

State of Colorado  
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109

Document Number:

403833878

Receive Date:

06/25/2024

Report taken by:

Krystal Heibel

## 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: BENCHMARK ENERGY LLC	Operator No: 10380	Phone Numbers
Address: PO BOX 8747		Phone: (303) 894-2100
City: PRATT	State: KS	Zip: 67124
Contact Person: James Hix - East OWP EPS	Email: james.hix@state.co.us	Mobile: (303) 905-5341

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 3250 Initial Form 27 Document #: 1175375

## 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: Remediation Project #3250 produced water spills/releases multiple locations.

## SITE INFORMATION

Yes Multiple Facilities

Facility Type: PIT	Facility ID: 116315	API #:	County Name: LOGAN
Facility Name: NW GRAYLIN UNIT MONROE "A"	Latitude: 40.672888	Longitude: -103.351039	
** correct Lat/Long if needed: Latitude: 40.671041		Longitude: -103.348950	
QtrQtr: NWSW	Sec: 7	Twp: 8N	Range: 53W Meridian: 6 Sensitive Area? No

Facility Type: WELL	Facility ID:	API #: 075-05908	County Name: LOGAN
Facility Name: NW GRAYLIN D SAND UNIT (OWP) 33	Latitude: 40.669254	Longitude: -103.351114	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: SWSW	Sec: 7	Twp: 8N	Range: 53W Meridian: 6 Sensitive Area? No

Facility Type: LOCATION	Facility ID: 312152	API #:	County Name: LOGAN
Facility Name: NW GRAYLIN D SAND UNIT-68N53W 7SWSW (OWP)		Latitude: 40.669268	Longitude: -103.351059
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: SWSW	Sec: 7	Twp: 8N	Range: 53W Meridian: 6 Sensitive Area? Yes

## SITE CONDITIONS

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

The location is not within CPW mapped HPH. DWR permitted water wells (DWR Permit #250865) replacement for livestock windmill approximately 550 ft SW of the location. DTW = 20 ft; TD = 50 ft. There is a domestic/livestock water well (DWR Permit #287947) DTW = 16 ft; TD = 60 ft ~1000 ft SW of the location. There is a permitted water well (DWR 29941, Receipt 904454) ~1290 ft south of the location. The DTW = 30 ft, TD = 63 ft (1967). There is an intermittent drainage located ~1230 ft South of the location; the permitted water wells appear to lie crossgradient to downgradient of the location.

## 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	GROUNDWATER	UNKNOWN	VISUAL, FIELD SCREENING, LAB ANALYSES
Yes	SOILS	VISUAL	LAB ANALYSES

### INITIAL ACTION SUMMARY

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

REMEDATION PROJECT #3250: SPILL SITE IDENTIFIED ON AERIAL PHOTO. SOIL SAMPLE COLLECTED BY ECMC (f.k.a. COGCC) 5/04. SITE MEASUREMENTS AND SPECIFIC LOCATION WERE DETERMINED BY CONSULTANT IN 6/04. SOIL SCIENTIST AT USDA-NRCS OFFICE IN GREELEY RECOMMENDED REMEDIATION PLAN. UPDATE: THE BENCHMARK ENERGY LLC - NW GRAYLIN D SAND UNIT #33 IS IN THE ECMC ORPHANED WELL PROGRAM (OWP). THIS FORM 27 IS FOR THE PLANNED WELL PA - CUT AND CAP SAMPLING WILL BE PERFORMED IN AUGUST 2023.

### 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 ):

Grab soil samples will be collected from areas most likely to exhibit E&P Waste impacts. Soil samples will be submitted for analysis of Table 915-1 parameters including organic compounds (TPH ranges C6-C36; BTEX; 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Naphthalene, PAH) and inorganic compounds (metals, soil suitability for reclamation).

#### Proposed Groundwater Sampling

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

Groundwater samples are not expected to be collected as part of this investigation. If encountered in sufficient quantity to enable sample collection, a grab groundwater sample or samples will be collected and submitted for analysis of organic compounds (BTEX; Naphthalene; 1,2,4-Trimethylbenzene; 1,3,5-Trimethylbenzene) and inorganic parameters (total dissolved solids (TDS), chloride ion, sulfate ion).

#### Proposed Surface Water Sampling

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

Surface water samples are not expected to be collected as part of this investigation.

### Additional Investigative Actions

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

No additional alternative investigative actions are expected to be conducted as part of this site investigation.

## SITE INVESTIGATION REPORT

### SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 3

Number of soil samples exceeding 915-1 2

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

Approximate areal extent (square feet) 900

-- Highest concentration of TPH (mg/kg) 240

-- Highest concentration of SAR 7

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 10

#### 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?

Weston Solutions performed a subsurface site investigation (SSI) at the location on 04/20/2023 and collected two background soil samples, 312152\_BK01 @3' and 312152\_BK02 @3', submitted for analysis of Table 915-1 metals and soil suitability for reclamation parameters. The results show that pH was reported at 8.80 s.u. in the wellhead sample collected at 10 ft bgs. The background soil pH results were 7.80 s.u. and 7.98 s.u. Ensolum LLC collected cut and cap samples from the wellhead excavation sidewalls and base on 08/10/2023 and six native background soil samples, Sample ID Native\_BG01 @3', Native\_BG01 @6', Native\_BG02 @3', Native\_BG02 @6', Native\_BG03 @3', and Native\_BG03 @6'. The results show that the pH was elevated in all of the background soil samples, ranging from 8.9 s.u. to 9.2 s.u. The laboratory analyzed the cut and cap samples for total boron rather than hot water soluble boron; however, the sample collected during the SSI was analyzed for hot water soluble boron.

☐ 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?

Further site investigation is required to assess the lateral and vertical extent of soil impacts for pH impacts at the wellhead. Results for the 08/10/2023 cut and cap samples show that 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, and benzo(a) anthracene were above the Table 915-1 protection of groundwater SSL in the sidewall sample collected from 3 ft bgs and the base of the excavation at 6 ft bgs; however, the sample Weston collected during the 04/20/2023 subsurface investigation at 10 ft bgs did not indicate the presence of elevated PAH compounds. Further site investigation and remediation are also required at the former 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.

If E&P Waste impacts are encountered during decommissioning of Oil and Gas Facilities, impacted soils will be excavated, temporarily stockpiled on location, and hauled to a commercial disposal facility. Battery site and pit(s) that released produced water have been dormant for over 20 years and are not capable of receiving produced water from wells. This OWP project is for well plugging only. Off-location flowline abandonment/removal will be addressed under a separate scope of work during a future project.

#### 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.

If E&P Waste impacted soils are encountered, the soils will be excavated and removed. If the horizontal and vertical extent of the E&P Waste impacts cannot be defined or removed during this initial action, then additional site investigation and remediation will be performed at a later date under an approved supplemental Form 27. Site data will be evaluated and remediation technologies implemented to meet Table 915-1 soil residential screening levels, protection of groundwater screening levels, or Table 915-1 groundwater and WQCC Regulation 41 numeric and narrative levels as applicable to site conditions.

**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 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.

## REMEDATION PROGRESS UPDATE

### PERIODIC REPORTING

#### Approved Reporting Schedule:

☐ Quarterly☐ Semi-Annually☐ Annually☒ Other

Results provided on supplemental Form 27 within 90 days of receipt.

#### ☐ 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 BENCHMARK ENERGY LLC - NW GRAYLIN D SAND UNIT #33 WELL AND NW GRAYLIN D SAND UNIT -68N53W 7SWSW (Location ID# 312152) are in the Colorado ECMC Orphaned Well Program (OWP). The former Operator's bond/surety, or other state or federal funds will be used to plug and abandon the well, investigate, remediate, and reclaim the location.

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

### 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: \_\_\_\_\_

## REMEDATION COMPLETION REPORT

### REMEDATION 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.

The ECMC OWP will reclaim this oil and gas location in accordance with 1000 Series Rules including grading/recontouring of disturbed areas, the method and testing of compaction alleviation, and development of a reseeding program that describes new seed, seed mix, and noxious weed prevention. This will be performed under a separate scope of work following disposition of the off-location flowlines. Final reclamation will be conducted per COGCC reclamation rules (Rule 1004) and prioritized based on OWP funding and staff availability. The reclamation scope will include a plan to address and avoid any effect on reclamation from Table 915-1 inorganic and soil suitability for reclamation parameters.

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. 03/17/2023

Actual Spill or Release date, or date of discovery. 08/10/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/22/2022

Proposed site investigation commencement. 04/20/2023

Proposed completion of site investigation. 08/10/2023

### 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

The BENCHMARK ENERGY LLC - 10380 NW GRAYLIN D SAND UNIT #33 (OWP) oil and gas well (API #05-075-05908) NW GRAYLIN D SAND UNIT-68N53W 7SWSW (Location ID #312152) is in the ECMC Orphaned Well Program. Pit #116315, unknown status, appears to be located approximately 860 feet northeast of the location (COGIS symbol mis-plotted). This supplemental Form 27 presents the results from a 10/05/2023 Site Investigation Report (Weston 04/20/2023 investigation) and the 05/31/2024 Well Cut and Cap Sampling Report (Ensolom: 08/10/2023 investigation). The Table 915-1 Protection of Groundwater soil screening levels (SSL) apply to this site based on DWR Water Well Permit #250865-A located ~565 ft SW with a reported depth to groundwater = 20 ft bgs and a total depth = 60 ft bgs. The results from the 04/20/2023 Subsurface Site Investigation (312152\_WH01\_B01 @10') showed that pH was 8.80 standard units was the only parameter that was above the Table 915-1 SSL. The 08/10/2023 results for the wellhead cut and cap soil sample show that the pH was elevated in both the excavation sidewall and base soil samples, but pH was also the native background soil samples. Results show that concentrations of 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, and benzo(a) anthracene were above the Table 915-1 SSL. Site-specific background concentrations of arsenic and barium were reported above Table 915-1 SSL for samples collected during both investigations. Lead was reported above Table 915-1 Protection of Groundwater SSL in the wellhead excavation soil samples. The SAR result was 7.0 in the excavation base soil sample, B01 @6'. Additional site investigation and remediation are warranted to delineate and remove impacted soils from around the wellhead; however, the lateral and vertical extent of impacts appear limited based on the results from the 04/20/2023 subsurface site investigation. Further site investigation and remediation work will proceed under Remediation Project #3250.

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

Signed: James Hix

Title: East OWP EPS

Submit Date: 06/25/2024

Email: james.hix@state.co.us

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: Krystal Heibel

Date: 08/30/2024

Remediation Project Number: 3250

## COA Type

## Description

0 COA	

## 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

403833878	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403834289	SITE INVESTIGATION REPORT
403834852	SITE INVESTIGATION REPORT
403906684	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 4 Files

## General Comments

### User Group

### Comment

### Comment Date

Environmental	" Results for the 08/10/2023 cut and cap samples show that 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, and benzo(a) anthracene were above the Table 915-1 protection of groundwater SSL in the sidewall sample collected from 3 ft bgs and the base of the excavation at 6 ft bgs; however, the sample Weston collected during the 04/20/2023 subsurface investigation at 10 ft bgs did not indicate the presence of elevated PAH compounds. Further site investigation and remediation are also required at the former pit."	08/30/2024
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Total: 1 comment(s)