

November 20, 2020

Via email: [paula.wilson@deq.idaho.gov](mailto:paula.wilson@deq.idaho.gov)

Ms. Paula Wilson  
Idaho Department of Environmental Quality  
1410 North Hilton  
Boise, ID 83706

Dear Ms. Wilson:

The Idaho Association of Commerce & Industry (IACI) is the leading trade association of Idaho businesses and represents hundreds of employer members of all sizes engaged in diverse commercial and industrial enterprises through the state. The arsenic water quality criteria values are used to set cleanup/remedial objectives and requirements for wastewater discharge. Thus, these criteria will have direct impact on the IACI membership.

IACI submitted extensive comments in August 2020, reviewing the history of arsenic water quality criteria in Idaho, the regulatory framework for these standards and a thorough evaluation of data on arsenic in Idaho waters and fish. This comment letter responds to the options presented at the November 5 Rulemaking Meeting and references the August comments.

At the November 5, 2020, Human Health Criteria for Arsenic Rulemaking Meeting, the Idaho Department of Environmental Quality (the Department) proposed four options for criteria for waters designated for recreation use (potential exposure via fish consumption) and two options for water designated for domestic water supply use (potential exposure via fish and water consumption). The four options for recreation use were:

1. Calculate a water column criterion based on Idaho exposure factors and allowable risk level, EPA's cancer slope factor (CSF) and an Idaho-specific bioaccumulation factor (BAF), equal to 7.16 ug/L based on the information presented during the rulemaking meeting;
2. Calculate a fish-tissue based criterion based on Idaho exposure factors and allowable risk level and EPA's CSF, equal to 8 ug/kg based on information presented at the rulemaking meeting;
3. A fish tissue criterion of 8 ug/kg combined with a water column screening concentration of 7.16 ug/L; and
4. Hierarchical criteria, where there is a water column criterion and a fish tissue criterion, but the fish tissue criterion of 8 ug/kg supersedes a water column criterion of 7.16 ug/L.

The August 21, 2020 IACI comments submitted to the Department reviewed the extensive Idaho-specific data collected by the Department. Based on those data the IACI comments recommended a numeric criterion very similar to Option 3 presented by the Department at the Rulemaking Meeting. Both Option 3 and the recreation use criterion recommended in the IACI comments rely on a fish tissue criterion of 8 ug/kg. Both criteria also rely on a water column screening concentration to trigger the need for tissue monitoring. However, the two criteria differ in the value of the water column screening concentration. The IACI comments derive the water column screening

concentration using Idaho drinking water exposure factors, EPA's CSF and an allowable risk level of  $1 \times 10^{-4}$  resulting in a screening concentration of 2.2 ug/L.

DEQ's screening concentration of 7.16 ug/L assumes that the concentrations of arsenic in water and fish are related and that relationship is represented by a BAF of 1.12 L/kg. As described in detail in the IACI August 21, 2020 comments, and as is apparent from the information presented at the Rulemaking Meeting, concentrations of arsenic in Idaho fish are not related to concentrations of arsenic in the water from which the fish are collected. Consequently, a scientifically defensible Idaho-specific BAF cannot be derived. For that reason, the IACI comments did not recommend a water column screening concentration using a BAF. Recognizing the need for a water column screening concentration to serve as a trigger for fish tissue monitoring, the IACI comments derived a screening concentration based on protecting human health from exposure to arsenic in drinking water at an allowable risk level of  $1 \times 10^{-4}$ . The resulting screening concentration of 2.2 ug/L is based on protecting human health and does not depend upon a BAF.

Given the absence of a relationship between the concentration of arsenic in fish tissue and surface water, IACI continues to recommend that the Department adopt a fish tissue criterion of 8 ug/kg and a water column screening concentration of 2.2 ug/L. This is very similar to Option 3 presented at the Rulemaking Meeting, except for the value of the water column screening concentration. As noted above and described in detail in the August 21, 2020 comments, the Department has collected a very robust data set showing that the concentrations of arsenic in fish tissue and surface water *are not* related. Given that dataset, IACI does not believe Options 1 and 4 are technically valid because both options assume such a relationship is present and use that relationship to derive a numeric surface water criterion.

At the Rulemaking meeting, the Department also presented two options for waters designated for domestic water supply use (potential exposure via fish and water consumption). Those options are presented below.

1. Calculate a numeric water column criterion based on Idaho exposure factors and allowable risk level, EPA's cancer slope factor (CSF) and an Idaho-specific bioaccumulation factor (BAF), equal to 0.22 ug/L based on the information presented during the rulemaking meeting; and
2. Develop a narrative criterion based on protecting the designated use which requires that waters be free of inorganic arsenic at concentrations that would impair use as a domestic water supply.

The most significant limitation of Option 1, as pointed out in the IDEQ presentation and also in IACI's August 21, 2020 comments, is that the resulting 0.22  $\mu\text{g/L}$  criterion would be below the arithmetic mean concentration of naturally occurring inorganic arsenic in nearly 75% (29 of 40) of Idaho surface waters that are part of IDEQ's surface water monitoring program. Idaho rules (IDAPA 58.0102.200.09) state that if a numeric criterion is less than the background concentration, the criterion is set at the background concentration rendering a 0.22 ug/L numeric criterion moot for most Idaho surface waters. In addition, if site-specific criteria (SSC) based on background concentration need to be established for 75% of surface waters, that is likely to be time and resource intensive and will result in no added human health benefit because the naturally occurring inorganic arsenic present in surface water is permitted to remain in the water. Furthermore, such a conservative numeric criterion would not result in an increased level of protection to the drinking water consumer because the state's surface water serves as the raw water input for public water

supplies that are treated to drinking water standards, which for arsenic is equal to the MCL, prior to ultimate consumption. IACI's August 21, 2020 comments also discuss other implementation issues associated with a water quality standard that is mostly not attainable.

The narrative criterion (Option 2) presented by IDEQ is the more appropriate of the two options for domestic water supply designated waters because it accounts for the natural conditions of the State's waters and is protective of the intended use as raw untreated water without being unnecessarily stringent and implementing unachievable water quality goals.

Option 2 is similar to the August 21, 2020 IACI comments that recommended a narrative criterion for water supply designated water in that both approaches account for elevated natural background concentrations of inorganic arsenic and the intent to use the water as the input to a drinking water supply. Specifically, IACI recommended:

For waters designated for water supply and recreation use, the recommended human health water quality criteria is based on a range of arsenic water column concentrations, where the low end of the range is the larger of either 2.2 µg/L As<sub>(in)</sub> or background (inorganic), and the high end of the range is 10 µg/L As<sub>(in)</sub>. When the background concentration is less than 2.2 µg/L As<sub>(in)</sub>, the low end of the range is 2.2 µg/L As<sub>(in)</sub> and represents a strictly health-based criterion. When background is greater than 2.2 µg/L As<sub>(in)</sub>, the low end of the range is equal to the background concentration. The high end of the range is equal to the Maximum Contaminant Level, a concentration established under the federal Safe Drinking Water Act that has been determined to be an acceptable level of As<sub>(in)</sub> as raw water for public water supplies, taking treatability and laboratory detection limits into account.

The USEPA Water Quality Handbook, Chapter 3: Water Quality Criteria allows flexibility in developing criteria to account for specific instances where a narrative criterion may be more appropriate than a numeric criterion, "However, states and authorized tribes may adopt, where appropriate, other scientifically defensible criteria that differ from the EPA's recommendations." The narrative criterion, as proposed by the Department at the Rulemaking meeting, is also consistent with 40 CFR 131.11 because it would be sufficient to protect the designated use for drinking water. Although numeric criteria may be preferable for simple determination of compliance, 40 CFR 131.11(b)(2) and the USEPA Water Quality Handbook, acknowledges that narrative criteria may be necessary in instances where numeric criteria cannot be derived: "Establish narrative criteria... where numerical criteria cannot be established or to supplement numerical criteria." Given the natural inorganic arsenic background conditions of the State's water, a numeric criterion cannot be reasonably established, and it is unnecessary to do so considering the raw water intended use.

The USEPA Water Quality Handbook states that criteria must meet three conditions.

- (1) Be based on sound scientific rationale. The narrative criterion presented by DEQ at the Rulemaking Meeting is based on sound scientific rationale; a rationale founded on a uniquely robust state-wide Idaho-specific dataset. That dataset demonstrates a numeric criterion of 0.22 ug/L is unattainable in the majority of Idaho surface waters.
- (2) Contain sufficient parameters or constituents to protect the designated use. The narrative criterion presented by DEQ at the Rulemaking Meeting refers to the conditions necessary for a raw water to protect the designated domestic water supply use.

- (3) Support the most sensitive designated use of the water body. As described briefly above and in greater detail in IACI's August 21, 2020 comments, the concentrations of inorganic arsenic in fish tissue and water are not related. Further, as shown in the IACI comments, inorganic arsenic concentrations in fish tissue from the vast majority of Idaho surface waters meet the proposed tissue criterion of 8 ug/kg. Thus, water consumption is the most sensitive designated use. As described above, the narrative criterion presented by DEQ at the Rulemaking Meeting is clearly linked to protecting, and will protect, the domestic water supply designated use.

Based on the comments presented herein and comments previously submitted on August 21, 2020, IACI continues to recommend that the Department adopt a narrative type criterion for inorganic arsenic for waters with a domestic water supply designated use. Such a criterion should refer to the requirements for a water supply to protect the designated use, be attainable, and protect public health as required by Idaho rules. IACI's August 21, 2020 comments provide several technical justifications for this approach.

IACI appreciates the technical work that the Department has done in collecting data on arsenic in Idaho's waters and fish and reviewing that data for use in revising this water quality criteria. We thank you the opportunity to comment on this work.

Sincerely,



Alex LaBeau  
President

cc: Alan Prouty, Chair  
IACI Environment Committee