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June 13, 2014

Attention Docket No. EPA-HQ-OW-2004-0019  
EPA Water Docket  
U.S. Environmental Protection Agency,  
Mailcode: 2822-IT  
1200 Pennsylvania Ave. NW.  
Washington, DC 20460.  
Via Electronic Mail: [ow-docket@epa.gov](mailto:ow-docket@epa.gov)

Dear Sir or Madam:

The National Association of Clean Water Agencies (NACWA) appreciates the opportunity to comment on the U.S. Environmental Protection Agency's (EPA) *Notice of Availability: External Peer Review Draft Aquatic Life Ambient Water Quality Criterion for Selenium – Freshwater 2014* (Selenium Notice) (May 14, 2014; 79 Fed. Reg. 27601) and EPA's ongoing efforts to revise the selenium criterion. NACWA provided comments in 2005 on the Agency's 2004 draft revisions to the criterion and is pleased that the overall approach EPA has taken with the 2014 draft revision is consistent with NACWA's recommendations. The EPA approach in the 2014 Draft Criterion Document is more in line with standard water quality criteria development and results in a more scientifically defensible criterion than the 2004 draft criterion, which was based on a single study.

In the Association's 2005 comments, NACWA stressed that the "selenium content of the eggs or ovaries may better reflect the potential chronic effects to fish." In assessing chronic impacts, the 2014 Draft Criterion Document appropriately focuses on reproductive effects, with criteria values provided for selenium in fish eggs or ovaries. The Draft Criterion Document also clearly states that fish tissue data should take precedence over water column data in assessing whether the criteria are met when both types of data are available. NACWA continues to believe that a tissue-based criterion is the most direct way to quantify the chronic toxicity of a bioaccumulative contaminant such as selenium.

While NACWA supports the general approach EPA has taken with the revision – focusing on chronic reproductive effects – the Association does have some concerns with the Draft Criterion Document as outlined below. NACWA also commends to

your attention the review of the Draft Criterion Document prepared by GEI Consultants, Inc. (June 13, 2014) and submitted separately to the docket.

### **Expression of the Draft Criterion, Intermittent Criterion Need Further Explanation**

EPA expresses the fish tissue concentrations as “never to be exceeded” levels (criteria frequency component is essentially zero), noting that “fish tissue data provide point measurements that reflect integrative accumulation” and that selenium concentrations “in fish tissue are expected to change only gradually over time”. NACWA requests that EPA provide the data used to document that a selenium criterion with a return frequency of zero is necessary to protect aquatic life populations and communities. The way the language is written suggests that a single fish tissue sample with a concentration above the criteria (egg/ovary, whole body, or muscle) would result in non-attainment. A more appropriate approach would be the use of the geometric mean value of individual fish tissue concentrations for assessment of the fish tissue criteria. The “never to be exceeded” approach also precludes the consideration of tissue data collected at other times or within the same 303(d) receiving water segment when making a water quality standard attainment decision.

EPA should clarify the purpose of the intermittent criterion and how it will be implemented. Several questions arise when considering this element: How will the Agency determine if selenium is at an “elevated concentration”? How will the criterion be applied if the background concentration is high? It appears that a zero concentration target could be imposed in such circumstances, and if so, the Agency needs to explain why that would be appropriate and attainable. The review conducted by GEI Consultants, Inc. provides some insight into the problems with EPA’s methodology and a potential alternative for addressing short-term, elevated selenium exposures.

### **Development of Water Column Numbers to “Ease Implementation” Sends Mixed Messages**

While EPA includes and expresses its preference for use of the tissue-based criterion, it is clear that EPA intends to “ease implementation, particularly for developing water quality based effluent limits for National Pollutant Discharge Elimination System (NPDES) permits” (EPA Fact Sheet, p.2) by also including water column criteria values. EPA modeled accumulation in whole body tissue using trophic transfer functions or TTFs, and developed whole-body to egg-ovary conversion factors to make the linkage between fish tissue levels and water column numbers. EPA notes that its use of TTFs is similar to the use of bioaccumulation factors, with both quantitatively representing the relationship between the chemical concentrations in multiple environmental compartments, but that the TTF provides advantages over BAFs because it is “derived from knowledge of the ecological system...[and] can be inferred for an aquatic system using existing knowledge and reasonable assumptions, without the considerable time and cost of collecting and analyzing tissue and water samples” (Draft Criterion Document, p. 66) that would be necessary to calculate site-specific BAFs. NACWA appreciates EPA’s desire to ease implementation, but as outlined in the review conducted by GEI Consultants, Inc., there are significant concerns with EPA’s methodology in developing the water column elements of the criteria.

NACWA’s 2005 comments on EPA’s previous draft revision to the selenium criterion highlighted the ongoing debate over whether to convert fish-tissue based criterion for methylmercury into water-column numbers to make permitting easier. NACWA continues to believe that using “bioaccumulation considerations” to convert fish-tissue values to water concentrations is inappropriate and unnecessary. There is now precedent for

implementation of fish tissue criteria and the Agency has now issued guidance on how to do so for methylmercury. Similar guidance should be developed for selenium.

The inclusion of multiple expressions of the criteria, while working to strike a balance between the science and ease of implementation, could also cause confusion. EPA recommends that the states adopt all four elements of the criterion into their standards in a manner that “affirms the primacy” of the whole-body and/or muscle elements over the water column elements, and the egg-ovary element over any other element. But it will fall to states to first adopt all four elements and then ensure that there are data adequate to implement the non-water column based approaches. NACWA is concerned that in the absence of existing tissue data, the states will default to reliance on the water column elements of the criteria in all cases.

In addition, the Draft Criterion Document sends the states mixed messages, with the Agency contemplating a scenario where a state might solely rely on the water column criteria element for permitting purposes:

*Where states adopt the selenium water column concentration criterion element values only for conducting reasonable potential (RP) determinations and establishing water quality-based effluent limitations (WQBELS) per 40 CFR 122.44(d), existing implementation procedures used for other acute and chronic aquatic life protection criteria would be appropriate. However, if states also decide to adopt the selenium fish tissue criterion element values for NPDES permitting purposes, additional state WQS implementation procedures (IPs) will be needed to determine the need for and development of WQBELS necessary to ensure attainment of the fish tissue criterion element(s). (p. 98)*

EPA should clearly state its preference for use of the tissue-based criteria elements for all Clean Water Act purposes, including permitting.

### Site-Specific Criteria Critical to Address Unique Aspects of Selenium, Natural Background Levels

NACWA appreciates that the draft criterion document allows for the development of site-specific criteria where appropriate. Site-specific fish tissue and toxicity information is preferable to the use of generic toxicity relationships that were developed using data from a broad range of sites, and the Draft Criterion Document should make that preference clear.

Factors unique to selenium, including its presence at naturally high background concentrations in some areas, weigh heavily on implementation of the criteria and will necessitate use of site-specific information. In its 2005 comments NACWA provided some detailed technical analysis on a number of compounding factors related to geographic differences in surface water concentration and fish tissue concentration that are sure to complicate implementation of a national criterion. NACWA provided some specific examples from Colorado, where background concentrations are elevated in certain areas:

- Like many regions in the western U.S., many areas in Colorado have significant deposits of selenium-rich surface materials (e.g., marine shales) that naturally elevate selenium concentrations in aquatic ecosystems;
- Despite elevated background levels, studies (see GEI Consultants, Inc. June 2014 review) have found abundant aquatic systems with fish populations similar to sites with low selenium concentration;

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NACWA appreciates the opportunity to review the Draft Selenium Criterion Document. Please let me know if you have any questions about our comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Hornback". The signature is fluid and cursive, with the first name "Chris" being more prominent than the last name "Hornback".

Chris Hornback

Senior Director, Regulatory Affairs