DIRECT TECHNICAL TESTIMONY OF STEPHANI CLARK BARKALOW

I. INTRODUCTION

My name is Stephani Clark Barkalow , and I am presenting this written testimony (**NMED Exhibit 1**) on behalf of the New Mexico Environment Department ("NMED") concerning the proposal to amend the State of New Mexico's Standards for Interstate and Intrastate Surface Waters ("Water Quality Standards" or "WQS"), codified at Title 20, Chapter 6, Part 4 of the New Mexico Administrative Code (20.6.4 NMAC) for a reach of Tijeras Arroyo. National Technology & Engineering Solutions of Sandia, LLC (NTESS) on behalf of the United States Department of Energy (DOE)/National Nuclear Security Administration/Sandia Field Office (collectively, the "Petitioners"), proposes to amend 20.6.4.97 NMAC to include "Tijeras Arroyo, Rio Grande to Four Hills Bridge" on the list of ephemeral waters. The Tijeras Arroyo assessment unit (AU NM-9000.A_070) is currently classified as intermittent under 20.6.4.98 NMAC, with designated uses that include livestock watering, wildlife habitat, warmwater aquatic life, and primary contact. Upon approval of the proposed reclassification, the designated uses would be amended to reflect the change from intermittent to ephemeral and would thereby remove primary contact and marginal warmwater aquatic life and add secondary contact and limited aquatic life. These proposed WQS amendments follow the provisions of 20.6.4.10 and 20.6.4.15 NMAC allowing such amendments. My testimony will provide background on the framework for Water Quality Standards including designated uses and criteria, outline the administrative processes and procedures for amendments (20.1.6 NMAC and 20.6.4 NMAC), and describe NMED's coordination with the petitioners regarding stakeholder engagement, development of a Use Attainability Analysis, and public notice of the rulemaking hearing.

II. QUALIFICATIONS

I am currently employed by the Surface Water Quality Bureau ("SWQB") Monitoring and

Standards Section ("MASS") as a Water Quality Standards Scientist and have held this position since April 2025. I am responsible for evaluating proposed water quality standards and preparing technical water quality standards demonstrations for New Mexico's surface waters in accordance with the New Mexico Water Quality Act and the federal Clean Water Act.

I hold a Bachelor of Science degree in Biology from the University of New Mexico and a Master of Science degree in Fisheries Conservation and Management from the University of Arizona. My master's work focused on evaluating water quality impacts on sensitive life stages of an endangered fish species, identifying lethal thresholds of suspended sediments, and developing recommendations to mitigate water quality degradation. My findings from this research were published in the *Transactions of the American Fisheries Society* in 2015. This research, and my other peer-reviewed published papers, are referenced in my resume.

Prior to working for NMED, I worked with water quality issues in various capacities. From March 2014 to October 2024, I worked as a biologist for a fisheries consulting firm where I evaluated impacts of land and water development on aquatic ecosystems, led ecological studies focusing on sedimentation, entrainment, and aquatic habitat quality, and investigated the influence of geology on concentrations of related elements in water and fish tissues. Most recently, I worked as a biologist with U.S. Fish and Wildlife Service from November 2024 to February 2025 where I administered National Fish and Wildlife Foundation funds in compliance with the Endangered Species Act and Clean Water Act, developed and directed projects related to water quality monitoring, and conducted evaluations of environmental data. An accurate and up-to-date copy of my resume is included as **NMED Exhibit 2**.

III. WATER QUALITY STANDARDS

Under the New Mexico Water Quality Act ("WQA"), the Water Quality Control

Commission ("WQCC" or "Commission") is responsible for adopting Water Quality Standards. NMSA 1978, § 74-6-4(D). The standards must at a minimum protect public health or welfare, enhance the quality of water and serve the purposes of the WQA. *Id.* The federal Clean Water Act ("CWA") regulations provide similar direction: "States adopt water quality standards to protect public health or welfare, enhance the quality of water and serve the purposes" of the CWA. 40 C.F.R. § 131.2. Section 101(a)(2) of the CWA requires that, wherever attainable, water quality shall provide "for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water." 33 U.S.C. § 1251(a). In accordance with 40 C.F.R. § 131.10(a), each State must specify appropriate water uses to be achieved and protected. Additionally, adoption of WQS must ensure the attainment and maintenance of WQS for downstream waters. 40 C.F.R. § 131.10(b). The requirements as outlined under 40 C.F.R. § 131 and the CWA have been codified under the Water Quality Standards at 20.6.4 NMAC.

A water quality standard "defines the goals for a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses." 40 C.F.R. § 131.2. The designated uses in New Mexico's Surface Water Quality Standards, set forth in 20.6.4.900 NMAC, are:

- fish culture
- public water supply
- industrial water supply
- domestic water supply
- irrigation and irrigation storage
- primary and secondary contact
- livestock watering
- wildlife habitat, and
- aquatic life (coldwater, coolwater, warmwater, limited aquatic and three other subcategories)

The Standards also establish water quality criteria, which protect the designated uses of a

water body. Criteria also serve as the primary regulatory basis for Total Maximum Daily Load calculations and National Pollutant Discharge Elimination System permit limits. These criteria can be general narrative criteria that apply to all waters, or numeric criteria that apply to a specific designated use or water quality segment. An example of a narrative criterion is that for plant nutrients, which states, "Plant nutrients from other than natural causes shall not be present in concentrations that will produce undesirable aquatic life or result in a dominance of nuisance species in surface waters of the state." 20.6.4.13(E) NMAC. Examples of numeric criteria include *Escherichia coli* monthly geometric mean and single sample criteria applicable to existing, designated, or attainable primary or secondary contact uses, found in 20.6.4.900(D) NMAC and 20.6.4.900(E) NMAC.

IV. BACKGROUND ON AQUATIC LIFE AND HUMAN CONTACT USES APPLICABLE TO 20.6.4.97 NMAC

Section 101(a)(2) of the federal Clean Water Act provides a national goal for the protection of fish, shellfish, and wildlife, and recreation in and on the water (i.e. "fishable/swimmable" uses). In accordance with 40 C.F.R. § 131.10(c), states may develop subcategories of the uses listed in CWA § 303(c), to refine and clarify specific use classes. Subcategories must specify the level of water quality that supports and protects the fishable/swimmable uses listed in CWA § 101(a)(2). 40 C.F.R. § 131.10(c). A surface water of the state is presumed to support the fishable/swimmable uses in Section 101(a)(2) of the CWA; however, the Commission may include an ephemeral surface water under 20.6.4.97 NMAC if a use attainability analysis demonstrates that attainment of the Section 101(a)(2) uses is not feasible. 20.6.4.11(H) NMAC. New Mexico has adopted seven subcategories of ALU: high quality coldwater, coldwater, marginal coldwater, coolwater, warmwater, marginal warmwater,

and limited aquatic life; and two recreational use categories related to human contact, primary contact and secondary contact. The WQS define these uses and set specific criteria for these subcategories in 20.6.4.900 NMAC Subsections D (primary contact), E (secondary contact), and H (aquatic life). Additionally, Subsections I, J, K, L, and M of 20.6.4.900 include acute criteria applicable to all ALU subcategories and chronic criteria applicable to all but limited aquatic life.

Unclassified waters of the state are those waters that have not been identified in sections 20.6.4.101 to 20.6.4.899 NMAC. Unclassified waters are presumed to support CWA § 101(a)(2) fishable/swimmable uses and are subject to 20.6.4.98 NMAC if nonperennial or 20.6.4.99 if perennial. Tijeras Arroyo (from Rio Grande to Four Hills Bridge) is currently protected under WQS reference 20.6.4.98 NMAC and is listed on the New Mexico CWA § 303(d)/§ 305(b) 2024-2026 Integrated Report (Appendix A). Tijeras Arroyo is designated Category 3/3A on the Integrated Report ("IR"), indicating that insufficient information is available to determine if designated or existing uses are being attained[1]. **NMED Exhibit 6**. In 2009, NMED conducted the *Hydrology Protocol*, as included in the appendices of the Commission-approved *Water Quality Management Plan – Continuing Planning Process* (**NMED Exhibit 7**), on this assessment unit and the results indicated that this assessment unit is ephemeral. However, the Commission may only include an ephemeral unclassified water of the state under 20.6.4.97 NMAC if a use attainability analysis ("UAA") demonstrates that CWA § 101(a)(2) fishable/swimmable uses are not feasible due to one of six factors identified in 40 C.F.R. § 131.10(g).

[1] IR Category 3/3A – Insufficient or no reliable monitored data and/or information to determine if any designated or existing use is attained. Assessment units are listed in this subcategory when there are no available data to assess. *See* NMED's Comprehensive Assessment and Listing Methodology (August 15, 2025), p. 45

V. USE ATTAINABILITY ANALYSIS REQUIREMENTS

Under the WQA, any person, including NMED, may at any time petition the Commission to adopt, amend, or repeal a water quality standard. NMSA 1978, § 74-6-6(B). In accordance with 20.6.4.15(E) NMAC, any person may submit notice to NMED stating their intent to conduct a UAA. A UAA is a scientific assessment of the factors (e.g., physical, chemical, biological, and economic) affecting the attainment of the designated use as described in 40 C.F.R. § 131.10(g). *See* 40 C.F.R. § 131.3(g). UAAs are required when revising CWA § 101(a)(2) designated uses (i.e., swimmable/fishable) with less stringent criteria or removing such designated use. 20.6.4.10(D) NMAC. Designated uses that are existing uses cannot be removed unless a designated use with more stringent criteria is adopted. 20.6.4.15(A)(2) NMAC. The revision of a designated use based on an existing use with more stringent criteria does not require a UAA. 20.6.4.15(A) NMAC.

UAAs must use scientifically defensible methods such as those outlined in the U.S. Environmental Protection Agency's ("EPA") *Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analyses* or the Hydrology Protocol. 20.6.4.15(B) NMAC. Additionally, UAAs that conclude that the revision or removal of the designated use is warranted based on one or more of the 40 C.F.R. § 131.10(g) factors, must determine the highest attainable use ("HAU") to be adopted. 20.6.4.15(C) NMAC. The HAU is the modified aquatic life or recreation use that is closest to the CWA §101(a)(2) use and that is attainable based on the evaluation of the 40 C.F.R. § 131.10(g) factors. Determination of HAU is not required where the UAA demonstrates that relevant designated uses in CWA § 101(a)(2) or their subcategories are not attainable. 40 C.F.R. § 131.3(m).

When NMED does not conduct the UAA, the person conducting the UAA must provide a

work plan that outlines its development for review and comment by NMED and the EPA. 20.6.4.15(E)(1) NMAC. The workplan must identify and include:

1. The waterbody and reasoning for the UAA.
2. The source of the data to be used to demonstrate the current designated use is not attainable.
3. The 131.10(g) factor(s) to be evaluated.
4. The data to be used to determine the HAU.
5. The state and federal agencies to be consulted.
6. The stakeholder engagement and outreach process.
7. The public notification process to be used.
8. The expected timeline, including any rulemaking activities that result from the UAA.

20.6.4.15(E)(3) NMAC.

Once comments from NMED and EPA are addressed, NMED approves the workplan and the UAA may be conducted in accordance with applicable sections of 20.6.4.15 NMAC. 20.6.4.15(E)(2) NMAC. The Proponent submits the outcome of the UAA, including data and findings, to NMED and provides public notice as outlined in the approved workplan. 20.6.4.15(E)(4) NMAC. If a WQS revision is warranted, NMED or the person conducting the UAA may petition the Commission for a rulemaking to modify the designated use. 20.6.4.15(E)(5) NMAC.

VI. WATER QUALITY STANDARDS AMENDMENT PROCESS

Rulemaking before the Commission begins when a person files a written petition and statement of reasons to adopt, amend, or repeal a regulation in accordance with 20.1.6.200 NMAC. The petition must specify the statutory authority for the Commission to adopt proposed rules, estimate the amount of time to conduct the hearing, and include a copy of the entire rule proposed changes in redline fashion. 20.1.6.200(B) NMAC. The Commission may grant a rulemaking hearing in accordance with 20.1.6.200(C) NMAC and specify the procedures for conducting the hearing as outlined in 20.1.6.200(D) NMAC, including provisions for public notice and public

participation.

The Commission must provide to the public notice of proposed rulemaking at least 60 days prior to the hearing. 20.1.6.201(A) NMAC. The public notice must include publication in a newspaper of general circulation, the *New Mexico Register*, and such other means as directed by the Commission or required by law. 20.1.6.201(B) NMAC. The rulemaking public notice must include: the subject, a summary, and the purpose of the proposed rule, the legal authority for the rule and its adoption, the technical basis for the proposed rule and how to find technical information, governing laws of procedure, and information on how to present information and participate in the hearing, examine documents, and download information. 20.1.6.201(C)(1) through (7) NMAC. The public notice may also state that the Commission's may make a decision on the proposed rule at the conclusion of the hearing. 20.1.6.201(C)(8) NMAC. In addition to publication of notice, the Commission must "provide to the public" by distributing rulemaking information as follows:

- posting it on the commission's website,
- posting it on the New Mexico sunshine portal,
- making it available at the applicable constituent agency's district, field, and regional offices,
- sending it by email to persons who have made a written request for notice of announcements addressing the subject of the rulemaking proceeding and who have provided an email address to the commission administrator,
- sending it by email to persons who have participated in the rulemaking and who have provided an email address to the commission administrator,
- sending written notice that includes, at a minimum, an internet and street address where the information may be found to persons who provide a postal address; and
- providing it to the New Mexico legislative council for distribution to appropriate interim and standing legislative committees.

20.1.6.7(P)(1)through (7) NMAC.

The Commission must hold a public hearing and consider technical testimony to adopt new or revised standards. NMSA 1978, § 74-6-6(A). NMED must submit new or revised standards to

EPA for approval and use in CWA programs. 40 C.F.R. § 131.20(c).

VII. WORKPLAN COORDINATION, UAA DEVELOPMENT, AND PUBLIC NOTICE

On December 20, 2017, NMED received the final work plan from the Petitioners for the development of a UAA to evaluate if natural ephemeral, intermittent, or low flow conditions or water levels prevent the attainment of the use(s) (40 C.F.R. § 131(g)(1)) for the Tijeras Arroyo assessment unit classified under 20.6.4.98 NMAC. The work plan provided transparency, planning, and a common understanding of the need for the designated use revisions. In addition to the technical aspects of the workplan, the Petitioners included their plans for stakeholder outreach, public engagement, and consultation with state and federal agencies. NMED approved the workplan on February 9, 2018. **NMED Exhibit 8**.

The Petitioners developed a draft UAA report based on the work plan and submitted it to NMED for review on June 8, 2020. NMED reviewed the UAA report and provided formal written comments that also included EPA's comments to the Petitioners on September 21, 2021. **NMED Exhibit 9**. After Petitioners completed the UAA, amendments were made to 20.4.6.15 NMAC that clarified the requirements of an expedited UAA utilizing the Hydrology Protocol. As a result, the Petitioners submitted a revised UAA on August 23, 2022. A revised work plan was also submitted to NMED on January 31, 2023, that clarified the administrative process. NMED approved the revised work plan on March 8, 2023. **NMED Exhibit 10**. NMED submitted formal comments on the second draft of the UAA on April 3, 2023. **NMED Exhibit 11**.

The Petitioners addressed NMED's and EPA's comments in a revised UAA report dated June 8, 2023. Throughout the process, the Petitioners solicited input from stakeholders and the public and held a public meeting on March 5, 2025. No public comments were received, thus the

UAA was not amended. The revised UAA included the proposed classification of Tijeras Arroyo (Rio Grande to Four Hills Bridge) as ephemeral under 20.6.4.97 NMAC. The Petitioners held a public comment period from February 8, 2025 to April 10, 2025 and did not receive any comments. The Petitioners provided the final UAA and description of the public input process with the Petition submitted to the Commission in this matter.

The Petitioners drafted and published public notice for the originally scheduled hearing in the *Albuquerque Journal* and the *New Mexico Register* in accordance with the State Rules Act and 20.1.6.201 NMAC. **NMED Exhibit 12**; NMSA 1978, § 14-4-5.2(D). NMED assisted the Petitioners and Commission with notification requirements and provided rulemaking information to the public, as described in 20.1.6.7(P) NMAC. NMED completed the "provide to the public" requirements on or before August 14, 2025 by: posting the notice of rulemaking to the Commission's website, the New Mexico Sunshine Portal, at NMED's District and Field Offices, and sending emails with the public notice of rulemaking to the Office of Public Facilitation's and SWQB's stakeholder lists and Listserv subscribers, EPA Region 6, and to the Legislative Council Service. Additionally, NMED sent notice to the Small Business Regulatory Advisory Committee, posted the public notice and rulemaking information on its events calendar, the SWQB's website, the NMED Public Notice website, and created an entry for the Commission to receive comments through NMED's Public Comment Portal. **NMED Exhibit 13**. NMED initially provided notice and a copy of the proposed rule amendment to the Small Business Regulatory Advisory Council, in accordance with NMSA 1978, § 14-4A-4. **NMED Exhibit 14**.

The hearing officer accommodated the parties' request to reschedule the rulemaking hearing to allow for publication of the public notice in the *Albuquerque Journal* in both English and Spanish and for republishing in the *New Mexico Register*. **NMED Exhibit 15**. NMED

repeated or updated the above mentioned "provide to the public" requirements on or before October 10, 2025. **NMED Exhibit 16**. NMED also provided an updated letter to the Small Business Regulatory Advisory Council to provide courtesy notice of the rescheduled rulemaking hearing. **NMED Exhibit 17**.

VIII. CONCLUSION

Commission regulations allow for the amendment of designated uses and classification of unclassified waters, when supported by scientifically defensible methods consistent with 20.6.4.10 NMAC, 20.6.4.15 NMAC, and 40 C.F.R. § 131. For Tijeras Arroyo (Rio Grande to Four Hills Bridge), the UAA demonstrates that naturally occurring hydrologic conditions prevent attainment of the CWA § 101(a)(2) fishable/swimmable uses applicable to intermittent waters protected under 20.6.4.98 NMAC. Based on natural ephemeral and low flow conditions, secondary contact and limited aquatic life are the attainable uses in this assessment unit and designating this assessment unit "ephemeral" is appropriate and protective.

In 2017, NMED and Petitioners engaged on the topic of a UAA for the Tijeras Arroyo assessment unit and conducted multiple scoping meetings and reviews to outline and discuss expectations and processes. The Petitioners drafted a workplan for the UAA development and stakeholder engagement that was approved by NMED. NMED observed that the Petitioners followed the workplan, completed stakeholder engagement activities, and held public comment periods on their draft and revised UAA and proposed WQS amendments. This included the Petitioners' data collection and analysis, evaluation of existing uses, determining attainable uses, holding public meetings, responding to comments, and making corresponding revisions to the UAA and proposed WQS amendments, as necessary. As such, NMED considers the Petitioners to have properly complied with the applicable provisions of 20.6.4.10 NMAC and 20.6.4.15 NMAC.

NMED considers the proposed revisions to 20.6.4 NMAC, as presented by the Petitioners, to be based on scientifically-sound approaches and methodologies promoted by EPA to consider the naturally occurring hydrologic conditions that prevent the attainment of the current designated ALU and recreational uses in this section of Tijeras Arroyo. NMED recommends that the Commission adopt the proposed amendments to 20.6.4.97 NMAC to include "Tijeras Arroyo, Rio Grande to Four Hills Bridge" on the list of ephemeral waters. If the Commission adopts the proposed amendments, NMED's SWQB would file the rule changes with the State Records Center and Archives in accordance with the State Rules Act. NMSA 1978, § 14-4-5(D). The rules would become effective for state purposes no sooner than thirty days after filing and after publishing in the *New Mexico Register*, in accordance with the WQA and State Rules Act. NMSA 1978, § 74-6-6(E); NMSA 1978, § 14-4-5. The SWQB would also submit the revised water quality standards to EPA for formal review and action (within 90 days of submittal) under CWA § 303(c).

This concludes my direct technical testimony.