FORM
27
Rev 3/16

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.
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) 774-3969

City: DENVER State: CO Zip: 80202 Mobile: ( )

Contact Person: John Gardner Email: john.gardner@crestonepr.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 11480 Initial Form 27 Document #: 401651038

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
- ☐ 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: WELL Facility ID: API #: 123-13922 County Name: WELD

Facility Name: FOSTER E UNIT 1 Latitude: 40.074611 Longitude: -105.022440

** correct Lat/Long if needed: Latitude: Longitude:

QtrQtr: SESE Sec: 5 Twp: 1N Range: 68W Meridian: 6 Sensitive Area? No

SITE CONDITIONS

General soil type - USCS Classifications: GC Most Sensitive Adjacent Land Use: Aggriculture

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

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
  - [x] Produced Water
  - [x] 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
UNDETERMINED	SOILS	To be determined	To be determined

INITIAL ACTION SUMMARY

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

Well Foster E Unit 1 was frac hit on March 6, 2018. Bradenhead pressure increased from 15 to 234 psi. The pressure was bled down to 11 psi. A Form 6 NOI was submitted on March 22, 2018. Bradenhead pressure was tested on April 4, 2018, 8 psi. On May 14, 2018 bubbling in some rain water was noted near the wellhead. On May 15, 2018 a plug was set in the production casing above the highest perforated zone. On May 21 and 22, 2018 two more plugs were set in the production casing at 2500 ft bgs and 1700 ft bgs.

After setting a plug in the production casing on May 22, 2018 and a series of plugs from the bottom of the surface casing up, a hole in the surface casing was located between 8 and 41 ft bgs. It appears that the hole in the surface casing was the route any gas and/or liquids travelled to ground surface. The top of the upper most aquifer lies at 100 ft bgs., well below the hole in the surface casing.

Gas samples from the production casing and the bradenhead were collected on May 15, 2018 and submitted to Isotech for analysis. Preliminary results are expected on June 1, 2018.

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):

During removal of the wellhead excavated soil will be monitored for any indication of staining. Eight soil grab samples will be collected from the base and/or side walls of the excavated area for analysis of GRO, DRO, and BTEX.

Proposed Groundwater Sampling

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

Groundwater may be encountered while removing the wellhead. If so 2 samples will be collected at initital encounter for analysis of GRO, DRO, BTEX, and RSK-175.

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: 3

Number of soil samples exceeeding 910-1: 0

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet): 0

NA / ND

-- Highest concentration of TPH (mg/kg): 47.5

NA Highest concentration of SAR:

BTEX > 910-1: No

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

Groundwater

Number of groundwater samples collected: 0

Was extent of groundwater contaminated delineated? No

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

Number of groundwater monitoring wells installed: 0

Number of groundwater samples exceeding 910-1: 0

NA Highest concentration of Benzene (µg/l):

NA Highest concentration of Toluene (µg/l):

-- Highest concentration of Ethylbenzene (µg/l):

-- Highest concentration of Xylene (µg/l):

-- Highest concentration of Methane (mg/l):

Surface Water

0 Number of surface water samples collected

0 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?

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.

Soil around wellhead will be excavated.

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.

specifications for the selected remedial action technology.
Soil around wellhead will be excavated.

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.

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.

To be determined

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). 06/04/2018

Date of commencement of Site Investigation.

Date of completion of Site Investigation.

REMEDIAL ACTION DATES

Date of commencement of Remediation.

Date of completion of Remediation.

SITE RECLAMATION DATES

Date of commencement of Reclamation.

Date of completion of Reclamation.

OPERATOR COMMENT

During the removal of wellhead soil was excavated to a depth of 10 ft. where hard rock was encountered. Groundwater was not encountered so no groundwater samples could be collected.
Analytical results from bradenhead samples will be submitted when they have been received from the lab.

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

Signed:` John Gardner

Title: Sr. Env. Specialist

Submit Date:` 07/16/2018

Email: john.gardner@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: 08/02/2018

Remediation Project Number: 11480

COA Type	Description

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
401703436	FORM 27-SUPPLEMENTAL-SUBMITTED
401703459	ANALYTICAL RESULTS
401703461	PHOTOS
401703464	PHOTOS
401703466	PHOTOS

Total Attach: 5 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)