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Date: January 22, 2024
Refer To: N3B-2024-0021

Communities for Clean Water
c/o Rachel Conn
Amigos Bravos
P.O. Box 238
Taos, NM 87571

Subject: **Enclosed is the Updated Copper Site-Specific Water Quality Criteria for the Pajarito Plateau: Demonstration Report, Dated November 20, 2023, and the Response to the Communities for Clean Water Comments on N3B's Draft Copper Criteria for the Pajarito Plateau Report, Dated November 9, 2023**

Dear Communities for Clean Water:

On November 9, 2023, the U.S. Department of Energy Environmental Management Los Alamos Field Office (EM-LA) and Newport News Nuclear BWXT-Los Alamos, LLC (N3B) received comments from the Communities for Clean Water (CCW) on the "Copper Site-Specific Water Quality Criteria for the Pajarito Plateau: Demonstration Report" (hereafter, Demonstration Report).

On September 26, 2023, EM-LA and N3B held a public meeting to discuss the Demonstration Report. A public comment period was open from September 25 to November 9, 2023. On November 9, 2023, CCW provided comments and requested a digital copy of Appendix A. EM-LA/N3B appreciate CCW's review and comments on the Demonstration Report, and are pleased to provide the complete Demonstration Report, including Appendix A on CD (Enclosure 1) and the response to CCW's comments (Enclosure 2).

PETITIONERS' EXHIBIT 8

If you have questions, please contact Amanda White at (505) 309-1366 (amanda.white@em-la.doe.gov) or Cheryl Rodriguez at (505) 414-0450 (cheryl.rodriguez@em.doe.gov).

Sincerely,

Troy Thomson
Program Manager
Environmental Remediation
N3B-Los Alamos

Sincerely,

ARTURO DURAN

Digitally signed by
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Date: 2024.01.18
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Arturo Q. Duran
Compliance and Permitting Manager
Office of Quality and Regulatory Compliance
U.S. Department of Energy
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Los Alamos Field Office

Enclosure(s):
1. Copper Site-Specific Water Quality Criteria for the Pajarito Plateau: Demonstration Report, Dated November 20, 2023 (including a redline strikeout version)
2. Response to Comments on N3B's Draft Copper Criteria for the Pajarito Plateau Report, Provided by Communities For Clean Water, Dated November 9, 2023

cc (letter and enclosure[s] emailed):
Jasmin Lopez-Diaz, EPA Region 6, Dallas, TX
Russell Nelson, EPA Region 6, Dallas, TX
Raymond Martinez, San Ildefonso Pueblo, NM
Dino Chavarria, Santa Clara Pueblo, NM
Kathy Sanchez, Tewa Women United
Kaitlin Bryson, Communities for Clean Water
Joni Arends, Concerned Citizens for Nuclear Safety
Joan Brown, Partnership for Earth Spirituality
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PS Form 3800, April 2015 PSN 7530-02-000-9047   See Reverse for Instructions

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ENCLOSURE 2

Response to Comments on N3B's Draft Copper Criteria for the Pajarito Plateau Report, Provided by Communities for Clean Water, Dated November 9, 2023

**Response to *Comments on N3B's Draft Copper Criteria
for the Pajarito Plateau Report*, Provided by Communities For Clean Water
Dated November 9, 2023**

INTRODUCTION

To facilitate review of this response, the Communities for Clean Water's (CCW's) comments are included verbatim. The U.S. Department of Energy (DOE) Environmental Management Los Alamos Field Office responses follow each CCW comment.

SPECIFIC COMMENTS

CCW Comment

1. <u>*Aggregation of Data:*</u> *The proposed site-specific water quality criteria for copper creates a multi-linear regression based on an aggregate of data across the Pajarito Plateau watershed – a 43 square mile area that encompasses nine major watersheds.*

   EM-LA/N3B should conduct an analysis to demonstrate that there is no substantial difference in site specific criteria between the major watersheds (i.e., Sandia vs Mortandad) and developed and undeveloped watersheds.

DOE Response

1. Just as the hardness-based and biotic ligand model (BLM) copper criteria vary according to water chemistry, so will the multiple linear regression- (MLR-) based copper site-specific water quality criteria (SSWQC). If there are significant differences in water chemistry between watersheds (or in developed versus undeveloped portions of the same watershed), then it's reasonable to expect respective differences in SSWQC values. Protectiveness of the SSWQC, however, would be the same regardless of water quality condition. The SSWQC (or the hardness-based criteria or BLM) varies with water quality because bioavailability and toxicity also vary in response to water chemistry. For example, Los Alamos National Laboratory's (LANL's) Individual Permit currently includes watershed-specific target action levels for copper, which vary according to watershed-specific average hardness. Therefore, the evaluation CCW proposes would neither support nor invalidate the appropriateness of the SSWQC.

   The demonstration report already includes a detailed discussion (particularly in Section 5.4 and Appendix B) of the statistical evaluations conducted to date that show how stream hydrology and other watershed factors were considered when developing the MLR-based SSWQC. Ultimately, we selected a three-parameter MLR (with a squared pH term) without watershed-specific features. We found that the model was not meaningfully improved by adding more parameters (hydrology, land use, fire, etc.). For example, Table 5-4 presents the statistical outcome of various models that considered hydrology; including hydrology as a feature improved predictive accuracy by 0.2%.

CCW Comment

2. _Clarity between BLM and MLR:_ _Some sections of the report, particularly towards the beginning of the document, still misrepresent the use of the Biotic Ligand Model (BLM) vs Multiple Linear Regression (MLR) (e.g., page 20)._

   The report is still referring to the method used as "BLM" when really it is an MLR approach. Please update references throughout and submit a new version to the NMED Surface Water Quality Bureau, the N3B website, and provide and electronic notice to the public.

DOE Response

2. To be responsive to this comment, we have reviewed the document and attempted to shift the emphasis originally placed on the BLM to the MLR. For example, the first sentence in Section 4 calls the SSWQC "MLR-based," and Section 4.3 describes the use of MLR. However, keeping ample discussion and reference to the BLM remains integral to the discussion of the MLR because the BLM is the underlying basis for the MLR:

   - Many of the samples in the dataset were collected and analyzed for the purpose calculating BLM criteria.

   - The full dataset, which includes some estimated parameter values, was aggregated with the specific purpose of using the BLM.

   - The MLR dataset (Appendix A) includes BLM outputs (not just inputs).

   - BLM outputs were used as the dependent variable in the MLR equation.

   The purpose of the MLR is to estimate BLM outputs (i.e., EPA's recommended criteria) using 3 water quality inputs (pH, DOC, and hardness) rather than the 12 default inputs required by the BLM. Because of the high degree of accuracy of the MLR for predicting BLM output, the copper SSWQC are consistent with the BLM. Throughout the report, we emphasize that the MLR provides an accurate estimate of the BLM, which we rigorously demonstrate in the report; we never conflate the two models.

   CCW mentions page 20 as an example where the BLM is mentioned. In this instance, we only find mention of "BLM data," by which we mean the dataset of water-quality inputs to the BLM. Because these data were input into the BLM to generate outputs used in the MLR development, this terminology is accurate and appropriate as currently used.

CCW Comment

3. _Rationale For Removing Samples from the Modeling:_ _Please clarify the number of stormwater samples removed from the modeling dataset as briefly described on page B-5 and B-6._

   The text implies that 94 stormwater samples were removed. CCW requests that the rationale for what samples were used and what samples were removed be more clearly defined and explained in the new version of the report.

DOE Response

3. Section B2.2 provides a discussion of the stepwise compilation of data, including methods for estimating water chemistry data, as appropriate and based on regulatory guidance, to establish a highly robust dataset. This involved excluding samples where DOC was neither measured nor could be estimated, those that lacked pH data, and/or those where other ions could not be estimated or that do not have reasonable default values (e.g., from EPA [2007] copper BLM guidance). This step in the aggregation process resulted in a dataset with 611 samples.

    Section B2.3 discusses the reduction of this dataset from 611 to 517 samples (the difference being the 94 samples that CCW references in their comment) and provides the reasons that the dataset was further reduced:

    1) 4 duplicate (redundant) entries were observed in the dataset and reduced to single entries.

    2) 76 stormwater discharge samples, representing "end-of-pipe" or runoff samples of stormwater, were identified and removed, so that the BLM dataset only includes ambient water samples.

    3) 14 samples were removed that had pH, DOC, or hardness measurements outside of the BLM's prescribed (calibrated) range.

    In total, this amounts to 94 samples excluded, per available EPA guidance.

    The remaining 517-sample dataset includes only:

    1) samples with the complete set of BLM parameters;

    2) unique sampling events and measurements;

    3) ambient (i.e., instream) samples; and

    4) samples with BLM parameters within prescribed calibration ranges, meaning that no extrapolation was required to develop the MLR.

CCW Comment

4. *Please provide Appendix A: CCW requests a copy via flash drive of Appendix A (BLM Dataset for Pajarito Plateau Surface Waters).*

    The requested data can be mailed to CCW c/o Amigos Bravos, P.O. Box 238, Taos, NM 87571.

DOE Response

4. Appendix A will be uploaded to the Electronic Public Reading Room as an Excel file with the final Demonstration Report.

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REFERENCE

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EPA. 2007. Aquatic life ambient freshwater quality criteria - copper, 2007 revision. EPA-822-R-07-001. Office of Water, US Environmental Protection Agency Washington, DC.