



**Association of Idaho Cities**  
3100 South Vista, Suite 201, Boise, Idaho 83705  
Telephone (208) 344-8594  
Fax (208) 344-8677  
[www.idahocities.org](http://www.idahocities.org)

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April 30, 2018

Ms. Paula Wilson, Administrative Rules Coordinator  
Idaho Department of Environmental Quality  
1410 N Hilton  
Boise, ID 83706

Re: Docket No. 58-0102-1801 Update to Human Health Criteria for Arsenic 4/19/18 Stakeholder Meeting

Dear Ms. Wilson/Paula,

The Association of Idaho Cities (AIC) serves to advance the interests of the cities of Idaho through legislative advocacy, technical assistance, training, and research. Idaho cities and municipal drinking water utilities play important roles as primary providers of drinking water and implementers of the Clean Water Act. Idaho cities represent over 70% of all Idaho residents. These stakeholders have a significant interest in the development of water quality standards, rules, and guidance related to the protection of human and aquatic life. AIC is actively engaged in water quality issues through the work of our Environment Committee, chaired by Boise City Councilmember Elaine Clegg and our Municipal Water Users Group, chaired by Jerome City Councilmember Bob Culver.

The Idaho Department of Environmental Quality (IDEQ) is pursuing an update to Idaho's human health criteria for Arsenic, a carcinogen. Idaho Water Quality Standards (WQS; IDAPA 58.01.02) provide numeric toxics criteria for the protection of human health for two exposure scenarios – exposure through fish consumption only, and exposure through fish + drinking water consumption.

AIC appreciates the opportunity to comment on the development of the update to Idaho's human health criteria for Arsenic and looks forward to working with our state and other partners in the development of this important water quality standard for city officials. Should you have questions concerning our attached comments, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jess Harrison".

Jess Harrison, Executive Director

cc: Elaine Clegg, AIC Environment Committee Chair  
Bob Culver, AIC Municipal Water Users Group Chair  
Johanna Bell, AIC Policy Analyst  
Tom Dupuis, AIC Environmental Consultant



## **GENERAL COMMENTS**

Idaho's update to the human health criteria for Arsenic<sup>1</sup> should protect our community members, the environment, incorporate achievable and affordable water quality requirements, and be coordinated with the drinking water program. AIC understands that universal access to safe drinking water and safe fish supports our communities' wellbeing and economic development. AIC believes it is important to implement a statewide approach to address the risks to human health from Arsenic, and that a successful statewide approach will take the following into consideration:

1. In many locations in Idaho, potable ground water sources of Arsenic are greater than surface water concentrations.
2. Removal of Arsenic from wastewater treatment/recycled water to levels several orders of magnitude less than 10 µg/L is not technically feasible.
3. Human health exposure to Arsenic is dominated by Arsenic in drinking water sources.
4. High Arsenic concentrations in surface water bodies that lead to measurable concentrations of Arsenic in fish tissue are likely correlated with the basin's geologic conditions; thus, a review of the combined fish + drinking water threat to human health within these basins would likely be nearly equivalent to exposure from drinking water sources alone.

## **SETTLEMENT AGREEMENT IMPACTS TO IDAHO CITIES**

In 2010 Idaho adopted 10 µg/L as the numeric criteria for Arsenic for both fish only and fish + water exposures. This value was based on the Safe Drinking Water Act (SDWA) Maximum Contaminant Level (MCL), and was chosen, in part, because of concerns about background levels in Idaho waters that exceed the US Environmental Protection Agency's (EPA's) national recommendation for Arsenic. EPA approved the 10 µg/L criteria in 2010.

In May 2016, EPA entered into a consent decree with Northwest Environmental Advocates to reconsider EPA's 2010 approval of Idaho's human health criteria for Arsenic. In September 2016, EPA disapproved Idaho's 10 µg/L Arsenic human health criteria for both consumption of fish only and consumption of fish + water. The consent decree requires that EPA propose new human health criteria for Arsenic by November 15, 2018, and that EPA either approve an Idaho submittal of revised human health criteria for Arsenic, or promulgate federal criteria, by July 15, 2019.<sup>2</sup> IDEQ had been waiting for scientific updates to EPA's "IRIS Toxicological Review of Inorganic Arsenic" in order to more accurately promulgate standards reflective of risk to human health. However, in an effort to avoid promulgation of federal Arsenic criteria for Idaho, IDEQ has initiated rulemaking to revise human health criteria for Arsenic.

Idaho's average total Arsenic groundwater concentrations have been shown through multiple studies to be 85 to 340 times higher than the EPA-recommended national water quality criteria for Arsenic developed under 33 U.S.C. § 131.4(a) of 0.14 µg/L for fish only and over 660 to 2,600 times higher than the 0.018 µg/L recommended for fish + drinking water (IDEQ, 2004; 12 to 48 µg/L). Furthermore, IDWR

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<sup>1</sup> All referenced to Arsenic in these comments is assumed to be inorganic Arsenic unless otherwise stated, as that is the form of Arsenic being regulated by EPA.

<sup>2</sup> EPA/NWEA Settlement: <https://law.lclark.edu/live/files/22035-idaho-Arsenic-final-settlement-agreement-signedpdf>

studies have shown that more than 25% of drinking water samples collected in Southwest, South Central and West Central Health Districts exceed 10 µg/L Arsenic – which suggests background Arsenic levels within those basins likely far exceed EPA’s recommended criteria.

Idaho municipal drinking water treatment and wastewater treatment/recycled water facilities receive and treat water, primarily from groundwater (95%), with only a small fraction from surface water (5%). Preliminary review of the Arsenic Settlement Agreement impacts to the Idaho NPDES (or pending IPDES) permits indicate that essentially ALL issued permits will be affected and likely out of compliance long into the future under EPA’s proposed standards.

### **ARSENIC IS NATURALLY OCCURRING: LOW-LEVEL CRITERIA BASED ON THEORETICAL CALCULATIONS ARE NOT JUSTIFIED**

Idaho is a headwaters state with some of the most pristine and sought-after water resources in the world. The fact that virtually all of these world-class water resources have background concentrations of Arsenic that exceed the human health criteria water quality standards proposed by EPA should provide an adequate reason for both IDEQ and EPA to question the appropriateness for implementing low-level standards based on theoretical calculations. Native Americans, along with every succeeding human population in Idaho, have long been exposed to these naturally-occurring Arsenic concentrations that far exceed EPA’s proposed water quality standard. Imposing unrealistic theoretical standards upon those who dwell in Idaho is not justified based on unsubstantiated linear extrapolations with insufficient scientific dose-response data. In the face of these considerations, AIC encourage the IDEQ to:

1. Utilize the least restrictive dose-response parameters currently allowed in the calculations for a lifetime of exposure since that exposure is primarily due to naturally-occurring Arsenic at low levels rather than the high-dose Taiwanese data that EPA utilized for the proposed IRIS revision (i.e., currently not adopted IRIS revision).
2. Approach any Total Maximum Daily Load studies that may result from Idaho-adopted human health criteria for Arsenic on a concentration basis, not on a mass loading basis because the concentrations are primarily naturally occurring. All of this work must be done on a watershed-by-watershed basis because of the highly variable nature of these naturally-occurring concentrations of Arsenic.
3. Pursue on-going and more detailed scientific analysis that will more accurately represent the dose-response and risk to human health associated with low concentrations of Arsenic. For example, in August 2017 the Texas Commission on Environmental Quality proposed a draft Inorganic Arsenic Oral Slope Factor.<sup>3</sup> This proposal provides additional insight into the range of options and data. Further, the National Academy of Sciences recommended a non-linear revision to the dose-response calculation to the EPA in 2013 in response to the proposed, but not yet adopted, IRIS data revision.<sup>4</sup>
4. Review these risk-based calculations on a regular basis, at least as often as the Triennial Review for state-wide water quality.
5. Vigorously defend Idaho’s decisions regarding risk and the resulting human health criteria for water quality concentrations in the appropriate legal venue.
6. Provide adequate staffing and support of university-level research to ensure that the above actions are taken.

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<sup>3</sup> [https://c.ymcdn.com/sites/membersidahocities.site-ym.com/resource/resmgr/water/TX\\_draft\\_Arsenic\\_proposal\\_ep.pdf](https://c.ymcdn.com/sites/membersidahocities.site-ym.com/resource/resmgr/water/TX_draft_Arsenic_proposal_ep.pdf)

<sup>4</sup> [https://c.ymcdn.com/sites/membersidahocities.site-ym.com/resource/resmgr/water/2013\\_NAS\\_to\\_EPA\\_RE\\_IRIS\\_iAs.pdf](https://c.ymcdn.com/sites/membersidahocities.site-ym.com/resource/resmgr/water/2013_NAS_to_EPA_RE_IRIS_iAs.pdf)

## TRIENNIAL REVIEW COMMENTS

AIC comments on 2017 Idaho triennial review addressed the 2016 settlement agreement between EPA and Northwest Environmental Advocates (NWEA) on Idaho Arsenic water quality standards. The agreement requires EPA<sup>5</sup> to:

- review and issue permits in Idaho using Idaho's approved designated uses and EPA's current recommended Arsenic criteria;
- include water quality based numeric permit limitations for Arsenic where needed;
- require additional monitoring where detectable concentrations of Arsenic are greater than 0.5 µg/L using sufficiently sensitive analytical methods; and,
- for permittees that cannot meet permit limits, the permit will include a compliance schedule and where appropriate, a treatability study.

AIC's comments during the triennial review supported a statewide approach for an update to the human health criteria for Arsenic and implementation measures for Idaho NPDES and IPDES permits as a high priority (i.e., year 1). Now that IDEQ has recognized the need to pursue an update to the human health criteria for Arsenic, it is AIC's hope that Idaho's update will be provided with sufficient time to collect meaningful data and develop a well-considered approach.

## TREATMENT TECHNOLOGY TO ACHIEVE EPA RECOMMENDED ARSENIC CRITERIA

In 2013, the Associations of Washington Counties, Washington Industry, and Washington Cities commissioned the engineering firm HDR to conduct a treatability and cost study for four toxic pollutants, including Arsenic for human health for criteria being considered by the state of Washington<sup>3</sup>. The study found for Arsenic, that:

- Compliance with a HHWQC for Arsenic of 0.018 µg/L appears unlikely.
- Advanced treatment processes incur significant capital and operating costs. Additional treatment would include microfiltration membranes and reverse osmosis or granular activated carbon and increase estimated capital cost of treatment from \$17 to \$29 in dollars per gallon per day of capacity (based on a 5.0-million-gallon-per-day (mgd) facility).
- The annual operation and maintenance costs for the advanced treatment processes will be substantially higher (approximately \$5 million - \$15 million increase for a 5.0 mgd capacity facility) than the current secondary treatment level.
- Implementation of additional treatment will result in additional collateral impacts, including: High energy consumption; Increased greenhouse gas emissions; Increase in solids production from chemical addition; and Increased physical space requirements at treatment plant sites for advanced treatment facilities and residuals management including reverse osmosis reject brine processing.

## ADDITIONAL DATA COLLECTION AND ANALYSIS REFINEMENT IS NEEDED

At the April 19<sup>th</sup> meeting, IDEQ presented preliminary analyses of historical data on Arsenic concentrations in surface waters and groundwater in Idaho, as referenced earlier in this AIC comment document. IDEQ noted in the meeting that (1) bioconcentration factors (BCFs) and bioaccumulation factors (BAFs), as inputs to the human health criteria equation, are based on **total** Arsenic, (2) most of

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<sup>5</sup> EPA/NWEA Settlement Language: <https://law.lclark.edu/live/files/22035-idaho-Arsenic-final-settlement-agreement-signedpdf>

<sup>3</sup> 2013, Association of Washington Business, Association of Washington Cities, Washington Association of Counties, Treatment Technology Review and Assessment, 53 p [https://www.awb.org/file\\_viewer.php?id=2903](https://www.awb.org/file_viewer.php?id=2903)

the available data from Idaho is for **total** Arsenic, and (3) the surface water data available for Idaho are not parsed according to potential anthropogenic sources of Arsenic (e.g., point source discharges) (i.e., thus the data from some of these sites may not be indicative of natural background concentrations). IDEQ stated that they will further evaluate this data in this context and present the results at the May 23<sup>rd</sup> meeting.

In light of these important data and analysis issues, AIC supports a more refined analysis of historical data to provide perspective on potential new criteria for Arsenic. Even more so, AIC supports IDEQ's plans to collect additional data during the 2018 field season, to include surface water and fish tissue data for both total and inorganic Arsenic. AIC is concerned that, while the historical data may be useful, it certainly will not provide a robust enough data set for the current Arsenic rule-making purposes. In particular, the historical data set will not be sufficient to establish Arsenic concentrations or fish tissue concentrations (emphasis added). These are essential data for establishing scientifically defensible criteria for Arsenic in Idaho.

### **COMPLIANCE AND IMPLEMENTATION TOOLS NEED TO BE DEVELOPED CONCURRENTLY WITH THE UPDATE TO THE HUMAN HEALTH CRITERIA**

It is likely that most water bodies in the state will exceed any new fish only criteria for Arsenic. And, each path forward outlined by IDEQ concerning the criteria calculation inputs pose their own significant problems. Regardless of the calculation method, it is probable that the criteria for inorganic Arsenic will decrease below 2 µg/L. To illustrate the problematic nature of this change, in the Post Falls/Coeur d'Alene area, the sole source of drinking water is the Spokane Valley-Rathdrum Prairie Aquifer. From data collected over the last 20 years by Panhandle Health District, the aquifer has natural Arsenic levels up to 6 µg/L.<sup>7</sup> This is the source water for the influent to local wastewater treatment facilities. Municipalities would then face the challenge of removing natural Arsenic from their discharge in order to meet criteria in surface water.

Understanding that rulemaking is required, we request that IDEQ develop implementation tool strategies concurrent with the Arsenic update to the human health criteria rulemaking process to allow communities to comply with any lowered Arsenic criterion; especially communities with high natural background concentrations.

Two possible implementation tools are a statewide variance or an intake credit. As stated elsewhere in this letter, removal of Arsenic from wastewater to the levels required by significantly lowered criteria is not feasible. The substantial and widespread economic and social impact of permit limits that will follow this rulemaking would constitute the need for a variance. These types of implementation tools have not been utilized extensively in Idaho previously; therefore, AIC strongly suggests that the IDEQ communicate the intended implementation strategy in a transparent and upfront manner within the rulemaking process. AIC believes these discussions will benefit IDEQ, permittees, and the public at large, when the final rule goes into effect.

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<sup>7</sup> See <http://www2.phd1.idaho.gov/welltest/default.aspx>.