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WQCC 24-65(R):
Petition to Amend 20.6.4.126 NMAC and 20.6.4.141 NMAC to Establish a Segment-Specific Temperature Criterion for a Portion of the Upper Sandia Canyon Assessment Unit

Direct Testimony of Timothy J. Goering on behalf of Petitioners (Triad National Security, LLC, and the U.S. Department of Energy, NNSA, Los Alamos Field Office)

May 13, 2025

LA-UR-25-24096

Managed by Triad National Security, LLC, for the U.S. Department of Energy's NNSA.

Testimony Overview

- Tim Goering Qualifications
- Physical Setting
- Use Attainability Analysis (UAA): Regulatory Framework
- Upper Sandia Canyon (UAA): History and Need
- UAA Work Plan Structure and Requirements
- Regulator Engagement
- Stakeholder Outreach and Public Engagement
- Recommended Amendments to NM Water Quality Standards (20.6.4.126 and 20.6.4.141 NMAC)

Sandia Canyon Wetland, 2024

Tim Goering Qualifications

Education

- B.A. Environmental Science, University of Virginia
- M.S. Hydrology and Water Resources, University of Arizona

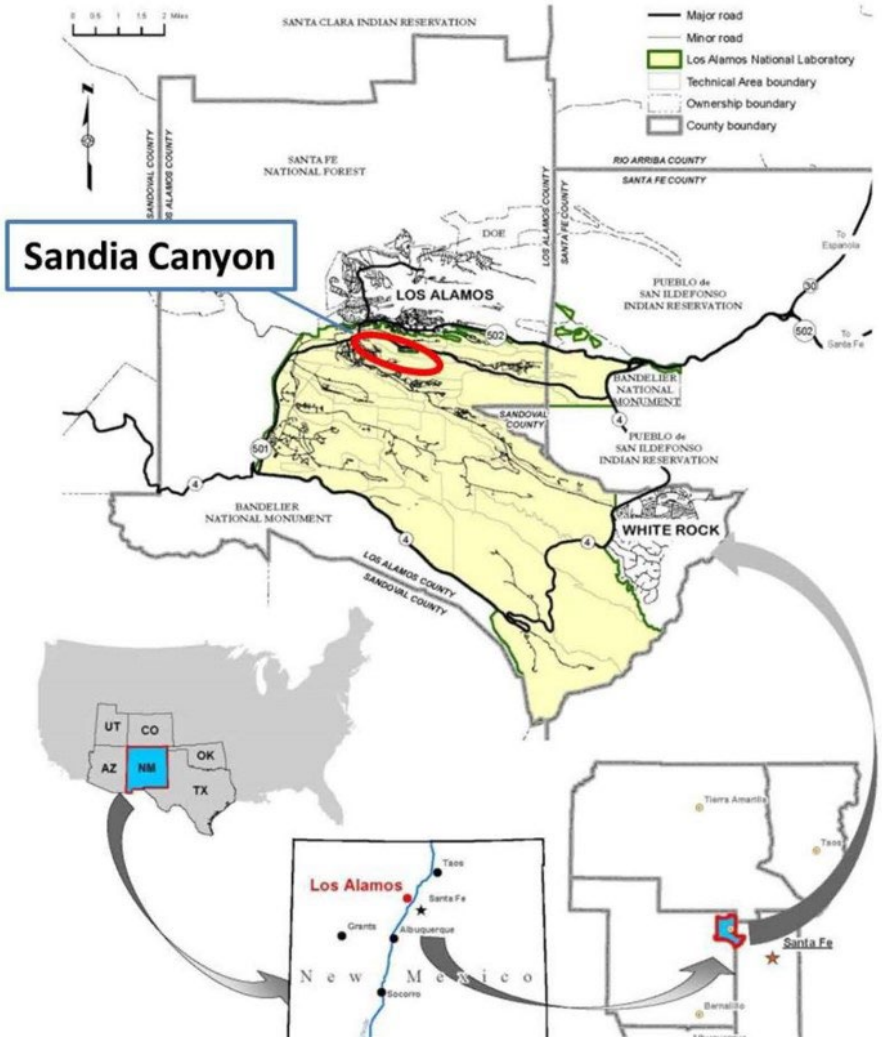
Professional Experience

- Nearly 40 years, with a focus on hydrology, groundwater characterization & remediation, environmental restoration, and surface water quality standards
- Currently support LANL's surface water quality standards program
- Served as the technical lead for the Laboratory's groundwater monitoring program from 2007 to 2015

Role in Developing Final UAA

- Reviewed initial UAA draft by LANL (Robert Gallegos) and Windward Environmental, LLC
- Stakeholder outreach & and public engagement process
- Co-authored responses to comments from NMED, EPA, and the public
- Co-authored Final UAA

Location of Sandia Canyon at Los Alamos National Laboratory



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Physical Setting

- Upper Sandia Canyon is perennial, with the segment currently classified under 20.6.4.126 NMAC.
- Flow in Sandia Canyon is effluent dependent, originating from NPDES-permitted outfalls 001, 027, and 199.
- The upper Sandia Canyon assessment unit (AU) originates at Outfall 001, the primary source for perennial flow.
  - Releases have occurred since the early 1950s
  - Outfall 001 discharges ~ 191,000 gallons per day
  - Discharge supports a 3.65 ac wetland downstream
- The AU extends 2.22 miles to the east to Sigma Canyon.
- Beyond Sigma Canyon, flow is ephemeral and is classified under 20.6.4.128 NMAC.
- Flow in Sandia Canyon rarely reaches the Rio Grande, except after significant precipitation events.
- There are no fish in Sandia Canyon.

What is a Use Attainability Analysis (UAA)?

EPA

Recreation

Consumption of Aquatic Life

Aquatic Life

Clean Water Act Waterbody Uses

A UAA is a scientific evaluation of the factors affecting the ability of a waterbody to attain a designated use.

A UAA leads to getting the right designated use in place for the waterbody.

Factors Affecting Use Attainability

1. Naturally occurring pollutants

2. Low-flow conditions

3. Human-caused conditions

4. Hydrologic modifications

5. Physical conditions of the waterbody

6. Economic and social impacts

Office of Water 823-F-24-006

For more information on designated use revisions visit the EPA's website.

Use Attainability Analysis: Regulatory Basis

- A Use Attainability Analysis (UAA) is a structured scientific assessment of the factors affecting attainment of uses specified in Section 101(a)(2) of the Clean Water Act.
- Under 40 CFR 131.10(g), a designated use, which is not an existing use may be removed if a UAA demonstrates the designated use is not feasible based on one of six factors, including:
  - Naturally occurring pollutant concentrations prevent the attainment of the use.
- In New Mexico, a third-party may propose amendments to designated use by petitioning WQCC after performing a UAA (20.6.4.14 NMAC)

Upper Sandia Canyon Use Designation Timeline

2005

WQCC adopts Upper Sandia Canyon AU as classified water of the state with coldwater ALU, segment specific TMax of 24°C.

ALU assignment based on 2002 USFWS study using continuous temperature data from 1997.

2007

NMED prepares UAA to document attainable recreational and aquatic life uses in Segment 126 and 128 waters at LANL. Coldwater ALU is proposed for Sandia Canyon AU. EPA approves UAA in September 2007.

2010

WQCC eliminates site-specific TMax of 24°C; replaces it with general temperature criteria in NMAC 20.6.4.900(H) (TMax of 24°C and 6T3 of 20°C) for coldwater ALUs.

Upper Sandia Canyon Use Designation Timeline (continued)

2014

LANL initiates investigation to determine if naturally occurring thermal conditions prevent attainment of coldwater ALU in Sandia Canyon.

2018

NMED classifies perennial reach of Sandia Canyon as impaired for temperature in 2018 – 2020 CWA 303(d)/305(b) Integrated Report.

Los Alamos submits first draft UAA Work Plan to NMED.

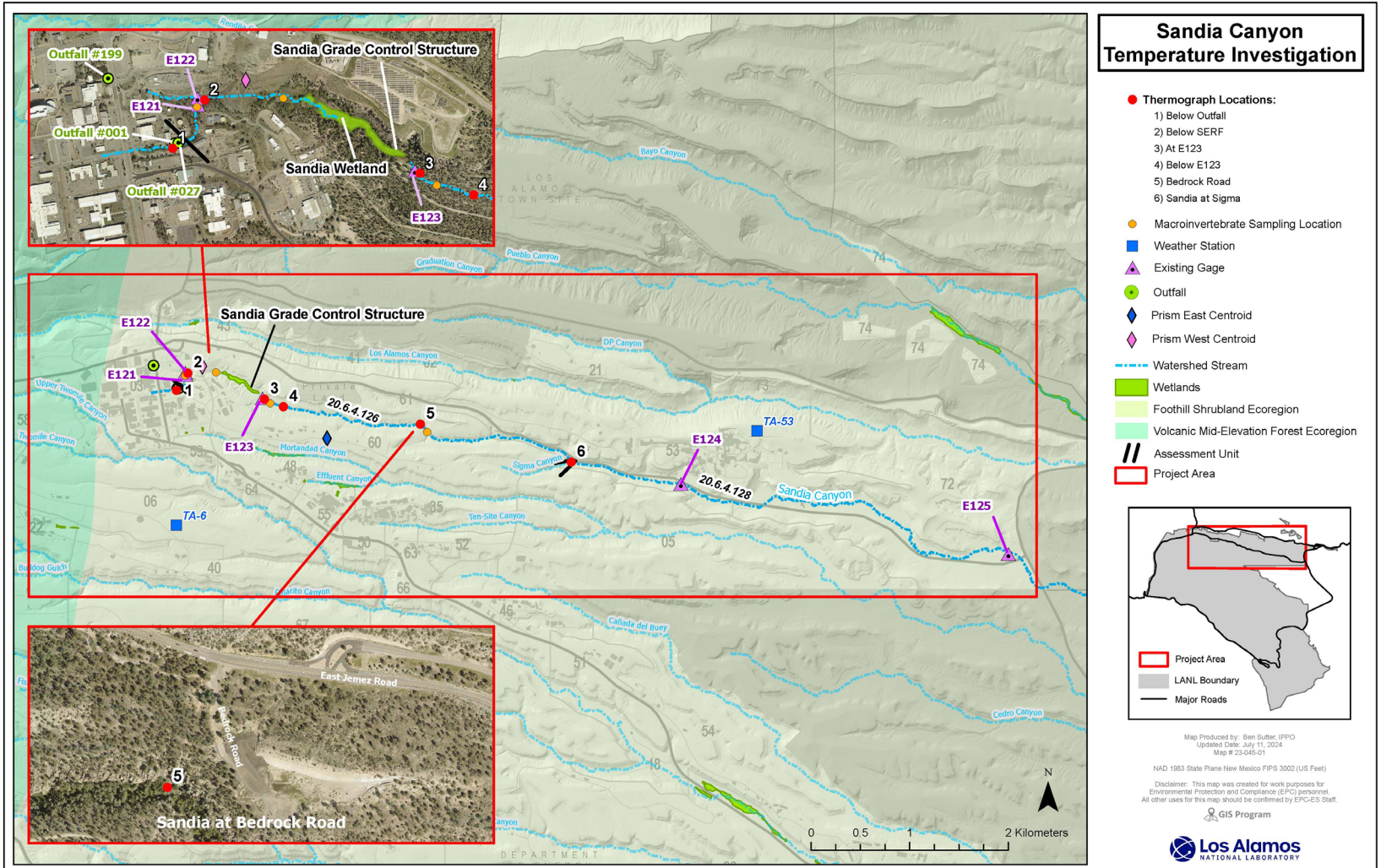
2020

LANL submits revised UAA Work Plan, and NMED approves UAA Work Plan on April 9.

Upper Sandia Canyon: Impaired for Temperature

- Sandia Canyon assessment unit listed as **impaired for temperature** under the CWA 303(d)/305(b) 2018-2020 Integrated Report, and in subsequent integrated reports.
  - Assigned to Category 5/5B, indicating designated use may not be supported, and a review of assigned standards is required to verify appropriate ALU.

- This UAA was conducted to determine the **most protective attainable aquatic life use** in the perennial reach of Sandia Canyon, and to evaluate whether the current coldwater aquatic life use can be attained.



Sandia Canyon Temperature Investigation

- **Thermograph Locations:**
  1) Below Outfall
  2) Below SERF
  3) At E123
  4) Below E123
  5) Bedrock Road
  6) Sandia at Sigma
- Macroinvertebrate Sampling Location
- Weather Station
- Existing Gage
- Outfall
- Prism East Centroid
- Prism West Centroid
- Watershed Stream
- Wetlands
- Foothill Shrubland Ecoregion
- Volcanic Mid-Elevation Forest Ecoregion
- Assessment Unit
- Project Area

Map Produced by: Ben Sutter, IPPO
Updated Date: July 11, 2024
Map # 23-045-01

NAD 1983 State Plane New Mexico FIPS 3002 (US Feet)

GIS Program

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NM Temperature Criteria for Designated ALUs

Aquatic Life Designated Use	Maximum Temp. (°C)	6T3(°C)	4T3 (°C)
High-Quality Coldwater	23	--	20
Coldwater	24	20	
Marginal Coldwater[1]	29	25	--
Coolwater	29	--	--
Warmwater	32.2		
Marginal Warmwater[1]	32.2	--	--

4T3 – water temperature not to be exceeded for 4 or more consecutive hours in a 24-hour period on more than 3 consecutive days
6T3 – water temperature not to be exceeded for 6 or more consecutive hours in a 24-hour period on more than 3 consecutive days

[1]Marginal in reference to an aquatic life use means natural intermittent or low flow or other natural habitat conditions severely limit the maintenance of aquatic life, and therefore, may not apply to the perennial reach of Upper Sandia Canyon.

Sandia Canyon UAA Work Plan

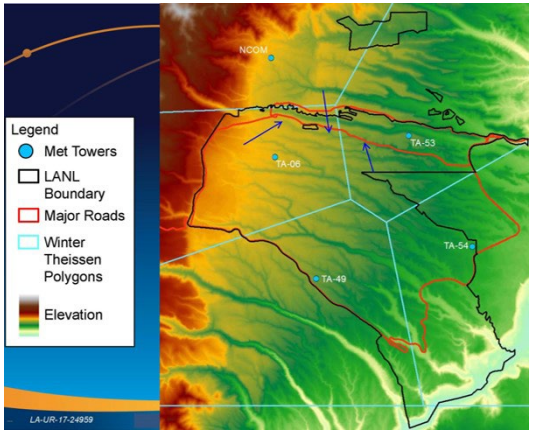
- Work plan development was an iterative process
  - 2018, 2019 draft UAA work plans prepared
  - Work plans revised based on NMED feedback

- 2020 Final UAA Work Plan developed addressing NMED's comments
  - Final Work Plan submitted February 10, 2020
  - Approved by NMED April 9, 2020

- Work Plan utilized multiple lines of evidence to identify the most protective aquatic life use for the reach

UAA Lines of Evidence Required Under the Work Plan

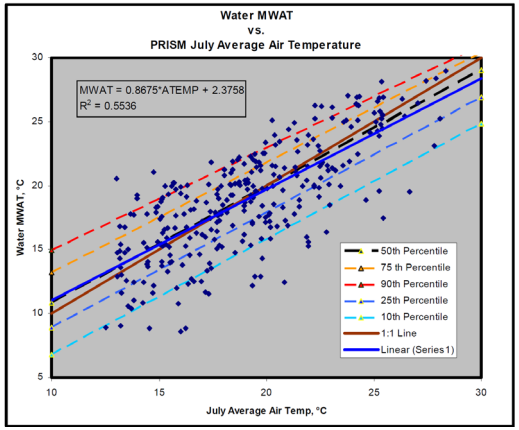
Stream Temperature Data from Thermographs



PRISM Surface Air Temperature Data

Near-surface Air Temperature Data from LANL Meteorological Network

UAA Lines of Evidence (continued)



NMED Air Water Temperature Correlation Model

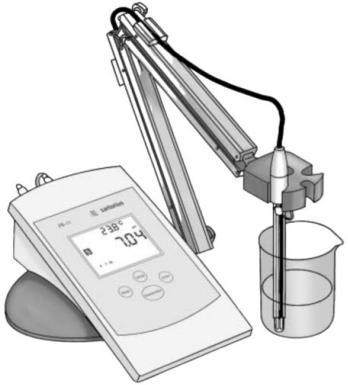
Stream Flow Data from Five Gage Stations

Analysis of Discharge Volume and Temperature at Outfall 001

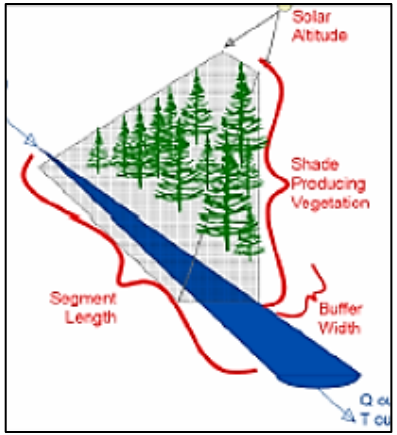
UAA Lines of Evidence (continued)

Evaluation of Impacts on Threatened or Endangered Species

Aquatic Life Surveys



Dissolved Oxygen and pH Measurements



USGS Stream Segment Temperature (SSTEMP) Model

Consultation and Engagement with NMED & EPA

2015: Initial correspondence between LANL and NMED regarding water temperature study and AWTC

2018 – 2020: Work Plan development

2021: Submittal of Draft UAA to NMED and EPA

2022: NMED, EPA and public comments received

2017 – 2024: Meetings to discuss UAA, comments, and recommendations

2024: Submittal of Final UAA to NMED

Engagement with NMED & EPA

Date	Engagement	Participants
10/5/2015	LANL notifies NMED of investigation to determine if natural thermal conditions are preventing attainment of coldwater ALU	DOE/LANL; NMED
03/15/2015	NMED responds with recommendations based on the AWTC and water temperature data, including request for continuation of stream temperature monitoring	DOE/LANL; NMED
10/30/2017	DOE/LANL meet with NMED to discuss Sandia Canyon temperature investigation	DOE/LANL; NMED
06/27/2018	DOE/LANL submit draft UAA workplan	DOE/LANL; NMED
09/14/2018	NMED completes their review of the workplan, provides comments, copies EPA	DOE/LANL; NMED EPA R. 6
2019	DOE/LANL submit draft UAA workplan to NMED	DOE/LANL; NMED
02/10/2020	DOE/LANL submit final UAA workplan	DOE/LANL; NMED
04/09/2020	NMED provides written approval of the workplan; copy to EPA	DOE/LANL; NMED EPA R. 6
10/25/2021	DOE/LANL submit Final Draft UAA to NMED	DOE/LANL; NMED
01/13/2022	NMED sends DOE/LANL request for extension of time for Upper Sandia Canyon UAA public comment period	DOE/LANL; NMED EPA R. 6
Spring 2022 - Fall 2023	LANL updates Sandia Canyon UAA based on comments from NMED, EPA, and the public	DOE/LANL; NMED EPA R. 6

Stakeholder Outreach and Public Participation Process

Outreach and engagement requirements were specified in the appproved Work Plan

- UAA process involved 2 rounds of public notice, comment and response, and report revision
- Comments emphasized importance of measured over modeled data and encouraged ensuring protection of downstream waters
- Final UAA recommendation was adjusted in response, and now maintains coldwater in easternmost portion of the existing AU

Presentations to:

- NNMCAB (Northern New Mexico Citizens' Advisory Board)
- ATEM (Accord Pueblos, including Pueblo de San Ildefonso, Santa Clara Pueblo, Pueblo of Jemez, Pueblo de Cochiti)
- EJRC (East Jemez Resource Council)

Stakeholder and Public Engagement

Date	Engagement	Participants
12/5/2018	Presentation to Santa Clara Pueblo	Santa Clara Pueblo, LANL, DOE
02/7/2019	Presentation to San Ildefonso Pueblo	San Ildefonso Pueblo, LANL, DOE
04/25/2019	Presentation to Jemez Pueblo	Jemez Pueblo, LANL, DOE
11/13/2019	Presentation to NNMCAB	NNMCAB, LANL, DOE, N3B
11/14/2019	Presentation to EJRC	EJRC (Forest Service, National Park service, USGS, Army Corps of Engineers, DOE, LANL, NMED)
9/30/2020	Presentation to ATEM	Accord Pueblos (San Ildefonso, Santa Clara, Jemez, and Cochiti Pueblos), LANL, DOE, N3B
12/10/2020	Presentation to EJRC	EJRC
2/23/2021	Presentation to ATEM	Accord Pueblos, LANL, DOE, N3B
10/13/2021	Presentation to NNMCAB	NNMCAB, LANL, DOE, N3B
12/20/21 to 3/7/22	Draft UAA Public Notice and Public Comment Period	Public
02/23/2022	Presentation to ATEM	Accord Pueblos, LANL, DOE, N3B
3/29/202	Presentation to Federal Environmental Symposium	Federal Environmental Symposium
05/7/2024	Presentation to EJRC	EJRC
5/13/24 to 6/12/24	Final UAA Public Notice and Public Comment Period	Public
6/27/2024	Presentation to ATEM	Accord Pueblos, LANL, DOE, N3B

Public Notice Process

- **Draft and Final UAA Provided to Stakeholders, Pueblos, and the Public for Comment**
  - Newspaper publication in the Rio Grande Sun, Los Alamos Daily Post, & Santa Fe New Mexican
  - Notice provided and UAA made available on LANL's Electronic Public Reading Room (EPRR), GovDelivery service, and LANL Physical Reading Room
- **Draft UAA Public Comment Period**
  - 45-Day Public Comment Period with 30-Day Extension: December 20, 2021, through February 3, 2022
  - At NMED's request, the draft UAA public comment period was extended for 30 days, through March 7, 2022
  - Comments received from NMED, EPA and the public
- **Final UAA Public Comment Period**
  - 30-Day Public Comment Period: May 13, 2024, to June 12, 2024
  - No comments received

Recommended Amendments to NM Water Quality Standards (20.6.4.126 and 20.6.4.141 NMAC)

- The current designated use for the upper Sandia Canyon AU is **coldwater**.
- Multiple lines of evidence indicate that the **coldwater ALU is unattainable** for the entire perennial reach.
- **Air temperature has a significant influence** on stream temperatures in Sandia Canyon, and the resulting attainable use.
- Water **temperatures are cooler in the lower portion** of the canyon due to orographic and microclimate effects.

- DOE/Triad recommend splitting the reach:
  - Coolwater ALU segment from Bedrock Rd to Outfall 001
    - TMax of 29 °C
    - 6T3 of 25 °C
  - Coldwater ALU segment from Sigma Canyon to Bedrock Rd
    - TMax of 24 °C
    - 6T3 of 20 °C

[Extra slides]

Final Sandia Canyon UAA Development

1

Meeting with NMED on April 25, 2023

- Discussed NMED and EPA comments and public comments (**Ex. F & G**).
- Discussed updates to UAA based on comments.

2

Final UAA developed from Spring 2022 through Fall 2023

- Updates based on comments received from NMED, EPA, and the public (**Ex. F & G**).

3

Responses to NMED, EPA & public comments provided to NMED on November 6, 2023 (**Ex. H**).

4

Responses to public comments submitted 3/15/24 (**Ex. J**).

5

Final UAA submitted to NMED 2/21/24 (**Ex. B**).