determination
- [ ] 909.c.(1), Rule 905: Pit or PW vessel closure
- [ ] 909.c.(2), Rule 906: Spill/Release Remediation
- [ ] 909.c.(3), Rule 907.e.: Land treatment of oily waste
- [ ] 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure
- [x] 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
- [ ] Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
- [ ] Rule 909.e.(2)B.: Closure of remediation project
- [ ] Rule 906.c.: Director request
- [ ] Other

SITE INFORMATION

N Multiple Facilites (in accordance with Rule 909.c.)

Facility Type: TANK BATTERY Facility ID: 453315 API #: County Name: WELD

Facility Name: Bangert 2-19 battery 2-19 Latitude: 40.127462 Longitude: -104.814164

** correct Lat/Long if needed: Latitude: 40.126933 Longitude: -104.813002

QtrQtr: NENE Sec: 19 Twp: 2N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

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

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:

- [x] **E&P Waste**
  - [ ] Produced Water
  - [ ] Oil
  - [x] 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	BENZENE 1820 UG/L	GROUNDWATER MONITORING
Yes	SOILS	30x30x7	EXCAVATION

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

PRODUCTION WAS CEASED AT THE TANK BATTERY TO ASSESS IMPACTS AND BEGIN REMEDIATION EFFORTS.

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 samples were previously collected and analyzed. If future soil samples are needed, they will be analyzed for TPH and BTEX.

Proposed Groundwater Sampling

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

Based on dissovled phase petroleum hydrocarbon impacts beneath the site, groundwater montoring will be conducted on a quarterly basis. Collected groundwater samples will be analyzed for BTEX until results are below COGCC Table 910-1 allowable limits for four consecutive quarters.

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: 0

Number of soil samples exceeeding 910-1: 0

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet): 0

NA / ND

-- Highest concentration of TPH (mg/kg)

-- Highest concentration of SAR

BTEX > 910-1: No

Vertical Extent > 910-1 (in feet): 0

Groundwater

Number of groundwater samples collected: 4

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet): 10`

Number of groundwater monitoring wells installed: 4

Number of groundwater samples exceeding 910-1: 1

ND Highest concentration of Benzene (µg/l)

-- Highest concentration of Toluene (µg/l): 1.73

-- 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 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?

Based on dissolved phase petroleum hydrocarbon impacts beneath the site, 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.

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 apractice and are available upon request. Additional methodologies may be proposed in subsequent proposals.

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.

From January 30, 2019 to February 1, 2019, a COGAC™ injection event was performed in the vicinity of monitoring wells MW-01, and MW-02. A total of 32 injection points were advanced with injection intervals ranging from 12 to 18 feet below ground surface. A total of 4,800 pounds of COGAC™ was introduced to the subsurface intervals.

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)
- Yes 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.

Quarterly monitoring of groundwater will occur. Grab samples will be collected at 4 monitoring wells and will be analyzed for BTEX using EPA method 8260. Due to landowners crops in the area, hand-auguring and landowner permission is required to sample and may lead to inconsistent sampling frequency.

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? _____

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? _____

Does Groundwater meet Table 910-1 standards? _____

Is additional groundwater monitoring to be conducted? _____

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.

THE LOCATION WILL BE RE-CONSTRUCTED AS A TANK BATTERY WITH THE APPROPRIATE ROAD-BASE MATERIAL.

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. _____

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). _____

Date of commencement of Site Investigation. 02/10/2009

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 07/07/2011

Date of completion of Remediation. 12/01/2012

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

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

Signed:` David Tewkesbury Title: Environmental Specialist

Submit Date:` 06/04/2020 Email: david.tewkesbury@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: PETER GINTAUTAS Date: 06/05/2020

Remediation Project Number: 6559

COA Type	Description
	Submit reports of site investigation and progress of remediation including results of sampling and analysis at a minimum on a quarterly basis until remediation is closed. For the period since December 2018 to present provide summary documentation of attempts to contact surface owner with respect to access and regarding the need for further site investigation and remediation activities. Future sampling and analysis events muct include determination of extent of impacts and hydrologic gradient as required by rule 901.b.(4)B. The horizontal and vertical extent of soil contamination shall be determined as required by Rul 910.b.(3)B. by April 1, 2021 and a plan to remediate any remaining impacts must be proposed at that same time.

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
402395947	FORM 27-SUPPLEMENTAL-SUBMITTED
402413451	MONITORING REPORT

Total Attach: 2 Files

General Comments

User Group	Comment	Comment Date
Environmental	Groundwater flow directions can vary seasonally or with local irrigation practice and have not been measured since late 2018. Adequate points of compliance to define the extent of impacts to groundwater are not in place and are required by rule. The extent of impacts to soil have also not been adequately established nor have impacted soils been removed and likely may be a source of groundwater impacts.	06/05/2020

Total: 1 comment(s)