SWCA ENVIRONMENTAL CONSULTANTS
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AQUATIC RESOURCES DELINEATION TECHNICAL MEMORANDUM ADDENDUM Version2

To: Casey Haga, Enduring Resources IV, LLC

From: SWCA Environmental Consultants

Date: May 14, 2025

Re: **Enduring's NE Lybrook WSW 2306-06P Oil and Gas Project, Rio Arriba County, New Mexico, Aquatic Resources Delineation Technical Memorandum Addendum Version2/ SWCA Project No. 75253-082**

SWCA Environmental Consultants (SWCA) was retained by Enduring Resources IV, LLC (Enduring), to complete an aquatic resources delineation survey, commonly referred to as a wetland delineation, and associated technical memorandum for a recycling containment facility (project) in Rio Arriba County, New Mexico. SWCA submitted the Aquatic Resources Delineation Technical Memorandum (Technical Memorandum) to Enduring March 27, 2025 (SWCA 2025). The goal of conducting the aquatic resources delineation survey was to identify the presence and extent of features that may be jurisdictional waters of the United States (WOTUS) under Section 404 of the Clean Water Act (CWA) of 1972, as amended (Federal Register 88:61964) as well as support Enduring's application for permit or registration specific to 19.15.34 New Mexico Administrative Code (NMAC) via Form C-147. A delineation of aquatic resources includes the identification and recording of features if present, that may be determined to be WOTUS by the U.S. Army Corps of Engineers (USACE).

On April 23, 2025, Enduring notified SWCA that clarification regarding differences in ordinary high water mark (OHWM) locations reported in the Technical Memorandum required clarification per a request from the New Mexico Energy, Minerals and Natural Resources Department (EMNRD) - Oil Conservation Division (OCD). The EMNRD-OCD noted that different coordinate sets were provided for the same non-wetland water features. The distance between coordinate sets was greatest for one particular stream feature, ST05, at 1,508.82 feet.

SWCA aquatic resources inventory methodology utilizes tablets connected to a handheld GPS receiver set to submeter accuracy. The field crew utilizes tablet applications to record georeferenced datasheets and photographic points. There are typically multiple field personnel utilizing tablets during field work concurrently; therefore, multiple points can be taken within a feature by each field staff member collecting data. The location the field crew is standing in when they initiate a new datasheet or photographic point in the tablet application determines the exact coordinates recorded. Because our field crew typically work in teams of two, variation in exact coordinate sets is expected. Additionally, this project required multiple field visits resulting in even greater variation in datasheet coordinate sets as field crew returned to the aquatic feature for evaluation but did not initiate datasheets or photographic points at the exact location as before. However, all coordinate sets recorded for one aquatic resources feature will fall within that spatial boundary of that feature due to multiple points being recorded.

Of the non-wetland water features exhibiting OHWM within the survey area that EMNRD-OCD requested further clarification on, four had OHWM datasheets, Streamflow Duration Assessment Method (SDAM) datasheets, and photographic points recorded. The coordinate sets for the stream features ST04, ST07, and ST08 vary in distance but all fall within the spatial boundary of the feature, pending where SWCA staff were located during data collection. The coordinate set for ST05 in the OHWM datasheet appears to be an error from SWCA's post-field processing while transposing coordinate sets from the spatial field data to the OHWM datasheet. The correct coordinate set should be 36.2453087, −107.5043146, making the greatest distance between coordinate sets 11.66 feet for the ST05 feature. See the revised ST05 OHWM datasheet in Appendix A.

Additionally, on May 9, 2025, Enduring notified SWCA that ponds observed within the survey area and described in the Technical Memorandum also required clarification per a request from the EMNRD-OCD. The EMNRD-OCD requested the manmade or natural depression status of the ponds be clarified.

Three livestock ponds (P01, P02, and P03) were observed within the survey area but did not intersect the project area. Field crew noted that each of the three observed ponds appeared to be constructed entirely within uplands for livestock watering. Field crew took photographs of each pond (Figures 1 through 4 in Appendix B). They had also noted that drainage from the roadside ditch was being directed into P01 and there was cattle sign throughout the survey area.

SWCA further investigated historical imagery available from Google Earth Pro. Imagery from 2014 shows what appears to be heavy equipment tracks from grading or cleaning of the ponds P01 and P02 (Figure 5) (Google Earth Pro 2025). Imagery from 2017 of ponds P01 and P02 show the ponds with contained water held by constructed dikes on the western and southern sides of the ponds (Figure 6) (Google Earth Pro 2025). Imagery from 2024 of P03 shows what appears to be a constructed dike to the eastern side of the pond (Figure 7) (Google Earth Pro 2025).

Enduring investigated the history of the construction of these ponds and found that all three were likely constructed and have been cleaned out in association with nearby WPX Energy Production, LLC (WPX) projects and existing resource road upgrades (Enduring 2025). The Surface Use Plan of Operation for WPX's NE Chaco COM #254H APD project (DOI-BLM-NM-F010-2019-0084-EA) just north of the observed pond P03 states "Sediment would be cleaned from a stock pond located to the south of the proposed project area". Enduring also collected drone imagery of the ponds on May 12, 2025 (Figures 8 through 10).

The three ponds observed in the survey area were identified as artificial or manmade ponds, created by excavating or diking dry land, and used exclusively for such purposes as stock watering or settling basins. These types of ponds are typically excluded from waters of the U.S. jurisdiction (40 Code of Federal Regulations 120.2(b)(5)). Although hydrology indicators were present at the ponds, including water, saturation, and mud cracks, hydrophytic vegetation was not. Due to soil disturbances from grading and excavating, and the relative newness of the ponds having been constructed in what was likely upland, hydric soils were not expected to be present. The ponds did not meet the criteria necessary for three-parameter wetlands due to the lack of required indicators. These features are unlikely to be considered jurisdictional.

LITERATURE CITED

Enduring Resources, LLC. 2025. Email correspondence with Enduring Resources regarding WPX projects and use of manmade livestock ponds being cleaned out/constructed to upgrade existing resource road. May 13, 2025.

Google Earth Pro. 2025. Nageezi, New Mexico Region. 6June 24, 2024, October 13, 2017, and 5 21, 2024. Available at: http://www.google.com/earth/index.html. Accessed May 2025.

SWCA Environmental Consultants (SWCA). 2025. Enduring's NE Lybrook WSW 2306-06P Oil and Gas Project, Rio Arriba County, New Mexico, Aquatic Resources Delineation Technical Memorandum / SWCA Project No. 75253-082. Albuquerque, New Mexico.

APPENDIX A

Revised OHWM Datasheet

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Enduring NE Lybrook WSI **Project Number:** 75253-082 **Stream:** ST05 **Investigator(s):** SWCA	**Date:** 4/24/2023 **Town:** Nageezi **Photo begin file#:** see photos in associated report	**Time:** 12:49 **State:** NM **Photo end file#:**
Y ■ / N ☐ Do normal circumstances exist on the site? Y ☐ / N ■ Is the site significantly disturbed?	**Location Details:** north of HWY550 near Nageezi **Projection:** **Datum:** **Coordinates:** 36.2453087, −107.5043146	

Potential anthropogenic influences on the channel system:

No signs of recent flow. Road crosses perpendicular to NHD and culvert has been installed beneath road. Bank and OHWM widen and pool around culvert entrances. Data is based on where NHD crosses project ROW.

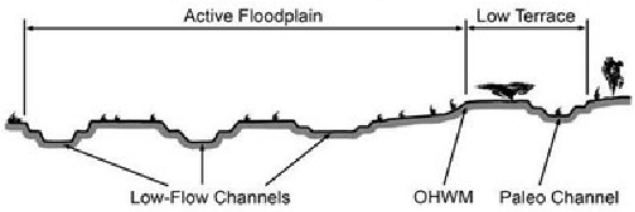
Brief site description:

Single thread stream at this location flowing northeast to southwest.

Checklist of resources (if available):

- ☐ Aerial photography
  - Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ■ Other studies NHD, NWI, FEMA
- ☐ Stream gage data
  - Gage number:
  - Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



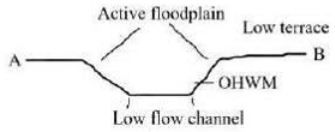
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ■ GPS
   - ☐ Other:

Project ID: 75253-082 Cross section ID: ST05 Date: 4/24/2023 Time: 12:49

Cross section drawing:

OHWM Width(ft): 4
OHWM Depth(ft): 1



OHWM

GPS point: see recorded spatial data

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM Rationale: The change in vegetation density and change in soil coarseness were the strongest indicators.
OHWM width (ft): 4
OHWM depth (ft): 1
Dominant vegetation below OHWM: None
Dominant vegetation at OHWM: Chamisa
Dominant vegetation above OHWM: Chamisa

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Clay
Total veg cover: 10 % Tree: 0 % Shrub: 0 % Herb: 10 %
Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [x] Soil development
- [ ] Surface relief
- [x] Other: Undercut banks
- [x] Other: Silt Deposits
- [x] Other: Matted vegetation

Comments:

Dominant vegetation below OHWM: BOGR2, SATR12, PLJA

Project ID: 75253-082 **Cross section ID:** ST05 **Date:** 5/24/2023 **Time:** 12:49

Floodplain unit: ☐ Low-Flow Channel ■ Active Floodplain ☐ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Medium Sand

Total veg cover: 40 % Tree: 0 % Shrub: 30 % Herb: 10 %

Community successional stage:

- ☐ NA
- ■ Early (herbaceous & seedlings)
- ■ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ■ Soil development
- ☐ Surface relief
- ■ Other: Exposed Roots
- ☐ Other:
- ☐ Other:

Comments:

Dominant vegetation at OHWM: Graminoids

Floodplain unit: ■ Low-Flow Channel ☐ Active Floodplain ■ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture:

Total veg cover: 75 % Tree: 0 % Shrub: 60 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ■ Mid (herbaceous, shrubs, saplings)
- ■ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ■ Presence of bed and bank
- ☐ Benches
- ■ Soil development
- ☐ Surface relief
- ■ Other: Shelving at top of bank
- ☐ Other:
- ☐ Other:

Comments:

Dominant vegetation above OHWM: ECNA10, ARTR2, BOGR2, PLJA

APPENDIX B

Figures

Figure 1. Overview of P01, a non-wetland surface aquatic feature (pond), facing east on April 4, 2023.

Figure 2. Overview of P02, a non-wetland surface aquatic feature (pond), facing south on April 4, 2023.

Figure 3. Overview of P03, a non-wetland surface aquatic feature (pond), facing north toward WPX's NE Chaco COM #254H APD project and cattle scat in foreground on May 8, 2024.

Figure 4. Overview of P03, a non-wetland surface aquatic feature (pond), facing east toward dike and berm structures on May 8, 2024.

Figure 5. Google Earth Imagery Date 6/24/2014 – P01 and P02 - evidence of manmade livestock ponds; note the grading from heavy equipment cleaning out the area of the ponds.

Figure 6. GoogleEarth Imagery Date 10/13/2017 – P01 and P02 - evidence of manmade livestock ponds; note the surrounding dikes constructed to contain water.

Figure 7. GoogleEarth Imagery Date 5/21/2024 – P03 - evidence of manmade pond; note the dike on the eastern side.

Figure 8. Overview of P01 (top) and P02 (bottom), from drone imagery facing north on May 12, 2025.

Figure 9. Overview of P01 (bottom) and P02 (top), from drone imagery facing south on May 12, 2025.

Figure 10. Overview of P03 from drone imagery facing north toward WPX's NE Chaco COM #254H APD project on May 12, 2025.

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-147
Revised April 3, 2017

Recycling Facility and/or Recycling Containment

Type of Facility: ☒ Recycling Facility ☒ Recycling Containment*

Type of action: ☒ Permit ☐ Registration
☐ Modification ☐ Extension
☐ Closure ☒ Other (explain) AR Tech Memo Addendum

*** At the time C-147 is submitted to the division for a Recycling Containment, a copy shall be provided to the surface owner.**

Be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.

Operator: **Enduring Resources, LLC** (For multiple operators attach page with information) OGRID #: **372286**

Address: **200 Energy Court, Farmington, New Mexico 87401**

Facility or well name (include API# if associated with a well): **NE Lybrook 2306-06P WSW Pad**

OCD Permit Number: 3RF-88 (For new facilities the permit number will be assigned by the district office)

U/L or Qtr/Qtr **SE/SE** Section **6** Township **23N** Range **06W** County: **Rio Arriba**

Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.

☒ **Recycling Facility:**

Location of recycling facility (if applicable): Latitude **36.247787** Longitude **-107.503662** NAD83

Proposed Use: ☒ Drilling* ☒ Completion* ☒ Production* ☐ Plugging *

The re-use of produced water may NOT be used until fresh water zones are cased and cemented

☐ Other, ***requires permit for other uses. Describe use, process, testing, volume of produced water and ensure there will be no adverse impact on groundwater or surface water.***

☒ Fluid Storage

☒ Above ground tanks ☒ Recycling containment ☐ Activity permitted under 19.15.17 NMAC explain type

☐ Activity permitted under 19.15.36 NMAC explain type: ☐ Other explain

☐ For multiple or additional recycling containments, attach design and location information of each containment

☐ **Closure Report (required within 60 days of closure completion):** ☐ Recycling Facility Closure Completion Date:

3.

☒ **Recycling Containment:**

☐ Annual Extension after initial 5 years (attach summary of monthly leak detection inspections for previous year)

Center of Recycling Containment (if applicable): Latitude **36.247787** Longitude **-107.503662** NAD83

☒ For multiple or additional recycling containments, attach design and location information of each containment

☒ Lined ☐ Liner type: Thickness **40** mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other

☒ String-Reinforced

Liner Seams: ☒ Welded ☒ Factory ☐ Other Volume: **626,000** bbl

Dimensions: Radius **x9 60K ASTs 90' Radius & x2 43K ASTs 81'2" Radius** x Height **12' each**

☐ Recycling Containment Closure Completion Date:

4.

Bonding:

☒ Covered under bonding pursuant to 19.15.8 NMAC per 19.15.34.15(A)(2) NMAC **(These containments are limited to only the wells owned or operated by the owners of the containment.)**

☐ Bonding in accordance with 19.15.34.15(A)(1). Amount of bond $_____ **(work on these facilities cannot commence until bonding amounts are approved)**

☐ Attach closure cost estimate and documentation on how the closure cost was calculated.

5.

Fencing:

☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet

☒ Alternate. Please specify _____ **See variance request in registration package Exhibit H** _____

6.

Signs:

☒ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☐ Signed in compliance with 19.15.16.8 NMAC

7.

Variances:

Justifications and/or demonstrations that the proposed variance will afford reasonable protection against contamination of fresh water, human health, and the environment.

Check the below box only if a variance is requested:

☒ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval. If a Variance is requested, include the variance information on a separate page and attach it to the C-147 as part of the application.

If a Variance is requested, it must be approved prior to implementation.

8.

Siting Criteria for Recycling Containment

Instructions: The applicant must provide attachments that demonstrate compliance for each siting criteria below as part of the application. Potential examples of the siting attachment source material are provided below under each criteria.

General siting

Ground water is less than 50 feet below the bottom of the Recycling Containment. NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; written approval obtained from the municipality	☐ Yes ☒ No ☐ NA
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Minerals Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; topographic map	☐ Yes ☒ No
Within a 100-year floodplain. FEMA map	☐ Yes ☒ No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; aerial photo; satellite image	☐ Yes ☒ No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; topographic map; visual inspection (certification) of the proposed site	☐ Yes ☒ No

9.
Recycling Facility and/or Containment Checklist:
Instructions: Each of the following items must be attached to the application. Indicate, by a check mark in the box, that the documents are attached.

- ☐ Design Plan - based upon the appropriate requirements. **– Section 3 of the C-147 Registration Package**
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements. - **Section 4 of the C-147 Registration Package**
- ☐ Closure Plan - based upon the appropriate requirements. - **Section 5 of the C-147 Registration Package**
- ☐ Site Specific Groundwater Data – **Exhibit D of the C-147 Registration Package**
- ☒ Siting Criteria Compliance Demonstrations **– AR Tech Memo Addendum Revision**
- ☐ Certify that notice of the C-147 (only) has been sent to the surface owner(s) – **C-147 package is being submitted concurrently to the Division and BLM FFO. See Exhibit C of the C-147 Registration Package for additional surface owner notification.**

10.
Operator Application Certification:
I hereby certify that the information and attachments submitted with this application are true, accurate and complete to the best of my knowledge and belief.

Name (Print): **Heather Huntington** Title: **Permitting Technician**
Signature: Heather Huntington Date: **05/15/25**
e-mail address: **hhuntington@enduringresources.com** Telephone: **505-636-9751**

11.
OCD Representative Signature: Victoria Venegas **Approval Date:** 05/27/2025
Title: Environmental Specialist **OCD Permit Number:** 3RF-88
☒ OCD Conditions
☐ Additional OCD Conditions on Attachment

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator: ENDURING RESOURCES, LLC 6300 S Syracuse Way Centennial, CO 80111	OGRID: 372286
	Action Number: 460903
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
vvenegas	None	5/27/2025