

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
John Heil

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 ECOM 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: ANSCHUTZ EXPLORATION CORP	Operator No: 3104	Phone Numbers Phone: (303) 299-1599 Mobile: (720) 925-1820
Address: 555 17TH ST STE 2400		
City: DENVER	State: CO	Zip: 80202
Contact Person: Schuyler Hamilton	Email: Schuyler.Hamilton@aec-denver.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 26721 Initial Form 27 Document #: 403265956

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: PIT	Facility ID: 269711	API #: _____	County Name: RIO BLANCO
Facility Name: PRF C-1W	Latitude: 40.212478	Longitude: -108.276279	
** correct Lat/Long if needed: Latitude: 40.212534		Longitude: -108.276615	
QtrQtr: NESE	Sec: 21	Twp: 3N	Range: 97W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications ML Most Sensitive Adjacent Land Use Rangeland
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

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 checked="" 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 type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash | |
| <input 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	To be determined	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 Initial Form 27 is being submitted to open a Remediation Project Number associated with closure of COGCC Pit ID: 269711. Initial characterization efforts include soil and groundwater (if pathway to groundwater is determined) characterization in accordance with 900 Series Rules.

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):

Additional delineation sampling will be completed to delineate extents of impacts discovered when performing sampling of the emergency pit. Additional sampling plan will be submitted in subsequent form. Anschutz respectfully requests a reduced analyte list of TPH. Please see remediation summary and report of work completed.

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):

Additional investigative actions will be conducted to delineate impacts associated with initial sampling of emergency pit.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 6

-- Highest concentration of TPH (mg/kg) 15.61

Number of soil samples exceeding 915-1 6

-- Highest concentration of SAR 45.3

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

BTEX > 915-1 No

Approximate areal extent (square feet) 2500

Vertical Extent > 915-1 (in feet) 7

Groundwater

Number of groundwater samples collected 0

Highest concentration of Benzene (µg/l) _____

Was extent of groundwater contaminated delineated? No

Highest concentration of Toluene (µg/l) _____

Depth to groundwater (below ground surface, in feet) _____

Highest concentration of Ethylbenzene (µg/l) _____

Number of groundwater monitoring wells installed _____

Highest concentration of Xylene (µg/l) _____

Number of groundwater samples exceeding 915-1 _____

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 samples will be evaluated as part of the remediation project #23348.

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 site investigation will be conducted to delineate impacts and complete closure of the pit.

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.

Upon final delineation of impacts, a remediation strategy will be proposed in a supplemental form 27.

REMEDIAL ACTION 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.

In July 2023, initial sampling efforts were completed to determine closure of the produced water emergency pit. Results indicated that there are impacts related to oil and gas activity.

Four additional soil borings were advanced around the Location in native, non-impacted soil to further characterize native levels of inorganic constituents. Twelve soil samples were collected from the background investigation borings. Analytical results of background soil samples exceed ECMC Table 915-1 RSSLs for electrical conductivity (EC), SAR, pH, arsenic, and hexavalent chromium.

On October 3, 2023, a produced water characterization sample was collected from a produced water tank at the Location. Analytical results of the produced water characterization indicate an arsenic value below laboratory detection limits and near-neutral pH at 6.46.

Background sample (SB18) taken in coordination with Remediation 23348 indicates that native EC (8.5510 mmhos/cm), SAR (18.8) and hexavalent chromium (0.453 mg/kg) all have elevated levels. SB18 is located within the same soil type (Kobase silty clay loam) and sample was collected at a similar elevation level. Anschutz respectfully requests consideration of Table 915-1 Footnote 1 to amend allowable limits for EC, SAR, and hexavalent chromium to those found in SB18 (EC-8.510mmhos, SAR-18.8, hexavalent chromium-0.453mg/kg).

Pit sampling indicated elevated levels of pH and arsenic, both exceeding Table 915-1 RSSLs. A produced water characterization sample was taken at the storage tanks. Results of the characterization sample indicate that both arsenic (non-detect) and pH (6.46) are not elevated at the source. Anschutz respectfully requests to remove pH and arsenic as constituents of concern.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____

_____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____

_____ Natural Attenuation

_____ Excavate and onsite remediation

_____ Other _____

_____ 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 Q3 2023 Quarterly Update

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.

Estimation of project for any disposal, lab, and 3rd party contractor fees, estimation is \$20,000 for project. In the event that impacts are discovered, Remaining costs will be updated.

Operator anticipates the remaining cost for this project to be: \$ 20000

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

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC 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?

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 ECMC 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.

All disturbance areas will be returned to grade with suitable material in preparation for final reclamation activities pursuant to the COGCC 1000 Series Rules.

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). 04/03/2023

Proposed site investigation commencement. 07/13/2023

Proposed completion of site investigation. _____

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

This form has been submitted to satisfy the Q3 2023 quarterly reporting requirement for Remediation Project Number 26721, to provide results of recent site investigation, and to request a reduced analyte list. Please find the attached ROWC for site investigation details.

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

Signed: Schuyler Hamilton

Title: Env. Compliance Analyst

Submit Date: 12/04/2023

Email: Schuyler.Hamilton@aec-denver.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with ECMC Rules and applicable orders and is hereby approved.

ECMC Approved: John Heil

Date: 03/12/2024

Remediation Project Number: 26721

COA Type

Description

	ECMC approves the request to establish for alternative allowable limits for EC, SAR, and hexavalent chromium of 8.510 mmhos/cm, 18.8, and 0.453 mg/kg, respectively.
1 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

403613390	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403614351	SITE INVESTIGATION REPORT
403614352	ANALYTICAL RESULTS
403614353	ANALYTICAL RESULTS
403614354	ANALYTICAL RESULTS
403716404	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 6 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)