



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

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WATER
DIVISION

September 20, 2021

Paula Wilson
Idaho Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706-1255

Re: EPA Comments on Idaho's Draft No. 2 Arsenic Human Health Criteria Proposed on August 18, 2021 – DocketNo. 58-0102-1801

Dear Ms. Wilson:

Thank you for the opportunity to provide comments to the Idaho Department of Environmental Quality (DEQ) regarding the second draft of the arsenic human health criteria proposed at the August 18, 2021 negotiated rulemaking meeting. The U.S. Environmental Protection Agency (EPA) greatly appreciates DEQ's efforts to address the agency's previous comments in this updated proposal.

EPA has reviewed the second draft proposed rule and offers the following comments for your consideration.

Subsection 210.01 – Criteria for Toxic Substances

EPA agrees with Idaho in specifying that the criteria for arsenic are for the total recoverable inorganic arsenic form (i.e., unfiltered inorganic arsenic). EPA's references to arsenic throughout this letter pertain to this form of arsenic.

However, in reviewing the proposed revisions to Subsection 210.01, it appears that the criteria for metals in Table 2 are expressed as a dissolved fraction rather than total form. EPA recommends DEQ conducts a review of Table 2 to determine if the rule language inadvertently changes any Table 2 pollutants to be expressed as the dissolved rather than total form.

01. Criteria for Toxic Substances. *The criteria of Section 210 apply to surface waters of the state as provided in Tables 1 and 2. Criteria for metals (arsenic through zinc) listed in Tables 1 and 2 are expressed as a dissolved fraction (i.e., passes through a 0.45 micron filter) unless otherwise noted. (3-28-18)*

a. *Table 1 contains criteria set for to protection of aquatic life. ~~Criteria for metals (arsenic through zinc) are expressed as dissolved fraction unless otherwise noted.~~ For purposes of these criteria, dissolved fraction means that which passes through a forty five hundredths (0.45) micron filter.*

Subsection 210.01.b – Proposed Criteria

EPA appreciates that DEQ has included water column values in the arsenic criteria to improve implementation and ensure protection of human health.

Fish Only Exposure

For the Fish Only (recreation uses) criterion, DEQ has proposed a water column value of 4.3 µg/L and a fish tissue value of 8 µg/kg. To derive these values, DEQ used inputs described in the *Arsenic Human Health Criteria Discussion Paper #3*.¹ DEQ calculated the bioaccumulation factor (BAF) using the fish trophic-level weighting method and data collected from Idaho waterbodies.² In general, EPA is supportive of the criterion values DEQ has developed.

Water and Fish Exposure

For the Water and Fish (domestic water supply uses) criterion, Idaho combined the fish tissue value from the fish-only criterion with the Safe Drinking Water Act (SDWA) Maximum Contaminant Level (MCL) for arsenic to protect the domestic water supply use. DEQ has proposed a water column value of 10 µg/L and a fish tissue value of 8 µg/kg. However, EPA would like to clarify our understanding that the water column value of 4.3 µg/L would apply wherever there is a fish consumption use, including where there is also a drinking water use. EPA would appreciate DEQ confirming in the response to comment document that our understanding is correct.

At IDAPA 58.01.02.100.03, Idaho defines the domestic water supply use as water quality appropriate for use as untreated raw water for public drinking water. In its discussion paper, DEQ clarified that the domestic water supply use is protected when additional treatment for arsenic concentrations is not required for public water systems using surface water as source water.³ To account for the additional exposure through consumption of fish tissue in waters designated for both recreation and domestic water supply, the fish tissue value must also be met. EPA is supportive of the criterion DEQ has developed to protect the domestic water supply use. EPA has additional comments as noted above and below regarding how fish consumers will be protected in waters designated for both recreation and domestic water supply.

Subsection 210.01.b – Fish Only Criteria Footnote L

Supersede and Steady State Conditions

For the Fish Only criterion, Idaho has proposed a fish tissue value and a water column value, with the fish tissue value superseding the water column value when sufficient fish tissue data exist as defined in Footnote 1 to Footnote L. It would be reasonable for the fish tissue value to supersede the water column value under steady state conditions. The field-based BAF approach that DEQ is using to derive the water

¹ DEQ. 2021. *Arsenic Human Health Criteria Discussion Paper #3*. Rulemaking Docket 58-0102-1801. Idaho Department of Environmental Quality. Boise, Idaho. August 13, 2021.

² DEQ. 2020. *2019 Arsenic Accumulation in Fish Tissue: Preliminary Monitoring Results*. Idaho Department of Environmental Quality. Boise, Idaho.

³ DEQ Discussion Paper #3, 2021

column value from the fish tissue value assumes that waters are in steady-state condition, as does the principle of connecting those two values in a hierarchical structure. Therefore, in a non-steady state condition where arsenic inputs are increasing, even though arsenic may not be highly bioaccumulative, EPA strongly recommends that the water column value have primacy (i.e., the fish tissue value would not supersede in this case). EPA recommends the following addition to the rule language:

¹Fish muscle (fillet) tissue supersedes water column element, except as noted in Footnote 2 below.

In its discussion paper, DEQ states that the water column value can be used when sufficient fish tissue data might not be available or obtainable.⁴ EPA recommends that DEQ further clarify in rule language that the water column value is the applicable criterion in the absence of sufficient fish tissue data or under non-steady state conditions where arsenic concentrations are increasing. EPA suggests the following edits.

²Water column values are based on total inorganic arsenic in water. Water column values are the applicable criterion element ~~only~~ in the absence of sufficient fish tissue data or under non-steady state conditions when arsenic inputs are increasing.

Subsection 210.01.b – Water & Fish Criteria Footnote K

To protect fish consumers, in addition to a fish tissue value, EPA recommends that the water column value for arsenic apply in Water and Fish (domestic water supply) waters where there are insufficient tissue data or under non-steady state conditions. EPA requests that DEQ clarify the application of the 4.3 µg/L water column value to Water and Fish waters. EPA recommends that this would apply in addition to an upper bound of 10 µg/L in the water column for Water and Fish waters for which there are data that demonstrate compliance with the 8 µg/kg fish tissue component of the criteria. Since all Idaho waterbodies are protected for recreation uses, this means that the Fish Only criterion, including its water column component, should apply to all waters in the state, including those waters additionally designated for domestic water supply. EPA recommends the following revision to the rule language.

Human health criteria for Water & Fish exposure to inorganic arsenic are attained if ~~fish tissue concentrations comply with~~ the Fish Only criterion is met and water column concentrations do not exceed 10 µg/L.

Subsection 210.03.d.ii – Frequency and Duration

EPA appreciates that DEQ has revised this provision to no longer use the harmonic mean. EPA recommends further clarifying that the arithmetic mean will be used.

ii. Frequency and duration for human health toxics criteria. Criteria in Table 2 in Subsection 210.01 are not to be exceeded based on an annual arithmetic mean concentration.

⁴ *Id.*

Subsection 210.05.b – Criteria Inputs

EPA's understanding is that Idaho added this edit (see underlined rule language below) to address the fact that the 10 µg/L element of the Water & Fish criterion is not derived using these inputs. However, DEQ's proposed Fish Only criterion is based on all of these elements aside from the water ingestion rate. Therefore, EPA suggests DEQ consider whether it is necessary to add an exception for arsenic or whether it would be more appropriate to continue noting that the 10 µg/L is based on the SDWA MCL (as noted in original footnote 'j') or develop a dedicated explanatory footnote like DEQ has for methylmercury (which also uses some but not all of these elements).

ii. When using toxicity thresholds to derive water quality criteria to protect human health, a fish consumption rate representative of the population to be protected, a mean adult body weight, an adult 90th percentile water ingestion rate, a trophic level weighted BAF or BCF, and a hazard quotient of one (1) for non-carcinogens or a cancer risk level of 10^{-5} for carcinogens shall be utilized for any compound not listed in Subsection 210.05.b.iii.

Implementation Principles – Permitting and Steady State Condition

EPA's understanding of the implementation principles for permitting includes incorporating the principle of steady state conditions. EPA does not agree that the current proposed rule and implementation principles address our concerns as discussed earlier in this letter. As in previous comments, EPA recommends that DEQ clarify in rule and guidance that the fish tissue value superseding the water column value can be applied only under steady state conditions.

With this in mind, it is EPA's understanding that if arsenic is a pollutant of concern, then the permit writer would determine if there are sufficient fish data and whether the system represents steady state. If so, then the permit writer would determine reasonable potential based on the fish tissue data, with some additional monitoring for new or increased discharges to waters with tissue concentrations currently below 8.0 µg/kg. If not (i.e., insufficient fish data or system is under a non-steady state), then the permit writer would base the reasonable potential on the water column value. EPA would appreciate DEQ confirming in the response to comment document that our understanding is correct and including this clarification in its implementation guidance.

Site-specific BAF

DEQ described in its discussion paper that translation of the fish tissue value to a water column value should be based on the geometric mean BAF from paired tissue and water samples from gamefish species present at a given site. DEQ further stated that to calculate site-specific BAFs, interested parties should provide:

- information or data regarding gamefish species present at the site, and
- paired fish tissue and water column concentrations of inorganic arsenic from all representative gamefish species in the assessment unit.

EPA recommends DEQ clarify the minimum amount of data the interested parties must collect to develop a site-specific BAF.

It is EPA’s understanding that the site-specific BAF would be used to translate the 8 µg/kg fish tissue value to a new water column value for that site. If DEQ intends that this new water column value could be used by permit writers in place of the 4.3 µg/L water column value without a separate rule adoption and submittal to EPA for review and action under section 303(c), then EPA recommends that DEQ outline in rule the procedure for the site-specific BAF and/or reference the relevant guidance in rule to ensure clarity for interested parties. It is EPA’s position that if DEQ decides not to reference this procedure in rule and describe how site-specific BAFs could be used to develop new water column values, the only water column value that would be effective for CWA purposes (if Idaho adopts the current proposal and EPA approves) would be the 4.3 µg/L value.

Other Implementation Considerations - Footnote L

EPA recommends that the following terms in Footnote 1 to Footnote L be clarified in the arsenic implementation guidance:

- “Sufficiently sensitive methods” – specific methods and/or level of sensitivity/detection limit
- “5 individuals of same species” – specifics regarding types of species and/or representativeness of different trophic levels
- “Same water body” – description of allowed locations
- “Same calendar year” – timing of sample collection

¹Fish muscle (fillet) tissue supersedes water column element. Single measurement using sufficiently sensitive methods based on an average or composite of a minimum of five (5) individual fish of the same species, collected from the same water body and within the same calendar year, where the smallest individual is no less than seventy-five percent (75%) of the total length (size) of the largest individual. Not to be exceeded; the Department will evaluate all representative fish tissue data to determine compliance with this criterion element.

Downstream Protection

In accordance with the requirements at 40 CFR 131.10(b), states must “take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.” EPA appreciates the preliminary implementation information DEQ provided in its discussion paper⁵ and August 18, 2021 presentation of implementation principles.⁶ EPA recommends DEQ review the criteria for downstream waters and ensure implementation procedures address downstream water quality standards.

Below is a summary of the arsenic human health criteria applicable and relevant to the shared or downstream of Idaho waters for consideration in developing potential/hypothetical examples of permit limits or wasteload allocations that ensure protection of downstream water quality standards.

State or Tribe	Fish-only arsenic criterion	Water + Fish arsenic criterion
Kalispel	0.0023 (µg/L)	0.0020 (µg/L)

⁵ *Id.*

⁶ DEQ. 2021. Revision of Idaho’s Human Health Criteria for Arsenic - Docket No. 58-0102-1801. August 18, 2021. Presentation by Jason Pappani, Surface Water Bureau Chief. Idaho Department of Environmental Quality. Boise, Idaho.

State or Tribe	Fish-only arsenic criterion	Water + Fish arsenic criterion
Washington	0.14 (µg/L)	0.018 (µg/L)
Oregon	2.1 (µg/L)	2.1 (µg/L)

EPA appreciates DEQ’s continued efforts to evaluate potential approaches to revising Idaho’s human health arsenic criteria. EPA looks forward to continuing to coordinate this effort with DEQ and provide technical support. Please do not hesitate to contact me at (208) 378-5771 or grafe.cyndi@epa.gov if you have any questions.

Sincerely,

Cyndi Grafe
Idaho WQS Coordinator

cc: Jason Pappani, Surface Water Bureau Chief, DEQ