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OFFICE OF
WATER AND WATERSHEDS

January 31, 2017

Jason Pappani
Idaho Department of Environmental Quality
1410 N. Hilton
Boise, Idaho 83706

RE: EPA's Comments on Idaho's Draft Implementation Guidance for the Idaho Copper Criteria for Aquatic Life Using the Biotic Ligand Model, Docket No. 58-0102-1502,

Dear Jason:

The EPA appreciates the opportunity to provide comments to the Idaho Department of Environmental Quality (DEQ) on the materials presented at the December 20, 2016 negotiated rulemaking meeting. The information that you presented was helpful in providing a basic understanding of the framework for the implementation guidance as well as an understanding of some of the data related to the biotic ligand model (BLM) for copper that DEQ has collected to date.

The EPA is supportive of DEQ's work on developing implementation guidance, particularly with respect to the copper BLM on a statewide basis. The EPA looks forward to providing continued input to DEQ as the guidance document is further developed. The EPA's detailed comments are provided in the enclosure.

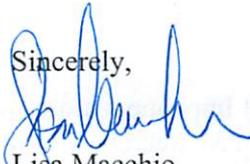
As stated in the EPA's previous comment letter, implementation methods are critical for model-derived criteria because models rely on input parameters such as dissolved organic carbon concentrations that can vary over time and spatially throughout a site. The implementation methods should detail how DEQ intends to apply the copper BLM to a waterbody in order to provide clarity for the public and regulated community. These implementation methods should address key considerations for model inputs and outputs, such as site selection and characterization and how critical conditions will be determined for Idaho waters. In addition, the methods should identify when default values are to be used in lieu of ambient data at a particular site, provide recommendations for sampling frequency and locations, and describe the methodology for data screening, data processing, and model output interpretation. The EPA sees implementation procedures as important for applying the copper BLM in a consistent, repeatable, and protective manner.

The EPA is supportive of DEQ referencing a guidance document in a rule. However, it is important that DEQ provide the necessary clarity and requirements in the rule so as to distinguish when certain elements are requirements and not optional approaches. The EPA greatly appreciates DEQ's commitment to develop implementation guidance to accompany Idaho's rule updating the aquatic life copper criteria using the BLM. The EPA continues to suggest to our states and tribes, that development of implementation guidance for use when

adopting a BLM is critically important for transparency and clarity for the regulated community and the public.

The EPA continues to be available to provide assistance to DEQ on further development of the rule language and implementation procedures. If you have any questions or would like to discuss these comments further, please contact me at (206) 553-1834 or Mark Jankowski at (206) 553-1476

Sincerely,



Lisa Macchio

Water Quality Standards Coordinator

Enclosure

Specific Comments on Idaho DEQ's Draft Implementation Guidance for the Idaho Copper Criteria for Aquatic Life, dated June 2017

Page 1, Section 1, 3rd Paragraph, 1st Sentence: Please change from “opinions on Idaho’s criteria” to “opinions on the EPA’s action on Idaho’s criteria”. The consultation is on a federal, not a state, action.

Page 1, Section 1, 3rd Paragraph, 2nd Sentence: Please change the wording of “would result in adverse effects to species” to wording that is consistent with what NOAA provided in the Biological Opinion (BiOp). That wording is as follows: “NMFS concludes that the action is likely to jeopardize the continued existence of Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, Snake River sockeye salmon, Snake River Basin steelhead adversely modify their designated critical habitat.” Therefore, to be consistent with the language in the BiOp please include a statement that includes the above language, including the effect to designated critical habitat.

Page 1, Section 1, 2nd Paragraph, last sentence. In addition to the use of the BLM, the 2007 304(a) guidance states that input parameter data must be available to run the BLM.

Page 1, Section 1.1, Bulleted list of objectives, 3rd Bullet:

Instead of “how to estimate protective criteria when required BLM input data are not available” we think you mean, “how to estimate or derive input data to calculate protective criteria when required measured BLM input data are not available at a site”. Please be more clear and describe the methods that will be used for the estimation of input data to calculate criteria, because these are the only procedures provided in the guidance. If DEQ expects to use default criteria when sufficient input data for a site are not available, then EPA recommends DEQ also include methods for deriving default criteria. The EPA strongly recommends that DEQ incorporate default criteria so that it is clear that there are applicable criteria in place for any waters when there is insufficient input data to use in the BLM.

Page 3, Section 1.3.1, 4th Paragraph, 1st Sentence: Please replace the word “complexation” with “binding” [at the biotic ligand], as the cations cited bind to the biotic ligand.

3rd Sentence: Please change “would be toxic” to “would be available to exert toxicity”, as the BLM models the bioavailable fraction that can exert toxicity.

Page 4, Section 1.4, 1st Paragraph, 3rd Sentence: It is stated that 0.05% of 95,119 stream and river miles were listed as impaired because of copper levels. It is not clear if all 95,119 miles were sampled for copper. Please clarify how many miles were analyzed for copper and revise the number of total miles and percent of tested that were impaired if needed.

4th Paragraph, 1st Sentence: Add more information on any activity at Prichard Creek. What is the source of impairment and is anything being done to restore the reach?

Page 6, Section 2, 1st Paragraph: The citation to IDAPA 58.01.02.210 is confusing. Is this where the new Cu rule will be located? Regarding BLM version 3.1.2.37, how will the criteria be updated to reflect new model versions? Please reiterate here the duration and frequency components of the acute and chronic criteria. Note that EPA is recommending a 1-hour average for the acute criterion duration component.

Page 7, Figure 4, Footnote r: Recommend changing second sentence “For comparative purposes only...” to “For *anchoring*...” or “For *normalizing*...”. Additionally, why were these particular input values chosen? Why not use the 304(a) normalizing data instead?

Page 7, Section 3, 1st bullet: Given that the document refers to the boundary of the mixing zone, please change “...the BLM derived copper criteria...” to “...the BLM derived chronic copper criteria...”.

Page 8, Section 4, 2nd Paragraph: Please note that the cations considered in the hardness criteria are only Ca^{2+} and Mg^{2+} and that the cation list is longer within the BLM. Making this distinction adds more significance to this standards update.

Page 9, Section 4.1, Last Paragraph: Please change the phrase “...based on the following...” to “...based on *the values of* the following...”.

Page 10, Section 4.1, Last Paragraph, Last Sentence: Please change the phrase “...input data are variable over time...” to “...input data are variable over time and space...”.

Page 10, Section 4.2, 1st Paragraph, 1st Sentence: Please change the phrase “...the toxic effects of copper...” to “...the toxic effects of exposure to aqueous forms of copper...”.

Page 10, Section 4.2, 2nd Paragraph, 2nd Sentence: Please add ‘criterion’ after ‘the hardness based...’ and before the word ‘equation’.

Page 11, Figure 7: DEQ should discuss how this figure demonstrates that the BLM has been shown to be over-protective (i.e., predicted LC50 < measured LC50) for hard water (per Ryan et al. 2004) but under-protective (i.e., predicted LC50 > measured LC50) for softer waters. We note that some reviewers may conclude from this figure that the BLM is under-protective in many cases.

Figure 8: Please verify the x-axis label. It appears to be incorrect and that it should be changed to “hardness criterion predicted LC50 ($\mu\text{g/L}$)” rather than “hardness mg/L”

For both of the above figures, it would be helpful if it was noted which figure number each of these were assigned in Appendix C.

Page 12, Figure 9: Please clarify how many of the 10 BLM input parameters were measured to create this figure. Secondly, it may be preferred to merge both figure 9 panels into one figure panel and color the acute and chronic data differently. Were the chronic values simply an application of the 304(a) acute to chronic ratio of 3.22 to the acute data? If so, it would probably be clearer to present the data in just one panel.

Page 15, Section 5.1, 2nd Paragraph, 3rd Sentence: Note that no “degree” sign is required for temperatures measured in kelvin.

Page 15, Section 5.1, 5th and 6th Paragraphs, 1st Sentences (and subsequent sections where applicable): Add valence or ionic charge to cations and anions (ex. Ca²⁺ instead of Ca).

Page 17, Section 5.2.1: Because the EPA has summarized BLM input parameter data by ecoregions in the 2016 Draft Missing Parameters document and because DEQ may use that document, it would be helpful to understand how DEQ’s AU’s compare to those ecoregions in terms of spatial representativeness. For example, are AUs considered more representative of a specific site given that they are more spatially resolved than ecoregions? It would help EPA to better understand how data at the level of the AU will be the same or different from ecoregional data.

Page 17, Last Sentence: More detail or decision criteria for determining what is a “representative” location would be helpful for EPA to more fully understand DEQ’s proposed procedures. For example, how will DEQ determine if a sampling location is representative of assessment unit? DEQ is required to assess all readily available data to determine attainment. If data is not being used, DEQ will need to provide a rationale as to why that sampling location is not representative and the data does not apply to the assessment unit. Therefore, DEQ should design their monitoring plan to focus on representative sampling locations to ensure the majority of collected data can be fully utilized for the assessment.

Page 18, Section 5.2.2: In order to protect sensitive aquatic uses, when monitoring to determine criteria, a location that is representative of the most bioavailable conditions (baseline) of the receiving water at a site should be used. Whether the location is downstream or upstream of effluent is not as critical as monitoring a location that is known to represent the most bioavailable conditions at a site.

Page 18, Section 5.3.1, 3rd Paragraph: It is not clear what analytical steps were taken to derive a guideline of 12 monthly IWQCs for understanding temporal variability. Please provide further supporting details for this recommendation. We recommend 24 consecutive monthly (i.e., one sample for each month) samples unless it can be quantitatively demonstrated that 12 monthly samples reliably represent the temporal variability of IWQCs at a site.

Page 18, Section 5.3.2, 1st Paragraph, 2nd Sentence: Please refer to EPA comments (8/10/2016) that were provided in response to DEQ's 7/26/2016 presentation regarding the critical time period for Cu bioavailability. The presentation showed that there are calculated IWQCs which indicated winter to be a period where Cu would be more bioavailable than other seasons. The same presentation also cited NMFS (2014), which does not include winter data but only dissolved organic carbon (DOC) through the autumn period. From the DOC patterns observed, DEQ concluded that autumn was likely the most bioavailable period of the year and would presumably yield IWQCs that represent the most bioavailable condition. Given these two contrasting lines of evidence, the EPA is not certain which time period DEQ has found to be the most bioavailable. Therefore, it is important to provide an analysis of the annual variability of IWQCs and any consequent decisions made regarding the determination of temporal variability of IWQCs in Idaho.

Page 19, Section 5.4 Reconciling multiple IWQCs. DEQ's draft rule reads that the criterion is the BLM output, without mention of reconciling IWQCs. We recommend that for clarity Idaho includes a procedure in rule to indicate that multiple IWQCs will be reconciled such that the waterbody is protected at all times including sensitive (most bioavailable) conditions.

Page 19, Section 5.4.1: DEQ states that with limited (not defined) data, it is recommended to use the lowest or minimum IWQC from a site as the default until more data are collected. In some cases, such an approach would be over-protective and in other cases it would be under-protective. Given this uncertainty, it is important to more completely explain data requirements for IWQC derivation and use at a site. EPA suggests this information be included in the rule language. For example, when is one sample enough? How will it be determined when one sample is adequately representative? And, when would there be there enough data to not use the minimum IWQC?

Page 19, Section 5.4.2: More information is requested to describe why the 10th percentile of IWQCs at a site is considered protective and further, when it would be determined that there are enough data to use the 10th percentile versus the minimum IWQC at a site versus some other percentile. To the extent the guidance recommends or selects a percentile, DEQ should provide the data used to support that approach and DEQ's analysis of that data in the guidance.

Page 19, Section 5.4.4: The seasonal variation of IWQCs may not only be dependent on flow levels. It may also be based on biological activity at a site. For example, pH and hardness may vary with flow but DOC may not. So, during the winter when flows are low, pH and hardness may be at a higher level due to decreased dilution while DOC may be low due to reduced biological activity. Late summer may also contain lower flows or be considered "dry" resulting in higher pH and hardness as well as DOC due to biological activity. In these cases, criteria may be very low in the winter (low DOC) but a bit higher in the late summer (higher DOC than during winter) even when flows are

similar. This example illustrates the need for more information regarding the use of flow rather than season as an index of criteria magnitude. Please note that if using steady state modeling (unless using dynamical modeling), NPDES guidance recommends using seasonal low flows appropriate to calculate the protective acute and chronic criteria to ensure that the criteria magnitudes are not exceeded more than allowed by the criteria frequency of exceedance and duration. Therefore, RPA would be done seasonally. Likewise, seasonal analyses will require adequate data to characterize seasonal dynamics.

Page 20, Section 6.1, 1st Paragraph, 1st Sentence: Who are the “Users” referred to in this sentence? IDEQ? Who will calculate the criteria for a site? For this statement, “Users seeking to estimate copper criteria when data are absent may use statistical methods to estimate major geochemical ions, but *should not use estimates of either DOC or pH.*” (emphasis added), the EPA’s Draft Missing Parameters Document (2016) provides default estimates for DOC. What will be used where DOC data are missing? In Oregon’s copper rulemaking analyses comprising their Technical Support Document (2016), ODEQ found that DOC data were absent for many IWQC calculations, and therefore required conservative defaults. Likewise, in evaluating historical data for purposes of assessment or TMDL development, Oregon DEQ included methods for deriving pH data from neighboring sites. Please provide more information on how default or estimates for inputs will be derived and used when data are absent. Please provide more details on which statistical methods may be used to estimate geochemical ions and why the selected methods are appropriate. Since the draft rule only speaks to the input parameters (measured parameter inputs), any substitution or estimation methods for input parameters should be in rule. Otherwise, it will be confusing as to why, when and how DEQ can use something else as a substitute. In addition, it will be difficult to assess up front how protective/repeatable the criteria calculations are.

Last Paragraph, 1st Sentence: Please explain why winter low-flows are not included as a factor that may affect DOC concentrations. It is recognized that winter is often a challenging time to sample but this issue is not the case not for all locations.

Page 21, Figure 13 The 10th percentile values are not shown on the graphic.

Page 21, Section 6.2, 1st Paragraph, 1st Sentence: In this instance, what is an “ecoregion”? More information is required. And, how many assessment units would generally have to be pooled for each ecoregion? If data do not exist for all AUs in an ecoregion, how would DEQ decide when there is sufficient data to pool into an ecoregion? Are some AUs less representative of an ecoregion within which it resides than other adjacent AUs?

Page 21-22, Section 7:

DEQ should work with the IPDES program to develop or consider the need for more detailed guidance for evaluating both reasonable potential to exceed and water quality-based effluent limits using the copper BLM criteria. Guidance should cover any unique considerations or circumstances for identify copper as a pollutant of concern,

determining the applicable criteria (considering spatial and temporal variation), evaluating reasonable potential to exceed (RPTE) both with or without data needed to establish the applicable criteria and calculating effluent limits based on the applicable criteria.

Page 21, last paragraph. The document indicates “up to 36 months...”; however, there is no need to have a maximum number of months of data upon which effluent limits should may be calculated.

Page, 22, paragraph 3. If copper is identified as a pollutant of concern (i.e. present in the effluent) then reason potential must be done using the applicable criteria, with or without monitored input data. If RPTE is found, then the permit must include a limit. The guidance should identify how to address this uncertainly in permitting.

Page 22, Section 8: It is quite prudent to be cautious with impairment listings and guard against false positives (listed when it was not warranted), but it is also prudent to be cautious of not listing a water when it should be. Please describe how false negative (not listing a water when it is warranted) determinations will be guarded against. Note that because the State can and should be able to derive estimated or default inputs, such as using those provided in EPA’s Draft Missing Parameters Document, we expect Idaho to be able to calculate copper criteria using the BLM for any waterbody from the time that the criteria are in effect. Therefore, there should be no case where a waterbody is listed under Category 3 (insufficient information) for a lack of input parameter data; Category 3 should only be used where a site lacks copper data to compare with the calculated criterion. Please provide more clarity on the listing procedures that you will use vis a vis the availability of input data and defaults to be used when data are unavailable. These should include a listing methodology that details the order of operations for determining what parameter data are available, and when defaults or estimates will be used vs. when the model will be run. Please also describe how this information will be managed and tracked from listing cycle to listing cycle, and if there is a process by which a third party could provide new parameter data and request re-assessment using the model.