

State of Colorado Oil and Gas Conservation Commission

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Document Number:

403065165

Receive Date:

06/14/2022

Report taken by:

Jason Kosola

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: <u>ENERVEST OPERATING LLC</u> | Operator No: <u>10098</u> | Phone Numbers |
| Address: <u>1001 FANNIN ST STE 800</u> | | Phone: <u>(713) 495-5328</u> |
| City: <u>HOUSTON</u> | State: <u>TX</u> | Zip: <u>77002</u> |
| Contact Person: <u>Keith Barton</u> | Email: <u>kbarton@enervest.net</u> | Mobile: <u>()</u> |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 19874 Initial Form 27 Document #: 402802247

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: <u>LOCATION</u> | Facility ID: <u>324810</u> | API #: _____ | County Name: <u>KIOWA</u> |
| Facility Name: <u>FLUKE-CHIVINGTON GR.ASSOC-618S45W 31NWNE</u> | | Latitude: <u>38.452661</u> | Longitude: <u>-102.497896</u> |
| ** correct Lat/Long if needed: Latitude: _____ | | Longitude: _____ | |
| QtrQtr: <u>NWNE</u> | Sec: <u>31</u> | Twp: <u>18S</u> | Range: <u>45W</u> |
| Meridian: <u>6</u> | | Sensitive Area? <u>Yes</u> | |

SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Location is 215 feet west of Big Sandy Creek

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

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) impacted soil

DESCRIPTION OF IMPACT

| Impacted? | Impacted Media | Extent of Impact | How Determined |
|-----------|----------------|------------------|-------------------------------------|
| Yes | SOILS | minor | preliminary soil samples, (7) total |

INITIAL ACTION SUMMARY

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

Seven preliminary soil samples were taken to a depth of 24 inches below ground surface. Elevated arsenic were found in all samples. Elevated TPH and one had an elevated benzo(a) pyrene level were identified in two boring samples. Detailed information regarding the soil testing is attached.

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):

Preliminary soil sampling has been conducted. After excavation of impacted soil, confirmation soil testing will be conducted. Upon State approval the area will be backfilled and remediated with approved materials. The area will be reseeded and monitored for release as 'reclaimed'.

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):

In March 2022, Enervests' consultant Etech drilled (10) soil borings and (2) monitor wells at the Fluke-Chivington 1-31 site to delineate the site for arsenic impacts from o/g activity at this P&A well. The second monitor well was drilled up-gradient for background levels. In the 4th qtr 2021, soil was excavated to 3.5 feet below ground surface (bgs). Some excavated soil (~915 tons) was disposed at permitted facility. The remainder of excavated material is stockpiled onsite pending disposal or remediation. The ground water was estimated from a nearby well at (25) bgs. One monitor well was drilled to 40 feet bgs and the second to 48 feet. Both monitor wells encountered no groundwater during drilling and no measurable inflow within 48 hours. Two soil samples were collected from Big Sandy Creek. One sample was upstream and one downstream. Soli boring, monitor wells and Big Sandy Creek samples were tested for arsenic, two discolored soil borings samples were tested for TPH.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 9

Number of soil samples exceeding 915-1 9

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

Approximate areal extent (square feet) 7400

NA / ND

-- Highest concentration of TPH (mg/kg) 58

-- Highest concentration of SAR 801

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 2

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?

See attached background sample informaton

☐ 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?

Confirmation after impacted soil removal and disposal.

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.

Impacted soil, approximately 960 cubic yards, was to be excavated, stored on-site on plastic and removed for disposal at approved landfill. So far we have excavated and disposed of approximately 915 tons of soil. The remaining excavated material is stockpiled on site pending disposal or remediation.

REMEDATION 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.

Based on analytical testing from the floor and sidewalls of the excavation, arsenic levels remain present above the site specific background level of 3.08 mg/kg. Other analysis found the other chemicals of concern below regulatory limits. Based on the data from MW-2 well up-gradient from the site, dry sand and sandy clay soil from 5-10 feet have low levels of arsenic, from 2-5 mg/kg. In the deeper soil, increased clay concentration allows more arsenic bonding, from 5--15 mg/kg. Enervest proposes to adjust the cleanup concentration for arsenic at this site to 19 mg/kg, based on the MW-2 background level of 15.2 mg/kg at 26 feet. Three monitoring wells were planned to document underlying ground water and establish gradient and document background levels. Two wells were drilled, one to 40 feet and the second to 48 feet depth. Neither well contacted ground water or had water inflow.

To address high EC and SAR levels on the remaining soil on-site, we propose to blend the excavated soil with local topsoil from a surrounding pasture or nearby stock pond locations. Four composite stockpile samples of the remaining soil were collected and analyzed for the COC's. Five native soil samples were also analyzed for soil suitability. The test results of these tests are in the attachment from Etech, pages 7 & 8.

The mixing of native soil with the remaining stockpiles will address the EC and SAR levels. After the proposed on-site remediation activity and backfilling the site, we propose to treat the area with 325 gallons of 'Desalt Plus' with fresh water to improve immediate restoration. Following confirmation that the soil is below required limits, the area will be reseeded with an approved seed mixture. Details regarding 'Desalt Plus' and the seed mixture are included in the attached Etech report.

If we can mix in the next 30 days and successfully follow up test within 30 days, we could be ready to reseed by late August.2022.

Soil Remediation Summary

☒ In Situ

Yes Bioremediation (or enhanced bioremediation)

Chemical oxidation

Air sparge / Soil vapor extraction

Natural Attenuation

Yes Other blend with native soil and add calcium sulfate.

☒ Ex Situ

Yes Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) 960

Name of Licensed Disposal Facility or COGCC Facility ID #

Yes Excavate and onsite remediation

No Land Treatment

No Bioremediation (or enhanced bioremediation)

No Chemical oxidation

Yes Other mix excavated soil with native soil and add calcium sulfate.

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.

none

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 P&A remediation status

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.

Previously filed form 403065165

Operator anticipates the remaining cost for this project to be: \$ 12000

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? Yes

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

So far we have disposed of approximately 915 tons of excavated soil. Remaining excavated soil is piled on-site pending disposal or remediation action.

Volume of E&P Waste (solid) in cubic yards 960

E&P waste (solid) description impacted surface soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: approved disposal facility or land fill

Volume of E&P Waste (liquid) in barrels 0

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?

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.

Following successful testing after mixing of the remaining soil with clean native soil, we plan to backfill the excavation, contour to blend with local soil and reseed with an approved seed mix.

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. 10/01/2021

Proposed date of completion of Reclamation. 10/01/2022

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). 06/29/2021

Proposed site investigation commencement. _____

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 10/01/2021

Proposed date of completion of Remediation. 10/01/2022

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:

P&A remediation project

OPERATOR COMMENT

The 1st quarter 2020 update report is attached. Please consider our request to mix remaining excavated soil with surrounding clean native soil and treat soil with calcium sulfate to improve restoration. Following remediation activity the site will be backfilled, recontoured and reseeded. Contact Mr. Kelly Roberts at kroberts@enervest.net or 713-970-1884 if you have questions.

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

Signed: Keith Barton

Title: Manager-Regulatory

Submit Date: 06/14/2022

Email: kbarton@enervest.net

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: Jason Kosola

Date: 06/22/2022

Remediation Project Number: 19874

Condition of Approval**COA Type****Description**

| | |
|--------|--|
| | Operator shall demonstrate that blended soils are compliant with Table 915-1 Soil Suitability for Reclamation standards prior to reseeded the area to ensure that revegetation efforts will work. Operator shall submit analytical results for soil analysis via Form 27 prior to reseeded. Samples shall be obtained throughout the entire root zone for vegetation found in the area. Operator shall establish a sampling interval of six months for the blended soil/remediation area. Two consecutive rounds of sampling must be completed before remediation can be closed. |
| | Operator shall obtain soil samples for the Table 915-1 Soil Suitability for Reclamation standards during 2nd and 4th quarter each year. |
| 2 COAs | |

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**

| | |
|-----------|--------------------------------|
| 403065165 | FORM 27-SUPPLEMENTAL-SUBMITTED |
| 403076927 | REMEDATION PROGRESS REPORT |

Total Attach: 2 Files

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

| | | |
|---------------|---|------------|
| Environmental | Operator has obtained sufficient data to demonstrate that remaining arsenic levels are within 1.25 times background concentrations. | 06/06/2022 |
| Environmental | Operator has addressed previous comments. | 06/06/2022 |
| Environmental | Returned to draft. Operator should update Site Investigation Plan tab, Remediation Action Plan tab with soil mix/remediation agent plan, and Remediation Progress Update tab. | 06/02/2022 |

Total: 3 comment(s)