



March 31, 2023

Mr. Brock Tabor
Alaska Department of Environmental Conservation, Division of Water
410 Willoughby Ave, Suite 303
PO Box 118000
Juneau, AK 99811

Re: Request for comments on Human Health Criteria Rulemaking

Dear Mr. Tabor,

The Alaska Miners Association (AMA) and the Council of Alaska Producers (CAP) appreciate the opportunity to comment on the State of Alaska Department of Environmental Conservation's (ADEC's) request for comments on the scope of the Human Health Criteria (HHC) Rulemaking.

AMA is a professional membership trade organization established in 1939 to represent the mining industry in Alaska. We are composed of more than 1,400 members that come from eight statewide Branches: Anchorage, Denali, Fairbanks, Haines, Juneau, Kenai, Ketchikan/Prince of Wales, and Nome. Our members include individual prospectors, geologists, engineers, suction dredge miners, small family mines, junior mining companies, and major mining companies, and the contracting sector that supports Alaska's mining industry.

Formed in 1992, CAP is a non-profit trade association that works to inspire Alaskans to realize a shared goal of sustainable mineral production, providing economic and social benefits to our communities and the people of Alaska. CAP represents the interests of Alaska's five large metal mines and several advanced projects, informing members on legislative and regulatory issues, supporting and advancing the mining industry, and educating members, the media, and the general public on mining related issues.

Both AMA and CAP are keenly interested in, and involved with, ADEC's water programs because our member companies are located in and around the State's waterbodies and they typically use and/or discharge water from their operations. First and foremost, our members are committed to maintaining the high water quality of Alaska waters.

At a broad level, AMA and CAP understand that the need for potential updates to Alaska's HHC has public interest and that some aspects of the criteria, e.g., use of appropriate fish consumption rates (FCRs) likely need changes. However, no one element of the criteria calculation equations such as FCRs or Relative Source Contributions (RSCs) should be considered in isolation. Just focusing on one component of the equation can lead to decisions that mask the overall protectiveness of the HHC that are developed. It is important to recognize that EPA generally suggests very conservative values for each element in the calculations that can lead to HHC that are so low they are extremely difficult or impossible to measure and/or comply with and, in fact, lead to no real



benefits in addressing actual risks. It is noteworthy that nowhere in the rulemaking materials is there any evidence that Alaska's existing HHC are not adequately protecting designated uses, including subsistence uses. This stark reality of unintentionally imposing extraordinary requirements on new and existing dischargers and the State itself (through having to apply Clean Water Act [CWA] Section 303 requirements) without knowing the benefits, must be fully understood before revised HHC are adopted.

Our specific comments are described in the following sections:

Inclusion of Salmon and/or Marine Species in FCR Calculations

The 2018 Working Group Report recommended fully including salmon consumption in establishing FCRs. We do not support this recommendation especially as it relates to applying HHC to discharges to freshwater streams; this view is consistent with the alternative viewpoints provided in the 2018 Working Group Report. Since most important subsistence species of salmon spend limited time in freshwater, their inclusion would greatly overestimate the degree of risk from exposure to pollutants from such discharges. Specifically, juvenile salmon and smolt will be exposed to freshwater for only a small portion of their lives. The example provided on pages 21-22 of the 2018 Working Group Report is especially relevant:

A Pacific salmon smolt might grow to, say, 50 grams (1.8 ounces) in fresh water, then leave the watershed only to return 2 to 5 years later with a mass ranging from one kilogram (2.2 lbs) to more than 20 kilograms (44 lbs), depending on species. The ratio of mass derived from feeding in jurisdictional waters to total body mass upon return is estimated to range from 1:20 to as little as 1:400. Even if salmon retained pollutants accumulated from exposure in freshwater early on, the presence of pollutants as part of their overall body burden would likely be overwhelmed by exposure to marine waters and consumption of prey in the marine environment.

One of the reasons cited in the 2018 Working Group Report for including salmon in the FCRs was public opinion. While we respect this view and understand the importance of Pacific salmon to Alaskans, it is inconsistent with the fundamental approaches used to develop water quality criteria; that they are the scientifically based levels necessary to protect the designated uses of waterbodies. Overall, given high Pacific salmon consumption rates in many areas of Alaska and that their exposure is often almost entirely in marine waters, their unsupported inclusion in the FCRs could lead to very low, and in many cases unattainable HHC, that have no human health benefits. If ADEC does determine that salmon should be included, we recommend adjusting their consumption rates based on the actual average period of exposure in freshwater streams.

For similar limited exposure reasons as Pacific salmon, we do not see any scientific rationale for including marine species consumption in the FCRs.

AMA and CAP believe it is appropriate to evaluate potential exposure to contaminants through Pacific salmon and marine mammals in the determination of reasonable RSC values.



Appropriate Bioaccumulation Factors (BAFs)

The 2018 Working Group Report recommended using EPA's trophic level (TL) 4 BAFs in the HHC calculations based in part on the assumption that salmon represent the largest component of the FCRs. If salmon consumption is removed or significantly reduced in the calculations, we would support re-visiting the appropriate BAFs, including potentially blending EPA's TL 2 through TL 4 BAFs based on the appropriate species composition. Alaska should also consider identifying potential lab-derived bioconcentration factors (BCFs) or field-derived BAFs that are more appropriate to Alaska aquatic life and watersheds than EPA's national levels. Alternatively, state-wide procedures could be proposed and adopted to facilitate their development and approval for site- and watershed-specific criteria.

Appropriate Cancer Risk Level

AMA and CAP concur with the 2018 Working Group Report recommendation to retain use of the 1×10^{-5} Cancer Risk Level, consistent with EPA's recommendations with the recognition that it should provide a minimum 1×10^{-4} Cancer Risk Level for specific, exposed populations. Given the highly conservative and largely unrealistic assumption that applies to all fresh waters of the State, i.e., that individuals consume 2 or more liters of water directly from a freshwater stream (without any treatment) for many decades, the 1×10^{-5} Level will continue to prevent virtually any cancer risk. There is therefore no scientific justification for using a more stringent Cancer Risk Level.

Parameter-specific Issues

Of primary concern to mines in Alaska are revisions to the HHC for metals that are characteristic of our industry's discharges as well as the streams in the mineralized areas where our projects are located. Hardrock mines in Alaska are typically required to conduct detailed characterization of effluents for permitting as well as generating extensive baseline receiving water quality data. Therefore, our members often can more readily predict how water quality standards changes could impact their operations. Specifically, we have looked at where there may be "challenging" chemicals in the HHC rulemaking process and where we suggest that ADEC focus its implementation analyses as discussed in the following section. We note that this is not unlike HHC evaluations that were done by the States of Washington and Oregon for their standards revisions.

Arsenic. Alaska does not currently have separate freshwater HHC for consumption of water and organisms or organisms only for arsenic but rather applies the Maximum Contaminant Level of 10 ug/L to all waters of the State. Historically, EPA and the State have found that the MCL, in conjunction with the aquatic life criteria for arsenic, meet the requirements of the CWA and uses are protected.

AMA and CAP assume the need for HHC for arsenic could be considered in the rulemaking since it has been a concern in both Washington and Idaho. Arsenic is especially challenging in much of



Alaska as it is commonly found in many surface waters due to natural geological conditions, often at levels above the MCL. Hardrock mining operations are frequently required to treat their waters to meet the MCL measured as total arsenic and then discharge waters that have significantly lower arsenic levels than the natural levels found in the receiving waters. Using EPA's recommended risk-based values for arsenic could lead to HHC that are substantially below the MCL. Despite the advanced water treatment systems that our members often use at hardrock mines, the HHC may be unachievable and all waters in western Alaska could conceivably be "impaired" or potentially impaired for arsenic. An additional challenge is that EPA's recommended levels are in the form of inorganic arsenic only, primarily because of its higher toxicity and transport through the food chain. Inorganic arsenic can make up a small portion of what is found in discharges, surface waters and fish tissue.

Overall, there is no standard approach for establishing HHC for arsenic and EPA and States have recognized the challenges associated with setting numbers in the range of those recommended by EPA. We suggest ADEC first consider retaining the MCL as protective of human health uses. This is the approach used now and followed in and approved by EPA in other States outside of EPA Region 10. In some places including Idaho, EPA has suggested that the MCL is not sufficiently stringent, but the risk-based science is unclear and not based on any documented health effects. Specifically, we have not seen any evidence that arsenic at this level is not protective of Alaska surface water uses. ADEC could re-visit the need for alternative HHC once policy and science further evolve.

Alternatively, EPA could consider an approach like what was proposed in Idaho: a combination of revised water column and fish tissue HHC for inorganic arsenic. To do this, ADEC should specifically consult with the Division of Environmental Health on typical total and inorganic arsenic levels found in fish to understand the implications of setting fish tissue levels before they are finalized. Another option is Oregon's proposed approach of applying the MCL and a narrative requirement to control inorganic arsenic, although the latter should be applied only on a case-by-case basis where there is the potential for substantive arsenic loadings beyond natural conditions.

Setting levels for total or inorganic arsenic well below the MCL based on very conservative BAFs/BCFs, FCRs, RSCs, and other assumptions could create massive implementation challenges that need to be addressed before any rule is finalized. As said, it is very easy to see how most Alaskan waters could be determined to be impaired for arsenic and/or many mining and other industrial and municipal discharges might become un-permittable.

Finally, ADEC and EPA have consistently disagreed on appropriate approaches to establishing natural conditions for Alaskan waters. If ADEC relies on its natural conditions methodologies to help implement the HHC, it needs to clearly define how they would be applied and ensure their acceptance by EPA in permitting and water quality assessment decisions.

Mercury. Revised HHC for total mercury could also be problematic for dischargers and watershed assessments. Currently, the most stringent standard that generally applies to surface water is the



chronic aquatic life criterion of 12 ng/L. This compares to the aquatic organism and water consumption HHC of 50 ng/L and the organism consumption only HHC of 51 ng/L. For mercury, an important driver for HHC is consumption of fish. Compliance with the existing mercury criteria already presents challenges because a number of watersheds in western Alaska have elevated mercury levels due to natural (mineralized soil) and man-made (air deposition) loadings. Lowering FCRs and other input parameters could lead to virtually all western Alaska waters subject to impairment designations and permit limits that cannot be achieved. ADEC should also exercise great care in any implication that fish in western Alaska should not be consumed due to mercury levels; there is no science to support such findings and they are entirely inconsistent with the determinations made by the Alaska Department of Fish Game.

Mercury is further complicated by the fact that its fate and transport in the food chain and thereby organism consumption risk is not tied to total mercury levels but rather methylmercury concentrations. While methylmercury has been considered in some Alaska risk evaluations (e.g., by ADEC's Contaminated Sites Program and under NEPA), it has not been previously addressed by the Water Quality Standards program. Methylmercury standards are often applied as fish tissue HHC rather than water column concentrations. EPA has generally suggested that methylmercury is more appropriate than the total mercury for organism consumption.

We reiterate the existing water quality standards for mercury (including the aquatic life criteria) are protective of human health. However, if ADEC elects to revise the standards, it should consider HHC in the form of methylmercury, including, as appropriate, fish tissue levels. Other States have set levels in the range of 0.3 mg/kg based on reasonable assumptions related to consumption of resident fish like Northern Pike. This level may not be problematic for much of Alaska although ADEC should carefully review existing fish tissue data to verify this. This is also where the inclusion of anadromous fish in the FCRs factors into the decision-making. If salmon are specifically included and FCRs rise to the hundreds of kilograms per year, the fish tissue criteria could be 0.03 mg/kg or less. Our experience shows that in river systems like the Kuskokwim (see the Donlin Gold Project FEIS), such criteria could be consistently exceeded. This could lead to widespread designations of impairment for major watersheds and the perception that fish are not safe to consume.

Other Parameters. Our initial review suggests that arsenic and mercury could be the most problematic for our members. Some parameters such as copper and zinc are often found in our dischargers' effluents, but it appears the application of revised HHC could be superseded by more stringent aquatic life criteria. However, depending on ADEC's assumptions, there are other parameters that could present challenges for the mining industry, including antimony, cyanide, nickel, and selenium. These should specifically be considered in the recommended implementation analysis described in the following section.

Our members generally do not have significant concerns related to polychlorinated biphenyls (PCBs) in their discharges or receiving waters. However, the scale of the HHC compliance issues that have arisen in the State of Washington should not be ignored. These include very low criteria



that cannot be measured and compliance costs that could pose significant burdens on industry and communities. Under this rulemaking, ADEC should evaluate the potential impacts of PCB HHC changes and, if appropriate, the need for implementation analyses and strategies.

Implementation Issues

The Working Group spent significant efforts in defining--and soliciting input on--the potential options for use in developing HHC as well as compiling information to support decision-making on key assumptions (e.g., FCRs throughout Alaska). What was not fully considered in detail was the specific implementation implications of the different options that can be considered. As noted above, revisions to certain HHC can place significant compliance obligations on dischargers as well as agencies in terms of watershed assessment. AMA and CAP understand that a significant percentage of dischargers in the State of Washington where HHC were recently finalized are facing significant challenges complying with the revised HHC. We view understanding the specific implementation challenges of each of Alaska's HHC options as critical in the decision-making process. This is especially the case where the public consistently asks what is the harm of making all the most conservative assumptions and generating extremely stringent, and in some cases potentially unachievable or undetectable, HHC.

AMA and CAP understand the arguments that water quality criteria like HHC should not be set based on cost implications. However, this is never the case, and the State has wide discretion in determining how to establish and implement HHC that are protective of human health while at the same time not imposing extremely burdensome and unnecessary costs on industry and public infrastructure. Every assumption in the criteria setting process is based on an acceptable risk threshold (what is the typical level of bioaccumulation, what cancer risk is appropriate, how much water and fish consumption should be assumed, etc.). In fact, all such decisions have costs and benefits. In this rulemaking, which has potentially significant compliance and health risk implications, ADEC should be able to present clear, technical information to the public on the relative risks, benefits, and estimated costs of the available options and their implementation. Such an analysis will not only help ADEC in the rulemaking but also allow it to begin to understand and plan for the implementation challenges before revised HHC become effective.

To address implementation questions, AMA and CAP recommend that ADEC complete the following evaluation for the major options prior to issuance of the proposed regulations:

1. Identify the key parameters among those considered for revised HHCs that are likely to impact Alaskan dischargers and watersheds. We expect that it will be a relatively small subset of the total number of chemicals with HHCs.
2. For each key parameter under each option, determine the implementation scenarios for discharges. How many and what specific types are likely to be impacted? ADEC should determine whether reasonable potential is likely to be shown and if so, would the HHC become the most stringent applicable criteria. If so, what would permit limits look like? Of particular interest are



the strategies for implementing HHC based on fish tissue concentrations. What would be some of the alternatives in terms of incorporating them into permit requirements (individual and potentially general permits)?

3. For watersheds, determine how the HHC would be used in water quality assessments under Clean Water Act Section 305(b) and potentially how would impairment be addressed under CWA Section 303(d). Again, how would fish tissue based HHC be implemented in assessments? If applicable, what are the specific consequences of setting fish tissue criteria well below current concentrations? This issue is especially important because as the 2018 Working Group Report recognized the perception of current levels above the HHC “has the potential to lead to confusion and mischaracterization of risk to Alaska residents.” The Report further recognized the potential conflicts between ADEC’s water programs and those of the ADEC Fish Monitoring Program. While recognizing these programs have different purposes and the HHC are intended to be preventive of risks, levels above the HHC could lead to “impaired” designations while remaining well below fish consumption advisory levels. This may create confusion as to what is safe for consumption and unnecessarily discourage safe fishing practices. How could total maximum daily load requirements be adapted for these situations?
4. For discharges and watersheds that are found to be unlikely to comply with the revised HHC, or where insufficient data are available to make determinations, what would be the specific implementation alternatives, how and when could they imposed, and what would be the range of expected costs?
5. Where are the specific opportunities for approaches such as compliance schedules, variances, site-specific criteria, etc. that could be adopted by ADEC and approved by EPA? Where could narrative standards and other requirements be used and provide comparable benefits in lieu of setting numerical requirements?
6. Develop a summary of the costs and risk benefits for the approach included in the proposed regulations as well as alternative options (e.g., different FCRs, BAFs/BCFs, Cancer Risk Levels, and RSCs) that have been considered. The summary should be presented in a manner that can be reasonably understood by the public.

AMA and CAP recognize that such an implementation analysis would be time consuming and resource intensive. However, we strongly believe that the decisions made in this rulemaking could have profound impacts on our members as well as other industrial and community dischargers as well as those that use Alaskan watersheds. We stand ready and willing to work with ADEC to provide any data and other information it may need to help facilitate the analysis. We also suggest EPA may be a valuable source of information based on their experience working on HHC in other States, including Washington, Idaho, and Oregon.

Overlap with National Tribal Reserved Rights Rulemaking



In December 2022, EPA issued a Proposed Rule entitled *On Water Quality Standards Regulatory Revisions to Protect Tribal Reserved Rights*. On March 6, 2023, the National Mining Association and American Exploration and Mining Association submitted detailed comments as part of a broader coalition. AMA is a member of both these associations and works closely with them, including on CWA issues. ADEC also provided detailed comments on the proposed rule. EPA's rule would require States to specifically consider tribal rights to and uses of surface waters outside of reservations. A major implied focus of this rulemaking is actual and potential future use for Tribal subsistence fishing; domestic water supply use by Tribal populations could also need to be evaluated. Therefore, the final rule, which is expected to be issued prior to the end of ADEC's rulemaking would impose significant, similar requirements on States as well as including obligations for Tribal consultation and EPA review and approval. These issues could be especially problematic in Alaska because of the unprecedented number of separate Tribal entities whose rights may need to be evaluated. Therefore, AMA and CAP are concerned that there may be procedural overlaps, duplication, and possibly conflicts between the national and State rulemakings. Our view is that these need to be considered now before considerable efforts are expended on the Alaska HHC rulemaking. It may be appropriate to discuss these questions with EPA Region 10 and Headquarters Office of Water.

Application of Drinking Water and Water Consumption Uses to All Waterbodies

As we have noted in previous comment letters, Alaska has among the most stringent water quality standards in the country. While we fully support clean waters that support all reasonably expected uses, the application of domestic water supply uses to all State waters is not necessary or appropriate. Most waters throughout rural areas of Alaska are not, and likely will never be, used directly as reliable and consistent domestic water supplies. This is especially the case for our members' projects that are often located far from any concentrated populations. Further, many receiving waters in Alaska have naturally elevated level of minerals such as arsenic that make them inappropriate for direct uses as drinking water supplies. We have previously suggested that ADEC initiate a separate rulemaking to consider more selective application of all water supply uses. In lieu of that, however, ADEC should take this into account when considering the conservativeness of certain risk-based assumptions in this rulemaking that relate to exposure (e.g., volumes of water consumed directly from surface waters daily for decades by sensitive populations).

We appreciate the opportunity to provide input on this important topic and look forward to continuing to work with ADEC on the State's Water Quality Standards program.

Sincerely,

A handwritten signature in blue ink, appearing to read 'D Skibinski'.

Deantha Skibinski
Alaska Miners Association

A handwritten signature in blue ink, appearing to read 'K Matthias'.

Karen Matthias
Council of Alaska Producers