

# 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:

403304159

Receive Date:

02/18/2023

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 INFORMATION

Name of Operator: CITY & COUNTY OF DENVER	Operator No: 17320	<b>Phone Numbers</b> Phone: (970) 946-3761 Mobile: ( )
Address: 8500 PENA BLVD AOB 10TH FLOOR		
City: DENVER	State: CO Zip: 80249-6340	
Contact Person: Jacob Harter	Email: jharter@cottonwoodconsulting.com	

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 25348 Initial Form 27 Document #: 403148067

#### PURPOSE INFORMATION

- ☐ Rule 913.c.(1): Pit or Cuttings Trench closure.  
☐ Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.  
☐ 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.  
☐ 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

No Multiple Facilities

Facility Type: WELL	Facility ID:	API #: 001-06829	County Name: ADAMS
Facility Name: BOX ELDER K 2	Latitude: 39.908900	Longitude: -104.712330	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: SWNW	Sec: 6	Twp: 2S	Range: 65W Meridian: 6 Sensitive Area? Yes

#### SITE CONDITIONS

General soil type - USCS Classifications OL  
 Most Sensitive Adjacent Land Use Agriculture  
 Is domestic water well within 1/4 mile? No  
 Is surface water within 1/4 mile? Yes  
 Is groundwater less than 20 feet below ground surface? No

## Other Potential Receptors within 1/4 mile

There is an unnamed, intermittent, irrigation-influenced drainage feature approximately 350 feet south of the well site.

## 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	SOILS	TBD	Field Screening & Analytical Results

### INITIAL ACTION SUMMARY

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

The City and County of Denver has plugged the BOX ELDER K 2 well and decommissioned the BOX ELDER K 1-3 tank battery and associated flowlines and production equipment. Initial assessment and sampling occurred on November 14, 2022, December 5, 2022, and January 5, 2023, and indicated soil impacts above COGCC standards as described in the Site Investigation Report section below. Proposed impact removal and confirmation sampling is described in the Proposed Sampling Plan below.

### 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 ):

Soil samples were collected for laboratory analysis of COGCC Table 915-1 constituents. One soil sample was collected from the wellhead, five soil samples from flowline segments, one soil sample from base of pit tank, one soil sample from former separator location, and one soil sample from onsite incinerator. Prior to collecting soil samples, soil was field screened using a PID and visual/olfactory observations.

#### Proposed Groundwater Sampling

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

No groundwater was encountered during the initial assessment and sampling conducted on November 14, 2022, December 05, 2022, and, January 5, 2023.

#### Proposed Surface Water Sampling

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

No surface water sampling was conducted.

### Additional Investigative Actions

☐ Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

Field personnel performed a visual/olfactory inspection of the site.

## SITE INVESTIGATION REPORT

### SAMPLE SUMMARY

**Soil**

Number of soil samples collected 9

Number of soil samples exceeding 915-1 2

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

Approximate areal extent (square 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

Number of groundwater samples exceeding 915-1

**NA / ND**

-- Highest concentration of TPH (mg/kg) 784.3

-- Highest concentration of SAR 6.67

BTEX &gt; 915-1 No

Vertical Extent &gt; 915-1 (in feet) 0

ND Highest concentration of Benzene (µg/l)

ND Highest concentration of Toluene (µg/l)

ND Highest concentration of Ethylbenzene (µg/l)

ND Highest concentration of Xylene (µg/l)

ND 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?

Background soil samples were collected from nearby, non-impacted native soil to establish background concentrations. Background samples were analyzed for Table 915-1 constituents. Background samples indicated pH values outside of the COGCC Table 915-1 range. Also, background samples indicated Arsenic values above the COGCC Table 915-1 standards. It is requested that background concentration be considered when evaluating the site for final closure.

☐ 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?

Initial assessment and sampling occurred on November 14, 2022, and, December 5, 2022, and January 05, 2023, and indicated soil impacts above COGCC standards. SS04 (Flowline) failed for Arsenic; SS08 (Pit Tank) failed for Arsenic, pH, SAR and TPH. Further site investigation may be needed to fully define the horizontal and vertical extent of impacts at the site. Please note, background samples indicated Arsenic values above the COGCC Table 915-1 standards and pH values outside of the COGCC Table 915-1 range. It is requested that background concentration be considered when evaluating the site for final closure. Additionally, based on initial assessment and sampling results, a reduced list of analytes is requested for future sampling. It is requested that analytes that did not exceed COGCC Table 915-1 standards be removed from future sampling.

**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.

Based on results from the initial site investigation, a remediation plan will be created to address site impacts and will be documented on a supplemental Form 27.

**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.

Remediation will consist of removal of impacted soil and disposal at an approved disposal facility. Remediation activities would commence in 2023 and NFA status is anticipated by the end of 2023.

**Soil Remediation Summary**☐ In Situ☒ Ex Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Air sparge / Soil vapor extraction  
\_\_\_\_\_ Natural Attenuation  
\_\_\_\_\_ Other \_\_\_\_\_

Yes \_\_\_\_\_ Excavate and offsite disposal  
\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 25  
\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_ 0  
\_\_\_\_\_ 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

#### Approved Reporting Schedule:

☒ 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☐ Other

### Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

The City and County of Denver is a registered operator with the COGCC. It has provided adequate financial assurance that meets or exceeds the requirements of COGCC Rule 703.b (see 2022 Financial Report; COGCC document number 1310886). Additionally, the City and County of Denver have adequate financial assets to complete all remediation activities specified in this Site Investigation Work Plan (Form 27).

Operator anticipates the remaining cost for this project to be: \$ 10000

### 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? No ☐

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 in accordance with COGCC 1000 Series Rules and per surface owner stipulations.

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. \_\_\_\_\_

Actual Spill or Release date, or date of discovery. \_\_\_\_\_

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/30/2022

Proposed site investigation commencement. 09/30/2022

Proposed completion of site investigation. 09/30/2023

### REMEDIAL ACTION DATES

Proposed start date of Remediation. \_\_\_\_\_

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**

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

Signed: Jacob Harter

Title: Consultant

Submit Date: 02/18/2023

Email: jharter@cottonwoodconsulting.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: 04/11/2023

Remediation Project Number: 25348

**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**

403304159	FORM 27-SUPPLEMENTAL-SUBMITTED
403318168	SOIL SAMPLE LOCATION MAP
403318171	ANALYTICAL RESULTS
403318173	ANALYTICAL RESULTS
403322048	ANALYTICAL RESULTS
403324801	PHOTO DOCUMENTATION
403324802	ANALYTICAL RESULTS

Total Attach: 7 Files

**General Comments****User Group****Comment****Comment Date**

		Stamp Upon Approval
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Total: 0 comment(s)