

1 STATE OF NEW MEXICO
2 WATER QUALITY CONTROL COMMISSION

3
4 IN THE MATTER OF PETITION TO AMEND
5 SURFACE WATER QUALITY STANDARDS
6 FOR SAN ISIDRO ARROYO AND TRIBUTARIES
7 20.6.4 NMAC

WQCC 19-03 (R)

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9 **DIRECT TESTIMONY OF SHELLY LEMON**

10 I. INTRODUCTION

11 My name is Shelly Lemon and I am currently the Bureau Chief of the New Mexico
12 Environment Department (“NMED”) Surface Water Quality Bureau (“SWQB”). I am presenting
13 this written testimony (NMED Exhibit A) on behalf of NMED concerning proposals to amend
14 the State of New Mexico's Standards for Interstate and Intrastate Surface Waters (“Standards”),
15 codified as Title 20, Chapter 6, Part 4 of the New Mexico Administrative Code (20.6.4 NMAC)
16 for San Isidro Arroyo and its tributaries under Section 20.6.4.97 NMAC. Peabody is proposing
17 these water quality standard changes based on the Department’s *Hydrology Protocol* that evaluates
18 the natural hydrologic condition and designated uses of a waterbody.

19 I will first provide some background related to the water quality standards and use
20 attainability analyses. I will then provide some background on the use of the Department’s
21 *Hydrology Protocol*. Finally, I will describe the Department’s coordination with Peabody on this
22 proposed water quality standards amendment. Jennifer Fullam, the SWQB water quality standards
23 coordinator, will provide testimony on the background on water quality standards for San Isidro
24 Arroyo and its tributaries as well as implementation of the use attainability analysis process and
25 the proposed amendments.

1 **II. QUALIFICATIONS**

2 I hold a Bachelor of Science degree in Biology from the University of Arizona, and a
3 Master of Science degree in Hydrology from the University of Arizona. I have held the position
4 of bureau chief of NMED’s Surface Water Quality Bureau since March of 2017 and was the
5 acting bureau chief prior to that for eight months. In this position I oversee the State program for
6 surface water quality, including certification of federal permits issued under the Clean Water Act
7 (“CWA”) for point source discharges and dredge or fill operations, implementation of watershed
8 and river protection projects with state and federal funds, development and revision of surface
9 water quality standards, monitoring and assessment of state surface waters, and development of
10 water quality planning documents to protect and restore water quality.

11 I have been employed with the Surface Water Quality Bureau since August of 2004, with
12 a short absence from July 2013 through March 2014. Prior to serving as bureau chief, I was the
13 program manager of the Monitoring, Assessment and Standards Section. Responsibilities of this
14 section include revising water quality standards, collecting water quality data statewide, assessing
15 this data to develop the biennial CWA Section 303(d) list of impaired waterbodies, and developing
16 total maximum daily load (“TMDL”) documents. During my tenure at SWQB, I have also been
17 the Municipal Team Lead, Monitoring Team Lead, Nutrient and Lakes Team Lead and a TMDL
18 Writer. As the Municipal Team Lead, I analyzed data and reviewed and prepared comments on
19 National Pollutant Discharge Elimination System (“NPDES”) permits submitted to the Bureau for
20 state certification under CWA Section 401; conducted compliance evaluation inspections of
21 NPDES-regulated facilities; and collected information and data to evaluate violations of permit
22 conditions and to assist enforcement. As the Monitoring Team Lead, I managed and planned the
23 statewide ambient monitoring program for the Bureau; developed protocols to standardize tasks
24 including data collection, assessment, and verification and validation; and conducted short-term

1 investigations in response to citizen complaints, accidental spills and other emergencies. As the
2 Nutrient and Lakes Team Lead, I oversaw the nutrient criteria development program and the lakes
3 program, and led efforts in hydrologic analysis and monitoring design to develop the *Hydrology*
4 *Protocol* and update the *10-Year Monitoring and Assessment Strategy*. As a TMDL Writer, I
5 prepared watershed planning documents (TMDLs) to improve water quality and assign wasteload
6 allocations to NPDES permits.

7 Prior to joining the Environment Department, I was a high school science teacher at Chino
8 Valley High School in Chino Valley, Arizona and a Science Instructor for the Nizhoni-Upward
9 Bound Summer Academy at Northern Arizona University. In this capacity, I taught hydrology
10 to high school students and managed a high school water quality monitoring program on the
11 Verde River near Cottonwood, Arizona. The students collected biological, chemical and physical
12 habitat data at several locations in the Verde River watershed. The data collected was used to
13 evaluate water quality, assessed against a water quality index and used to make informed
14 decisions under various role-playing scenarios.

15 A copy of my resume is marked as **NMED Exhibit B**. It is accurate and up-to-date.

16

17 **III. WATER QUALITY STANDARDS**

18 Under the New Mexico Water Quality Act (“WQA”), the Water Quality Control
19 Commission (“Commission”) is responsible for adopting water quality standards. The standards
20 must, at a minimum, protect public health or welfare, enhance the quality of water and serve the
21 purposes of the WQA. Clean Water Act regulations provide similar direction: “States adopt water
22 quality standards to protect public health or welfare, enhance the quality of water and serve the
23 purposes of the Clean Water Act.” 40 CFR § 131.2.

24 A water quality standard “defines the goals for a water body, or portion thereof, by

1 designating the use or uses to be made of the water and by setting criteria necessary to protect the
2 uses.” *Id.* The designated uses in New Mexico’s Surface Water Quality Standards, set forth in
3 20.6.4 NMAC, are:

- 4 • domestic water supply
- 5 • livestock watering
- 6 • irrigation and irrigation storage
- 7 • aquatic life (coldwater, coolwater, warmwater and four other subcategories)
- 8 • primary and secondary contact
- 9 • wildlife habitat
- 10 • fish culture
- 11 • public water supply
- 12 • industrial water supply

13 The Standards also establish water quality criteria that will protect the designated uses of a water
14 body. These criteria can be general narrative criteria that apply to all waters, or numeric criteria
15 that apply to a specific designated use or water quality segment. An example of a narrative
16 criterion is that for plant nutrients, which states, “Plant nutrients from other than natural causes
17 shall not be present in concentrations that will produce undesirable aquatic life or result in a
18 dominance of nuisance species in surface waters of the state.” 20.6.4.13.E NMAC. An example
19 of a numeric criterion is the temperature criterion for warmwater aquatic life which is set at a
20 maximum temperature of 32.2°C (or 90°F). 20.6.4.900.J NMAC.

21

22 **IV. AMENDMENT OF WATER QUALITY STANDARDS**

23 Under the WQA, any person (including NMED) may at any time petition the Commission
24 to adopt, amend or repeal a water quality standard. NMSA 1978, § 74-6-6(B). In accordance with
25 20.6.4.15.D NMAC, an entity other than NMED can conduct a use attainability analysis (“UAA”)
26 and, upon completion, petition the Commission to modify the designated use if the conclusions of
27 the analysis support such action. The Commission must hold a public hearing in order to adopt
28 new or amended standards. NMSA 1978, §§ 74-6-3(E) and -6(A). New or revised standards must
29 be submitted by the State to the U.S. Environmental Protection Agency (“EPA”) for approval.

1 A UAA is a structured scientific study conducted to assess the factors affecting the
2 attainment of a use. A UAA evaluates the physical, chemical, biological, economic or other factors
3 affecting the attainment of a use and relies on scientifically defensible methods, such as the
4 Department's *Hydrology Protocol* for identifying ephemeral and intermittent streams. The
5 Commission can remove a designated use or adopt subcategories of a use requiring less stringent
6 criteria only if the UAA demonstrates that attaining the use is not feasible. 20.6.4.15.A NMAC.

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8 **V. HYDROLOGY PROTOCOL**

9 The *Hydrology Protocol* provides a methodology for distinguishing between ephemeral,
10 intermittent and perennial streams and rivers in New Mexico. It also generates documentation of
11 the uses supported by those waters as a result of the flow regime. The *Hydrology Protocol* can be
12 used to provide technical support for a UAA, to determine the hydrology of unclassified waters, or
13 to identify unclassified waters within an otherwise classified segment. The process for
14 implementing the *Hydrology Protocol* was approved by the Commission on May 10, 2011 as an
15 update to the SWQB's Water Quality Management Plan/Continuing Planning Process document.
16 EPA approved the update on December 23, 2011.

17 The *Hydrology Protocol* relies on hydrological, geomorphic and biological indicators of
18 the persistence of water and is organized into two levels of evaluations. The protocol and scoring
19 mechanism have been designed with redundancy (i.e. multiple indicators) to allow for satisfactory
20 ratings under variable environmental conditions. Data gathered during the Level 1 Evaluation
21 should, in most cases, provide enough information to give a clear indication of the hydrological
22 status of the stream.

23 A summary of the scoring interpretation and hydrologic determination ranges based on use
24 of the Level 1 *Hydrology Protocol* Evaluation is shown in Table 1.

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Table 1. Summary of Level 1 Evaluation Score Interpretation

Waterbody Type	Level 1 Total Score	Hydrology Determination
Ephemeral	Less than 9.0*	Stream is ephemeral
	≥ 9.0 and < 12.0	Stream is recognized as intermittent until further analysis indicates that the stream is ephemeral
Intermittent	≥ 12.0 and ≤ 19.0	Stream is intermittent
	> 19.0 and ≤ 22.0	Stream is recognized as perennial until further analysis indicates that the stream is intermittent
Perennial	Greater than 22.0	Stream is perennial

* If there are aquatic macroinvertebrates and/or fish the stream is at least intermittent.

Pursuant to 20.6.4.15 NMAC, Peabody is proposing standards amendments for San Isidro Arroyo and its tributaries based on the *Hydrology Protocol* and is petitioning the Commission to list these waterbodies as ephemeral under 20.6.4.97.C NMAC.

VI. WORKPLAN COORDINATION

Entities outside of NMED intending to conduct a UAA using the *Hydrology Protocol* must develop and submit a workplan to the Department for review and approval. 20.6.4.15.D NMAC. The workplan is also required to be submitted to EPA Region 6 for review and comment. In order to demonstrate that Clean Water Act Section 101(a)(2) uses are not existing or feasible in an ephemeral water, the UAA must show that the current uses identified by the results of the *Hydrology Protocol* also represent the naturally attainable uses based on the factor identified in 40 CFR 131.10(g)(2): *natural, ephemeral or intermittent or low flow conditions or water levels prevent the attainment of the use.* Circumstances that might affect that conclusion should be identified and discussed.

In September 2015, Peabody submitted a draft Use Attainability Analysis Sampling Analysis

1 Plan (hereby referred to as “workplan”) to conduct a series of surveys using the Department’s
2 *Hydrology Protocol* to support a UAA for San Isidro Arroyo and tributaries within the Lee Ranch
3 Mine site (**NMED Exhibit E**). NMED conducted a field visit September 2 and 3, 2015 to review
4 the locations Peabody selected for its workplan. NMED visited various sites and walked upstream
5 and downstream along the channel to determine if the site was representative of the stream reach.
6 During that visit, general observations were made about the homogeneity of the stream, including
7 the geomorphology and channel dimensions, biological characteristics, and hydrological
8 characteristics, to ensure the selected sites would be representative. The Department reviewed the
9 draft workplan and had a conference call with Peabody on September 29, 2015 to discuss the draft
10 workplan and field observations and provided follow-up comments in an email to Peabody on
11 October 1, 2015 (**NMED Exhibit F**). EPA Region 6 responded with comments on October 1, 2015
12 (**NMED Exhibit G**).

13 Peabody responded to NMED and EPA comments and submitted a revised workplan to the
14 Department on November 16, 2016 (**NMED Exhibit H**). The Department met with representatives
15 from Peabody on March 15, 2017, during which several outstanding details were clarified by
16 Peabody. Following the discussion during the March 15, 2017 meeting, the Department granted
17 verbal approval to proceed with training on the *Hydrology Protocol* methods and to proceed with
18 surveys during the 2017 field season pending a revised workplan submittal to the Department. On
19 June 6, 2017, Peabody submitted the revised workplan (**NMED Exhibit I**) based on input from the
20 March 15, 2017 meeting with the Department. The Department provided written approval of the
21 workplan on January 12, 2018 (**NMED Exhibit J**).

22 Field surveys were conducted in accordance with the workplan during the 2017 field season.
23 Dr. Bryan Dail and I participated in *Hydrology Protocol* surveys at the Lee Ranch Mine on June 20,
24 2017 to observe Peabody’s field work, conduct independent surveys and verify consistent application

1 of the *Hydrology Protocol* among field staff for quality assurance. NMED participated in two
2 *Hydrology Protocol* surveys, one at station HP11 (Tinaja Arroyo) and the other at station HP21 (San
3 Isidro Arroyo). HP11 is in the headwaters of Tinaja Arroyo where the arroyo leaves the canyons
4 and high mesas and flows through the Lee Ranch Mine, ultimately merging with San Isidro Arroyo.
5 For the survey at Tinaja Arroyo, NMED's *Hydrology Protocol* total score (6.0) was one point off
6 from Peabody's total score (5.0), but still well within the ephemeral zone classification. HP21 is just
7 downstream of the confluence of Tinaja Arroyo and San Isidro Arroyo and is also adjacent to
8 NMED's 2011 HP site that ultimately concluded this portion of San Isidro Arroyo is ephemeral. For
9 the survey at San Isidro Arroyo, NMED's *Hydrology Protocol* total score (7.5) was a half point
10 different from Peabody's total score (8.0), but still within the ephemeral zone classification. My
11 field observations and independent surveys verified consistent application of the *Hydrology Protocol*
12 among Peabody's field staff.

13

14 **VII. CONCLUSION**

15 NMED finds that the UAA presented by Peabody demonstrated that the marginal
16 warmwater aquatic life and primary contact uses are not attainable due to naturally ephemeral
17 conditions and the highest attainable uses are limited aquatic life and secondary contact. The
18 stream segments identified in the UAA should be reclassified to Section 20.6.4.97 NMAC as
19 ephemeral waters, with the attainable uses designated as limited aquatic life use and secondary
20 contact. NMED recommends that the Commission adopt the proposed standards amendments
21 based upon the testimony of Peabody's and NMED's witnesses. Once approved by the
22 Commission and adopted as standards, the SWQB will submit the revised water quality
23 standards, as published in the New Mexico Register, to EPA for formal review and final approval
24 action under Section 303(c) of the CWA. This concludes my direct testimony.