FORM 27 Rev 5/22

State of Colorado
Energy & Carbon Management Commission

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Report taken by: Taylor Robinson

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 Form27.
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 INFORMATON

Name of Operator: ANADARKO E&P ONSHORE LLC Operator No: 2800
Address: P O BOX 173779
City: DENVER State: CO Zip: 80217-3779
Contact Person: Max Moran Email: DJRemediation_Forms@oxy.com

Phone Numbers
Phone: (720) 929-4307
Mobile: ( )

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 40091 Initial Form 27 Document #: 404140221

PURPOSE INFORMATION

- [ ] Rule 913.c.(1): Pit or Cuttings Trench closure.
- [X] Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- [X] 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.
- [X] 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.
- [X] Other: Request Director's Approval of reduced list of contaminants of concern

SITE INFORMATION

Yes Multiple Facilities

Facility Type: TANK BATTERY Facility ID: 446824 API #: County Name: WELD
Facility Name: HSR-WADDELL-63N67W Tank Latitude: 40.206648 Longitude: -104.848006
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SWSW Sec: 24 Twp: 3N Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 491094 API #: County Name: WELD
Facility Name: Waddell 12&13-24 Facility Latitude: 40.206645 Longitude: -104.848023
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SWSW Sec: 24 Twp: 3N Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 491095 API #: County Name: WELD

Facility Name: Waddell 12&13-24 Facility Latitude: 40.206412 Longitude: -104.848049

** correct Lat/Long if needed: Latitude: Longitude:

QtrQtr: SWSW Sec: 24 Twp: 3N Range: 67W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Surface Water & Occupied Buildings

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

County roads 50 feet (ft) north and 1120 ft east. Livestock 270 ft northeast. Streams 540 ft northwest and 580 ft south. Occupied buildings 550 ft northeast and 580 ft east. Water well 680 ft east. Meadow Island Ditch #2 680 ft east. US Hwy 1140 ft south. Agriculture. Areas with wetland characteristics are located approximately 450 ft west, 480 ft southwest, and 530 ft north. The site is located within a 100 year floodplain. The site is located within Mule Deer Migration Corridor and Mule Deer Severe Winter Range High Priority Habitat (HPH) areas. Groundwater at approximately 1 ft below ground surface (bgs).

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [X] **E&P Waste**
  - [X] Produced Water
  - [X] Oil
  - [X] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	TBD	Groundwater Samples/Laboratory Analytical Results
Yes	SOILS	TBD	Soil Samples/Laboratory 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.

Decommissioning activities were completed at the Waddell 12&13-24 Facility on June 27, 2025. Groundwater was encountered in the facility excavations at a depth of 1 ft bgs. Visual inspection and field screening of soil at one aboveground storage tank (AST), one produced water vessel (PWV), one separator, one dumpline pothole, and one meter house were conducted following removal activities. Soil samples [AST01@0.5', PWV-B01@3', PWV-N01@1.5', SEP01-INLET@3', SEP01-OUTLET@3', and DL01@3'] were submitted for analysis of full list Table 915-1 constituents to determine if a release occurred. Laboratory analytical results indicated that benzo(a)anthracene or pH impacts exceeding the Table 915-1 allowable levels and background levels are present at the PWV-N01 and AST locations, respectively. As such, Form 19 Initial/Supplemental Spill/Release Reports (Document Nos. 404273733 & 404273748) were submitted on July 11, 2025, and the ECMC issued Spill/Release Point IDs 491094 and 491095. The facility soil sample locations are depicted on Figure 1. The PID readings and soil sample results are summarized in Tables 1 and 2, respectively.

Excavation activities are pending and details will be provided in a subsequent Form 27 supplemental report.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

[X] Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

On June 27, 2025, soil samples were collected from one AST, one PWV, one separator, and one dumpline pothole at depths ranging from 0.5 ft bgs to 3 ft bgs. The samples were submitted for analysis of full list Table 915-1 constituents, using ECMC approved methods. Laboratory analytical results indicated that benzo(a)anthracene or pH impacts exceeding the Table 915-1 allowable levels and background levels are present at the PWV-N01 and AST locations, respectively. The laboratory reports are attached.

Proposed Groundwater Sampling

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

On 6/27/25, groundwater samples [GW-SEP01-INLET@1', GW-SEP01-OUTLET@1', GW-PWV-B01@1', and GW-DL01@1'] were collected from the separator, PWV, and dumpline pothole locations at a depth of 1 ft bgs. The groundwater samples were submitted for analysis of full list Table 915-1 constituents in groundwater. A background groundwater sample [GW-Native-BG01@1'] was collected for analysis of Table 915-1 inorganic constituents in groundwater. Based on the lab results, groundwater concentrations exceeded the ECMC Table 915-1 allowable levels for benzene, toluene, and total xylenes. Groundwater monitoring wells will be installed to delineate the dissolved-phase plume. The monitoring well installation scope of work will be submitted in a subsequent Form 27 Supplemental report following completion of excavation activities. The groundwater sample locations and background groundwater sample locations are depicted on Figure 1. The groundwater sample analytical results are summarized in Table 3.

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):

On June 27, 2025, visual inspection and field screening of soil were conducted at the hatch and loadout of the AST, three sidewall locations within the PWV excavation, and the meter house. Based on the inspection and screening results, hydrocarbon-impacted soil was not observed at the screening locations, and no soil samples were submitted for laboratory analysis from these areas, in accordance with the ECMC Operator Guidance. A photographic log is attached.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected: 6
Number of soil samples exceeeding 915-1: 6
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet): 498

NA / ND

-- Highest concentration of TPH (mg/kg): 41.89
-- Highest concentration of SAR: 2.31
BTEX > 915-1: No
Vertical Extent > 915-1 (in feet): 3

Groundwater

Number of groundwater samples collected: 4
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet): 1
Number of groundwater monitoring wells installed: 0
Number of groundwater samples exceeding 915-1: 2

-- Highest concentration of Benzene (µg/l): 3620
-- Highest concentration of Toluene (µg/l): 5430
-- Highest concentration of Ethylbenzene (µg/l): 73.7
-- Highest concentration of Xylene (µg/l): 2060
NA 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?

[X] Were background samples collected as part of this site investigation?

Six background soil samples (Native-BG01@2' through Native-BG03@2' and Native-BG01@2' through Native-BG03@4') were collected from the native material outside of the facility excavations. Ten samples were also collected as part of the Waddell 13-24A Wellhead cut and cap activities (Remediation No. 39613), located approximately 611 ft southeast, from similar depths (3' and 6' bgs), and NCRS soil type (sand). The background soil samples were submitted for analysis of pH, electrical conductivity (EC), sodium adsorption ratio (SAR), boron, and Table 915-1 metals, using ECMC approved methods. Results indicate that SAR, pH, arsenic, barium, lead, and selenium are naturally high in the native soil. The background soil results are summarized in Table 2.

One background groundwater sample was collected for analysis of Table 915-1 inorganic constituents in groundwater. The background groundwater results are summarized in Table 3.

[ ] Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards):
Volume of liquid waste (barrels):

[X] Is further site investigation required?

Excavation activities are pending and details will be provided in a subsequent Form 27 supplemental report.

Groundwater monitoring wells will be installed to delineate the dissolved phase plumes. The monitoring well installation scope of work will be submitted in a subsequent Form 27 Supplemental report following completion of soil assessment activities.

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 from the tank battery excavation will be removed and transported to a licensed disposal facility. Final disposal information will be provided upon completion of assessment activities. Disposal records will be kept on file and available upon request. The excavation areas will be backfilled and contoured to match pre-existing conditions.

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.

Laboratory data indicate that benzo(a)anthracene and pH impacts exceeding the ECMC Table 915-1 allowable levels and background levels remain in the tank battery excavation area. Groundwater was encountered at approximately 1 ft bgs. Analytical results indicate that groundwater concentrations exceeded the ECMC Table 915-1 allowable levels for benzene, toluene, and total xylenes. Groundwater monitoring wells will be installed to delineate the dissolved phase plumes. The monitoring well installation scope of work will be submitted in a subsequent Form 27 Supplemental report. Excavation activities are pending and details will be provided in a subsequent Form 27 supplemental report.

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.

Groundwater monitoring wells will be installed to delineate the dissolved phase plumes. The monitoring well installation scope of work will be submitted in a subsequent Form 27 Supplemental report following completion of soil assessment activities.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

[X] 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.

KMOG has sufficient insurance and bonding to fully address the anticipated costs of Remediation, including the remaining estimated costs for this project. KMOG currently has over 40 million in bonds with the Energy and Carbon Management Commission. The cost for remediation is a preliminary estimate only, costs may change upwards or downward based on site-specific information. KMOG makes no representation or guarantees as to the accuracy of the preliminary estimate.

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

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.

The site will be reclaimed in accordance with ECMC 1000 Series Reclamation 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. 07/09/2025

Actual Spill or Release date, or date of discovery. 07/08/2025

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/27/2025

Proposed site investigation commencement. 06/27/2025

Proposed completion of site investigation. 04/16/2026

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/27/2025

Proposed date of completion of Remediation. 04/16/2027

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

Per Rule 915.e.(2).C, discrete grab samples [AST01@0.5' and PWV-N01@1.5'] were collected from the most impacted material available in the source area on 6/27/2025. The laboratory report and results summary table are attached. Based on these results, KMOG requests approval to amend confirmation sampling and analysis to only include hydrocarbon and metal analytes detected above laboratory reporting limits and reclamation parameters exceeding Table 915-1 allowable levels, specifically:
AST01@0.5': pH and arsenic.
PWV-N01@1.5': total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), pH, arsenic, and barium.

All verification sample results have been omitted from the summary table and figures due to updated ECMC instructions. All verification sample results are included in the attached laboratory analytical reports.

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

Signed: Max Moran Title: Environmental Advisor

Submit Date: 10/30/2025 Email: DJRemediation_Forms@oxy.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: Taylor Robinson Date: 05/13/2026

Remediation Project Number: 40091

COA Type	Description
	ECMC agrees to the reduced analyte list below: AST01@0.5': BTEX, pH, boron, and arsenic. PWV-N01@1.5': BTEX, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), pH, boron, arsenic, and barium.
1 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
404384610	FORM 27-SUPPLEMENTAL-SUBMITTED
404391061	LABORATORY ANALYTICAL REPORT
404395694	PHOTO DOCUMENTATION
404396605	ANALYTICAL DATA SUMMARY TABLE(S)
404396911	SOIL SAMPLE LOCATION MAP
404396913	SOIL SAMPLE LOCATION MAP

Total Attach: 6 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)