

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:  
402657842  
Receive Date:  
04/15/2021  
Report taken by:  
RICK ALLISON

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: HIGHPOINT OPERATING CORPORATION	Operator No: 10071	<b>Phone Numbers</b> Phone: (720) 315-8934 Mobile: ( )
Address: 555 17TH ST STE 3700		
City: DENVER State: CO Zip: 80202		
Contact Person: Luke Kelly	Email: lkelly@bonanzacr.com	

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**  
Remediation Project #: 15497 Initial Form 27 Document #: 402389109

**PURPOSE INFORMATION**

<input type="checkbox"/> 901.e. Sensitive Area Determination	<input type="checkbox"/> 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
<input 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 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 checked="" type="checkbox"/> Other Per COGCC request to further address arsenic concentrations in spreadfield

**SITE INFORMATION**      N      Multiple Facilities ( in accordance with Rule 909.c. )

Facility Type: LAND APPLICATION SITE	Facility ID: 441079	API #: _____	County Name: WELD
Facility Name: BBC Krier 26-6-61	Latitude: 40.457612	Longitude: -104.180039	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: N2SW	Sec: 26	Twp: 6N	Range: 61W Meridian: 6 Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications SM      Most Sensitive Adjacent Land Use Agriculture

Is domestic water well within 1/4 mile? No      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**

None identified.

# SITE INVESTIGATION PLAN

## TYPE OF WASTE:

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> E&P Waste       | <input type="checkbox"/> Other E&P Waste             | <input type="checkbox"/> Non-E&P Waste |
| <input type="checkbox"/> Produced Water             | <input type="checkbox"/> Workover Fluids             | _____                                  |
| <input type="checkbox"/> Oil                        | <input type="checkbox"/> Tank Bottoms                |  |
| <input type="checkbox"/> Condensate                 | <input type="checkbox"/> Pigging Waste               |  |
| <input checked="" type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash                    |  |
| <input checked="" type="checkbox"/> Drill Cuttings  | <input type="checkbox"/> Spent Filters               |  |
|   | <input type="checkbox"/> Pit Bottoms                 |  |
|   | <input type="checkbox"/> Other (as described by EPA) | _____                                  |

## DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	22 acres	Post-incorporation soil sampling.

## INITIAL ACTION SUMMARY

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

On October 22, 2019, LT Environmental, Inc. conducted post-incorporation soil sampling at the Krier #3 spreadfield. Twelve 4-point composite samples were collected throughout the spreadfield area with soil collected from 0"-6" at each aliquot. All results were compliant with COGCC Table 910-1 concentration levels, except arsenic which ranged between 2.23 mg/kg and 10.9 mg/kg. Baseline pre-incorporation arsenic results in 2014 also exceeded the COGCC Table 910-1 standard with concentrations ranging between 1.96 mg/kg and 2.62 mg/kg. Results were presented in a Form 4 Document # 402292595.

On August 11, 2020, one soil boring was advanced at each of the 3 post-incorporation sample locations with the highest arsenic concentrations (CS02 = 10.9 mg/kg, CS10 = 8.84 mg/kg, CS01 = 6.78mg/kg). The purpose of the sampling was to vertically delineate the arsenic impact to within 1.25 times the maximum baseline arsenic level (2.62 mg/kg x 1.25 = 3.28 mg/kg). Grab soil samples were collected from each boring from 0-6 inches bgs and 2-foot bgs for laboratory analysis of arsenic. Analytical results indicated that arsenic concentrations in all 0-6 inch samples exceeded 1.25 times the maximum baseline concentration. All results of the 2-foot samples were below 1.25 times the maximum baseline concentration indicating that the impact was vertically delineated.

Based on these results, in March 2021 Highpoint tilled and ploughed the field to dilute surficial arsenic concentrations. On April 2, 2021, eleven 4-point composite samples (CS01 through CS10 and CS12) were collected throughout the spreadfield area. Soil was collected from 0"-6" at each aliquot. The samples were submitted for laboratory analysis of arsenic. Analytical results indicated that samples CS07, CS09, and CS12 were below 1.25 x maximum baseline concentration of 3.28 mg/kg. All remaining results were above the maximum baseline levels ranging from 3.43 mg/kg to 9.27 mg/kg.

## 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 ):

After development and implementation of a remediation plan additional confirmation samples will be collected from the 8 areas with remaining impact: CS01 through CS06, CS08, and CS10.

### Proposed Groundwater Sampling

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

### 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 26

Number of soil samples exceeding 910-1 26

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

Approximate areal extent (square feet) 26378  
19

### NA / ND

--            Highest concentration of TPH (mg/kg) 339

--            Highest concentration of SAR 2.55

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) 0'

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 910-1 0

           Highest concentration of Benzene (µg/l)           

           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?

Soil sampling was conducted in March 2014 prior to the incorporation of drill cuttings to determine background concentrations.

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? No \_\_\_\_\_

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

The field was tilled and ploughed in March 2021 to dilute surficial arsenic concentrations. Confirmation sampling in April 2021 indicates that 8 locations remain with elevated arsenic concentrations.

BCE is currently reviewing the site data and considering options for remediation. BCE will provide COGCC with a remediation plan by July 15, 2021.

## 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.

TBD.

## 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.

NA

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

Frequency:  Quarterly  Semi-Annually  Annually  Other By 7/15/2021

Report Type:  Groundwater Monitoring  Land Treatment Progress Report  O&M Report

Other Remediation plan

## WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No

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.

Not applicable, location is agricultural and area has already been returned to agriculture by the landowner.

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). 07/01/2020

Date of commencement of Site Investigation. 10/22/2019

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

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

Signed: Luke Kelly

Title: Senior Env. Specialist

Submit Date: 04/15/2021

Email: lkelly@bonanzacr.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: RICK ALLISON

Date: 04/23/2021

Remediation Project Number: 15497

## Condition of Approval

### COA Type

### Description

<u>COA Type</u>	<u>Description</u>
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

402657842	FORM 27-SUPPLEMENTAL-SUBMITTED
402658673	ANALYTICAL RESULTS
402658799	SOIL SAMPLE LOCATION MAP
402658806	ANALYTICAL RESULTS
402658867	ANALYTICAL RESULTS

Total Attach: 5 Files

## General Comments

### User Group

### Comment

### Comment Date

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)