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October 6, 2017

Idaho Department of Environmental Quality
Attention: Paula J. Wilson, Hearing Coordinator
1410 N. Hilton
Boise, ID 83706-1255

Re: Comments on draft ***Implementation Guidance for the Idaho Copper Criteria for Aquatic Life: Using the Biotic Ligand Model*** (Docket ID Number 58-0102-1502)

Dear Coordinator Wilson:

The Treated Wood Council (TWC) and the Western Wood Preservers Institute (WWPI) are pleased to submit these comments regarding the Idaho Department of Environmental Quality's (IDEQ's) draft ***Implementation Guidance for the Idaho Copper Criteria for Aquatic Life: Using the Biotic Ligand Model*** (the draft *Implementation Guidance*), as referenced in support of the proposed rulemaking to update IDEQ's existing hardness dependent criteria for copper by using U.S. Environmental Protection Agency's (EPA's) 2007 ***Aquatic Life Ambient Freshwater Quality Criteria – Copper*** (Docket # 58-0102-1502). EPA's 304(a) copper criteria uses physicochemical properties of the water (e.g., pH, dissolved organic carbon, etc.) to identify waterbody- and time- specific copper criteria using the biotic ligand model (BLM). The *Implementation Guidance* details procedures for implementing the criteria in Idaho, including determining minimum data requirements for BLM inputs and guidance for estimating protective criteria when data are incomplete or absent.

TWC is an international trade association, serving the treated wood industry with more than 400 member organizations, including 172 wood treating companies (and one in Parma, ID) that pressure-inject wood preservative pesticides into various wood products. WWPI is a non-profit trade association founded in 1953 to serve the interests of the preserved wood industry in western North America. Our concern is warranted because the majority of these wood preservative pesticides are copper-based.

TWC and WWPI appreciate the opportunity to submit these comments on the draft *Implementation Guidance*. Please feel free to call or e-mail if you have any questions, or if you would like any additional information concerning the issues raised in these comments.

INTRODUCTION

The draft *Implementation Guidance* (IDEQ 2017a) describes how IDEQ will implement EPA's 2007 copper criteria, a BLM-based copper criteria for aquatic life, specifically:

- Using site-specific water chemistry data to derive BLM copper criteria
- Accounting for spatial and temporal variability when using the BLM
- Choosing methods for estimating or deriving protective copper criteria when BLM input data are not available
- Reconciling multiple instantaneous water quality criteria (IWQC) to derive water quality criteria for developing water quality–based effluent limits or identifying impairments for the integrated report.

We appreciate IDEQ's efforts to update the copper criteria to reflect the most current state of the science and support IDEQ's goal to ensure that the criteria neither unnecessarily burden dischargers nor increase risk to aquatic life. IDEQ's draft *Implementation Guidance* clearly and succinctly provides meaningful technical information. We have identified some technical issues with IDEQ's approach in preparing the draft *Implementation Guidance*. Those concerns, and recommendations to address them, are summarized in the comments below, which were prepared by Integral Consulting Inc.

We also recognize that copper impairments and discharge controls are limited to isolated geographic areas in Idaho and are primarily linked to mining activities. The current proposed revision to the copper aquatic life criteria is driven by biological opinions from the National Marine Fisheries Service and U.S. Fish and Wildlife Service (NMFS 2014; USFWS 2015) and IDEQ's desire to apply "the most current state of the science" (IDAPA 2017). The State's proposed revision is not indicative of recent changes to water quality, nor are there widespread copper impacts in the state. Statewide, copper has very limited influence on water quality. Less than one-tenth of one percent of Idaho streams (50 miles combined total stream length) have impaired aquatic communities due to copper; in these cases, the copper source is associated with historical mining activities. Only 20 dischargers (8 mines, 10 municipal wastewater treatment plants, and 2 fish hatcheries) have copper effluent limits.

COMMENTS

IDEQ's recommendation to use the minimum daily pH measurement for continuously recorded pH data is inconsistent with the stipulation that all BLM parameters should be "collected in a single place and time." Selecting the lowest pH value of a continuous pH record and applying it with data for other parameters collected at a different time may lead to input of inaccurate pH values or atypical stream conditions into the BLM. In addition, the recommendation to use the minimum would not be appropriate for determination of a chronic standard.

In Section 5.2, Special Considerations for Monitoring pH and DOC, IDEQ recognizes the high sensitivity of the BLM to pH, and recommends (but does not require) that users collect continuous pH data to capture diurnal variability. If continuous pH data are available, IDEQ specifies that the minimum daily pH values should be input into the BLM model. This is a conservative recommendation that reflects a "worst-case" scenario and may separate the timing of the pH sample reading from the measurement of other water quality parameters input to the BLM. By inputting the lowest pH value measured in a day, the BLM output could produce a lower (more stringent) copper criteria than appropriate. In some cases, the minimum could actually reflect pH values that are not indicative of typical daily pH ranges (for example, minimum values recorded due to sensor malfunctions or pH probe exposure to air).

We recommend that IDEQ adjust its recommendation to use the 90 percent lower confidence limit on the mean of the pH values collected in a 24-hour period, rather than the minimum daily pH measurement. Alternatively, a continuous pH data set could be analyzed for diel patterns, and timing for collection of the full suite of BLM parameter inputs could be targeted for the time of day when pH is expected to be lowest.

Further, the ultimate recommendation regarding selection of a pH value should be considered in light of the derivation and meaning of the chronic copper standard using the BLM. Because USEPA's (2007) chronic criteria is defined as a 96-hour average concentration that is not to be exceeded once every 4 years, and because EPA's chronic criterion for copper is derived using an acute-to-chronic ratio, the use of the pH over the course of a single time increment to develop a chronic IWQC could be considered overly conservative or otherwise inappropriate. The acute-to-chronic ratio does not take into consideration diurnal variability of water quality parameters, like pH, so its application does not in any way address the importance of diurnal variations on chronic standards. IDEQ's final guidance should clearly address the uncertainty and conservatism of the chronic value that results from its final recommendation for the preferred pH value for users to apply.

The* Implementation Guidance *should emphasize the importance of using input parameters from a single place and time to determine each IWQC, and specifically address data needs for development of a chronic standard where this may differ from those of an acute standard.

In its proposed rule, IDEQ specifies that "BLM input measurements shall be planned to capture the most bioavailable conditions for copper" (IDAPA 2017, Section 210.03.c.v (3)). The *Implementation Guidance* addresses this requirement in Section 5.2 by requiring quality assurance project plans (QAPPs) and monitoring plans for collection of BLM input parameters to

> …clearly demonstrate how concerns for pH cycling and DOC data quality will be addressed and describe how monitoring will target the most bioavailable conditions for copper. The most bioavailable conditions for copper can be estimated by identifying critical daily conditions (such as when pH is at its lowest daily value) as well as critical seasonal conditions (such as when DOC concentrations are at their lowest seasonal concentrations).

Although IDEQ does define a sample as "collected in a single place and time" for the purposes of BLM inputs in the last paragraph of Section 5.1, we request the addition of a statement to the *Implementation Guidance* to emphasize that BLM input parameters for each IWQC should be based on concurrently measured water quality data grouped by location. Users should not "mix-and-match" data across time or locations to incorporate the lowest pH or lowest DOC values, if the complete set of input parameters are not measured at the same time.

In addition, because the data needs may differ for an acute standard and a chronic standard, we suggest changing the text quoted above to "BLM input measurements shall be planned to capture the most bioavailable conditions for copper *relevant to the criteria being evaluated*."

BLM users in Idaho will benefit from specific guidance on field methods, and the option to use State-authored standard operating procedures (SOPs).

We appreciate the requirements for high-quality data, and support proper planning through preparation of a QAPP by parties undertaking BLM-related measurements. IDEQ could provide greater consistency across the state, support collection of high-quality data, and reduce the cost burden on regulated entities by providing a set of SOPs for relevant field practices and standards for use of equipment. Users should be provided the option of employing the State's default SOPs, or preparing comparable method-specific SOPs in their site-specific QAPP. Further, IDEQ could direct users to

guidance on the preparation of QAPPs and sampling and analysis plans that would enable users to meet the State's expectations without a lot of trial and error.

Also, in addition to providing specifications for analytical methods, preservatives, hold times, and reporting limits presented in Table 1, IDEQ could add specific information regarding appropriate field and laboratory QA/QC sample requirements and precision and accuracy targets for samples.

We request clarification of recommended dissolved organic carbon (DOC) sample filtration procedures discussed in* Implementation Guidance*, Section 5.2 Special Considerations for Monitoring pH and DOC.

IDEQ acknowledges the possibility of contamination of DOC samples from sample bottles and filters, and the potential for entities to fail to meet precision requirements based on field replicate analyses. However, the *Implementation Guidance* does not specify precision targets, nor does it direct the reader to a separate reference with that information. IDEQ suggests flushing sample filters prior to sampling, and/or collecting whole-water samples for DOC for filtration at an analytical laboratory. However, 40 CFR 136 requires that National Pollutant Discharge Elimination System (NPDES) compliance monitoring samples must be filtered in the field. IDEQ acknowledges this conflict between its DOC filtration recommendation and NPDES requirements, yet the *Implementation Guidance* does not provide a clear path forward for entities that conduct NPDES compliance monitoring. In addition to the need for this information, the *Implementation Guidance* should specify how a correction would be made if filters were found to be a source of DOC, and how many filter blanks are needed to quantify the DOC "contamination" introduced by the filter.

The* Implementation Guidance *should clarify the meaning of "representative" areas for sampling, and the specific conditions that would justify upstream sampling.

The draft *Implementation Guidance* emphasizes the importance of sampling from "representative" locations (e.g., Section 5.3.1, pp. 18–19). We agree with this concept. However, IDEQ should elaborate on what this means in different types of water bodies, and provide greater detail on identifying representative locations within various aquatic habitat types.

In Section 5.3.2, on p. 19, the *Implementation Guidance* states that "[i]n some instances, it may be necessary or advisable to collect samples upstream of points of discharge to capture baseline conditions." This statement stands alone and is not further elaborated, nor is the concept of "baseline" explained. We suggest that the final *Implementation Guidance* clarify the instances or conditions under which entities could be required to collect samples upstream of discharge points, and how such information would be used. Also, the term "baseline" should be clearly defined in this context.

Please provide additional clarity regarding the minimum number of samples and sample collection frequency required for input to the BLM.

A few technical details in Section 5.4 would benefit from additional information, including:

- In Section 5.4.1, the draft *Implementation Guidance* notes that "Generally, 24 consecutive, monthly IWQCs calculated over the course of 2 years would be considered appropriate to characterize seasonal variability for any single location," but that fewer or more samples may be needed based on the environmental conditions at the time of sampling, the representativeness of stream flow at the time of sampling in comparison to the historical flow record, and site safety considerations. This flexible guidance allows regulators and entities to develop individual sampling plans for sites with variable conditions (e.g. flood or drought). However, the *Implementation Guidance* should thoroughly list the specific conditions under which such

flexibility is possible. It should also clearly identify the process for entities to address questions to IDEQ related to temporal sampling requirements.

- IDEQ further notes on p. 20 that "[w]henever data are available, users should use longer datasets to fully capture temporal variability at any given site." This suggestion is too open ended and may lead entities to incur sample collection and analytical costs with no actual benefit such as improved understanding of temporal variability. We recommend modifying the language in the above sentence by replacing the word "should" with "may." In addition, the conditions under which multiple sampling events across multiple months and years can be aggregated for the purposes of applying the BLM should also be clearly specified. Such specifics should include whether data collected using different protocols or equipment can be aggregated; whether all questions of the most appropriate time of day to sample have to be resolved before a set of monthly samples can be aggregated; and whether the 2-year (or greater) data set must be continuous across the 24 months to be aggregated.
- The *Implementation Guidance* should clarify the period of record to be used for BLM inputs. In the revised guidance, IDEQ should clarify whether there are limitations on the age of data records that can be used to determine IWQC (e.g., only those measurements collected within the past 10 years, or the most recent 5 years). Regardless of any actual limit, we suggest that the final *Implementation Guidance* specify the allowable age of BLM input data.

TWC and WWPI appreciate the range of approaches that can be used to reconcile variable IWQC values provided by IDEQ in Section 5.5. We suggest additional clarification of this section, as follows:

In Section 5.5.2 (p. 21), IDEQ presents the general concept of using a "conservative percentile" of IWQC values to select a criterion from multiple IWQC values collected over time. The option provided in Section 5.5.2 would be clearer if IDEQ included an example using real stream or hypothetical stream data to illustrate the mechanics of how this option could be applied.

Please consider revising the title of Section 5.3.3., Statistical Approaches. Other sections in 5.5 address statistical methods as well.

In Section 5.5.4, the draft *Implementation Guidance* states that seasonal copper criteria may be developed for "waters with predictable seasonal variability of IWQCs," for sites with sufficient data (a minimum of 36 consecutive months) and demonstrated "predictable seasonality." The following additional information is necessary for effective implementation of the seasonal approach:

- A definition of "predictable seasonal variability" and/or examples to illustrate the concept
- Clarification as to how seasonal criteria are addressed in the proposed rule (IDAPA 2017) and incorporated into total maximum daily loads discharge permits
- Clarification as to how critical daily and critical seasonal conditions, as described in the last paragraph of Section 5.2, are addressed with seasonal criteria (e.g., the specific dates or conditions that constitute each season, the temporal extent of shoulder seasons, etc.).

The* Implementation Guidance *presents examples of reasonable approaches to estimating criteria when data are absent; however, the guidance does not clearly commit to any preferred or recommended approaches to estimating criteria.

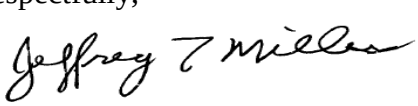
In Section 6, IDEQ provides a succinct discussion of the flaws of the overly conservative criteria estimation approach presented in EPA's *Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model* (USEPA 2016).

IDEQ then presents a "more realistic approach" to recommending default criteria by using the BLM to calculate IWQCs for geographic regions of the state. In the last paragraph of Section 6.1, the draft *Implementation Guidance* notes that "[u]sers may propose alternative methods for estimating protective criteria." For example, the *Implementation Guidance* states that it may be possible to estimate conservative criteria based on critical time periods of expected minimum IWQCs. We appreciate the flexibility in this discussion. However, it appears that IDEQ is providing a range of possibilities, but without describing all of them in sufficient detail to be implemented. We request that IDEQ either clarify that its preferred approach is the one described in Section 6.1, or provide additional information regarding the other possible approaches.

Finally, in order to add additional clarification, we recommend that the last sentence in the second paragraph on page 25 be changed to read, "Additionally, *if the reasonable potential analysis indicates reasonable potential to exceed,* the discharger should initiate monitoring of BLM input parameters to confirm or refine applicable criteria once sufficient data (e.g., 24 monthly samples) are collected." [recommended text addition italicized].

We appreciate the well-considered proposed BLM program for Idaho, and the opportunity to share our comments with you. We are available to meet with you at your convenience if you wish to discuss our comments. Please contact us if you have any questions.

Respectfully,



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