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Submitted via email: [paula.wilson@deq.idaho.gov](mailto:paula.wilson@deq.idaho.gov) and [jason.pappani@deq.idaho.gov](mailto:jason.pappani@deq.idaho.gov)

**RE: Water Quality: Docket No. 58-0102-1801 – Update to Human Health Criteria for Arsenic**

Dear Ms. Wilson and Mr. Pappani,

Thank you for the opportunity to comment on the second draft of Docket No. 58-0102-1801 - Negotiated Rulemaking on updating the human health criteria (HHC) for Arsenic.

Since 1973, the Idaho Conservation League has been Idaho's leading voice for clean water, clean air and wilderness—values that are the foundation for Idaho's extraordinary quality of life. The Idaho Conservation League works to protect these values through public education, outreach, advocacy and policy development. As Idaho's largest state-based conservation organization, we represent over 30,000 supporters, many of whom have a deep personal interest in protecting Idaho's water quality and public health.

Our detailed comments follow this letter. Please do not hesitate to contact me at 208-345-6933 ext. 23 or [ahopkins@idahoconservation.org](mailto:ahopkins@idahoconservation.org) if you have any questions regarding our comments or if we can provide you with any additional information on this matter.

Sincerely,

Austin Hopkins  
Conservation Associate

*RE: Idaho Conservation League comments on Water Quality: Docket No. 58-0102-1801 – Update to Human Health Criteria for Arsenic*

## **Natural Background Conditions**

Given the geology of Idaho, some surface water bodies may have naturally occurring high levels of arsenic. In these instances, it's critical that the DEQ ascertain what contribution of arsenic is from background conditions, and what portion is attributable to human activity.

The Montana Department of Environmental Quality utilizes a mass-balance approach for calculating natural background concentrations of arsenic. This approach appears to be scientifically defensible, however we are concerned that it only includes variables for water. The Agency for Toxic Substances and Disease Registry's (ATSDR) *Toxicological Profile for Arsenic* documents a number of human sources of arsenic, including: air emissions from smelters, decaying wood that has been pressure treated with copper chromated arsenate, and pesticides application (ATSDR, 2007)<sup>1</sup>. These sources would all be overlooked and considered "natural" using strictly the Montana approach.

We aren't necessarily against DEQ utilizing a mass-balance approach; however any selected approach should account for all human sources of arsenic – including air, water, and land application – to ensure the final calculation accurately represents natural conditions. We encourage DEQ to require a watershed-scale review of all potential sources of arsenic as part of calculating background conditions. This approach is similar to Idaho's antidegradation policy found in IDAPA 58.01.02.051.08.b. Once all sources throughout an effected watershed are identified, DEQ should require that the permits, discharge management reports (DMRs), air emission inventories, or similar documents of all legally operating facilities be reviewed and their arsenic releases be totaled. When calculating total arsenic releases, DEQ should require that the maximum value – taken from either actual release documents, such as the DMRs, or from permits – be utilized for calculations in order to capture the full potential of arsenic being discharged.

Finally, the DEQ procedure for calculating natural background conditions should require consultation with fellow state and federal agencies to ensure that any discharges or releases not accounted for by a regulatory permitting program are also captured in the review. Specifically, we hope to see the DEQ require consultation with the Environmental Protection Agency, Forest Service and Bureau of Land Management to ensure current and historic mining operations are included in the review.

## **Criteria Based On Natural Background Conditions**

The focus of this rulemaking should be on setting a water quality standard for arsenic that is protective of human health based on the best-available science. Idaho's water quality rules, IDAPA 58.01.02, provide options for alternative criteria based on natural

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<sup>1</sup> Available online: <https://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=22&tid=3#bookmark09>

conditions. IDAPA 58.01.02.200.09. As such, it seems inappropriate to spend time during a rulemaking session to create criteria that duplicates this option.

First and foremost, the DEQ should consult the best-available science to determine what concentration is protective of human health. The DEQ must also develop a scientifically-defensible approach for calculating natural background conditions (see previous comment). If concentrations in a surface water exceed the chosen human health criteria, the applicant may utilize DEQ's selected approach for calculating natural background concentrations coupled with the provisions in IDAPA 58.01.02.200.09 to set criteria based upon true natural background conditions. But again, that is beyond the scope of this particular rulemaking.

### **Calculation of BAF**

DEQ presented a number of options for calculating bioaccumulation factors (BAF) for arsenic. We have reservations about each potential method presented and their relative efficacy in accurately predicting BAFs. For instance, based on the graphs and regression analyses presented during the negotiated rulemaking, it appears that the power function regression was the most predictive of arsenic concentrations in fish based on arsenic concentrations in water. However, this "best fit" approach still has a low  $R^2$  value of only 0.0784. We feel it would be prudent for DEQ to conduct more research comparing different analyses before selecting their preferred alternative.

Whatever approach is ultimately selected by DEQ for calculating BAF must be scientifically defensible. We are curious if DEQ has established criteria for what they consider "scientifically defensible" with regards to arsenic. For example, does DEQ consider the power function regression, with an  $R^2$  value of 0.0784, as scientifically defensible? Why or why not? As this rulemaking develops, we encourage DEQ to give significant consideration to not only the particular analysis they will choose, but also how they will defend the chosen analysis.

### Should Idaho Limit Consideration of As BAF to only Freshwater?

DEQ is seeking comment from participants in the negotiated rulemaking on whether Idaho's bioaccumulation factors (BAFs) should consider freshwater and marine environments or only freshwater environments. While Idaho only has freshwater streams, many fish species are anadromous. If marine BAFs were excluded from consideration, we are concerned as to what effect this could have on Idaho's anadromous populations. We are curious if DEQ has given this thought any consideration, and if so what implications would come from excluding marine BAFs in establishing this criteria.

Should Idaho only consider (relatively) low ambient concentrations of As when calculating BAFs?

It's unclear how this would be practically implemented. For example, how would DEQ define the threshold that delineates low vs. high ambient concentrations? An answer to this question seems necessary if DEQ's current approach for calculating BAFs was utilized; however, this question seems moot if an appropriate regression approach for calculating BAFs is utilized. Use of an appropriate regression could suitably capture the high bioaccumulation rates seen at low concentrations while curtailing the rate of bioaccumulation as arsenic concentrations increase; As such, there would be no need to limit consideration to only relatively low concentrations.

**Total As vs. Inorganic As in Fish Tissue**

The DEQ is proposing to use 4% as the ratio between inorganic arsenic (As(i)) total arsenic (As(T)) (e.g. –  $As(i) = 0.04 * As(T)$ ). The 4% value was calculated based on data collected by DEQ in Idaho; however, DEQ repeatedly stated throughout the rulemaking that they had limited data that was geographically sparse. Conversely, Oregon utilizes a 10% ratio (e.g. –  $As(i) = 0.1 * As(T)$ ), which was derived based on literature values. We encourage DEQ to follow Oregon and create policy based on more robust data rather than rely on limited data.

**What data should Idaho use to derive BAF?**

At this time we would encourage the DEQ to use any data available that would assist in BAFs for arsenic. This includes data from literature, fellow agencies within our state, and regulating agencies from different states. Given the limited amount of existing data coupled with the lack of resources to collect more, we see no reason why the DEQ should intentionally limit the scope of their consideration to only data collected from within Idaho.

**Monitoring Efforts**

We support DEQ's efforts to perform monitoring throughout the summer. There is a chance that monitoring results will not be available until after this rulemaking; nonetheless, we agree with DEQ that having this data will also be useful to guide implementation.