

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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Report taken by:

Alexander Ahmadian

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 ECMC 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: CARBON SHIELD LLC	Operator No: 10830	Phone Numbers
Address: 5200 DTC PARKWAY STE 530		Phone: (720) 531-1848
City: GREENWOOD VILLAGE	State: CO	Zip: 80111
Contact Person: Taylor Heffner	Email: theffner@carbon-shield.com	Mobile: (281) 460-1517

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 36108 Initial Form 27 Document #: 403803706

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

Yes Multiple Facilities

Facility Type: PIT	Facility ID: 114392	API #: _____	County Name: ADAMS
Facility Name: LINNEBUR 41-19	Latitude: 39.867794	Longitude: -104.244832	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENE	Sec: 19	Twp: 2S	Range: 61W Meridian: 6 Sensitive Area? Yes

Facility Type: WELL	Facility ID: _____	API #: 001-06721	County Name: ADAMS
Facility Name: LINNEBUR 41-19 (2-61) 1 (OWP)	Latitude: 39.867762	Longitude: -104.246811	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENE	Sec: 19	Twp: 2S	Range: 61W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION	Facility ID: 319774	API #:	County Name: ADAMS
Facility Name: LINNEBUR 41-19 (2-61)-62S61W 19NENE (OWP)		Latitude: 39.867762	Longitude: -104.246811
		** correct Lat/Long if needed: Latitude:	Longitude:
QtrQtr: NENE	Sec: 19	Twp: 2S	Range: 61W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SC	Most Sensitive Adjacent Land Use Rangeland/Crops
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

Surface water is within 1/4 of a mile. Mule Creek runs through this section. The well is situated approximately 382' to the north of the creek.
 No water wells within 1/4 of a mile.
 Groundwater less than 20 ft is not expected at the disturbance location.
 Well is not in an HPH and there are no nearby RBUs.

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
UNDETERMINED	SOILS	N/A	Laboratory Analytical

INITIAL ACTION SUMMARY

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

The Linnebur 41-19 (2-61) #1 (OWP) is in the ECMC Orphaned Well Program and will be plugged per Carbon Shield's Agreement for Plugging and Abandonment Operations, dated 5/8/2024. In accordance with Rule 911, soil and groundwater (if present) samples will be collected and submitted for laboratory analysis to determine if concentrations and values are in compliance with Table 915-1. Visual inspection and field screening will be conducted during sampling activities.

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 was field screened at the wellhead following cut and cap operations. A soil sample was collected from the base of the excavation next to the wellhead, results of which are attached to this Form. During Q4 of 2024, grab soil samples will be collected for screening from the following areas 1) beneath applicable facility equipment 2) from various depths and locations in each quadrant of the footprint of the historic pit, and 3) In the areas most likely to have been impacted during the operation life of the flowline(s), if any are discovered. If impacted soils are encountered, a waste characterization soil sample will be collected from the areas exhibiting the highest degree of impact based on field screening (PID) observations. In the absence of apparent impacts, discrete soil samples will be collected as indicated on the proposed sample map included with F27 Doc #403803706. One discrete sample will be collected from each quadrant of the pit footprint.

Proposed Groundwater Sampling

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

If groundwater is encountered during decommissioning and/or abandonment activities, a grab sample will be collected as soon as practical and submitted to a NELAP-accredited laboratory for the applicable Table 915-1 analysis.

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):

All samples will be submitted to a NELAP-accredited lab for the full Table 915-1 analysis. Based on the inferred depth to groundwater, Carbon Shield, LLC is requesting the use of residential soil screening levels. The ECMC Wellhead and Tank Battery closure checklists will be utilized during the abandonment process. If a flowline is encountered during decommissioning of the orphan well, the flowline closure checklist will be used. Any historic Spill or Release discovered beyond the excavation required to safely cut and cap, will be reported on a Form 19, Spill/Release Report.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 1

Number of soil samples exceeding 915-1 0

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

Approximate areal extent (square feet) 0

ND Highest concentration of TPH (mg/kg)

Highest concentration of SAR

BTEX > 915-1 No

Vertical Extent > 915-1 (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

Number of groundwater samples exceeding 915-1

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

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 obtained from similar depths and soil horizons or lithologic materials for comparison to confirmation soil samples will be collected as part of this investigation. Background samples will be analyzed for Table 915-1 metals, pH, EC, boron, and SAR.

☐ 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?

During Q4 of 2024, grab soil samples will be collected for screening from the following areas 1) beneath applicable facility equipment 2) from various depths and locations in each quadrant of the footprint of the historic pit, and 3) In the areas most likely to have been impacted during the operation life of the flowline(s), if any are discovered. If impacted soils are encountered, a waste characterization soil sample will be collected from the areas exhibiting the highest degree of impact based on field screening (PID) observations.

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.

Any hydrocarbon-impacted material will be transported off-site to a licensed disposal facility in accordance with Rules 905 and 906. Due to proximity to surface water, Operator will review the stormwater program and implement stormwater BMPs and erosion control measures as needed to prevent fine-grained sediment and impacted stormwater runoff from entering surface water.

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.

Any historic Spill or Release discovered beyond the excavation required to safely cut and cap, will be reported on a Form 19, Spill/Release Report. If appropriate, a site-specific remediation plan will be developed and submitted via a Supplemental Form 27. If impacts are not encountered, a Supplemental Form 27 closure request will be submitted within 90 days of completion of all abandonment and/or decommissioning activities.

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
_____ Natural Attenuation
_____ Other _____

_____ Name of Licensed Disposal Facility or ECMC 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

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 General Liability coverage within the Carbon Shield insurance program includes coverage for personal injury and pollution clean-up costs arising from qualifying pollution events of a sudden and accidental nature subject to a \$1,000,000 per occurrence limit and \$2,000,000 aggregate limit. The Carbon Shield insurance program includes Excess Liability coverage of \$25,000,000 per occurrence and in the aggregate which sits over the sudden accidental pollution within the General Liability coverage. It is the opinion of Carbon Shield that this total tower of limit is adequate to address the costs of remediation associated with any qualifying pollution event.

Operator anticipates the remaining cost for this project to be: \$ 50000

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.

Reclamation and/or interim reclamation activities will be evaluated and presented to the CECMC for approval subsequent to additional investigation activities or successful remediation.

Is the described reclamation complete? No _____

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. 11/06/2023

Actual Spill or Release date, or date of discovery. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/08/2024

Proposed site investigation commencement. 08/05/2024

Proposed completion of site investigation. 11/30/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 11/30/2024

Proposed date of completion of Remediation. 12/31/2024

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: Drezden Kinnaird

Title: Consultant

Submit Date: 09/24/2024

Email: dkinnaird@cgrs.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: Alexander Ahmadian

Date: 12/20/2024

Remediation Project Number: 36108

COA Type**Description**

	Operator shall report annually. Operator had selected "Closure Report", however the Pit has not been remediated. ECMC has selected 'Annually' under the Approved Reporting Schedule.
	Per Rule 915.a Soil Concentrations - Determination of Pathway to Groundwater guidance document: "As part of reporting a Spill or Release, the Operator will present site specific information and data for Staff to consider in making a determination if a pathway to Groundwater is present.". On the subsequent Form 27 Supplemental Operator shall provide a detailed evaluation of site specific information as outlined in the aforementioned guidance document for ECMC review in determination of whether the Residential SSL or Protection of Groundwater SSLs will be applied to the spill. Operator shall abide by protection of groundwater soil screening levels until such determination can be made.
2 COAs	

ATTACHMENT 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**

403932618	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403932651	SOIL SAMPLE LOCATION MAP
403932653	ANALYTICAL RESULTS
403932655	ANALYTICAL RESULTS
404036496	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 5 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)