



A Clear Commitment to America's Waters

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October 13, 2006

Attn: Docket ID No. EPA-HQ-OW-2006-0656

Water Docket

U.S. Environmental Protection Agency

Mailcode: 4101T

1200 Pennsylvania Ave., NW

Washington, DC 20460

Dear Sir or Madam:

The National Association of Clean Water Agencies (NACWA) appreciates the opportunity to comment on EPA's *Draft Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion (Draft Guidance)* (August 9, 2006; 71 *Fed. Reg.* 45560). For the past several years, NACWA has committed significant resources to explore ways of decreasing levels of mercury in the nation's waters and to assist its public wastewater treatment agency members in complying with increasingly stringent mercury limits. NACWA's Mercury Workgroup has developed several important reports on mercury in domestic wastewater, the effectiveness of pollution prevention at meeting mercury limits, and on controlling mercury discharges from dental clinics. NACWA has encouraged EPA to release the *Draft Guidance* for public comment in an effort to increase the amount of information available on implementing the fish tissue criterion and to provide additional guidance on other policy issues surrounding mercury in the environment.

NACWA believes that a fish tissue criterion for methylmercury provides the best and most direct assessment of risk to human health and generally supports the approach to implementing the criterion laid out in the *Draft Guidance*. NACWA is encouraged by the fact that the *Draft Guidance* recommends state adoption of the fish tissue-based criterion (rather than a traditional water column concentration) and details how to directly implement the criterion when developing total maximum daily loads (TMDLs) and water quality based effluent limits (WQBELs) in National Pollutant Discharge Elimination System (NPDES) permits. NACWA believes that direct implementation of the fish tissue criterion, without the use of bioaccumulation factors (BAFs) to calculate a water column concentration, is the preferred approach.

This is not as simple as it seems, and EPA has provided extensive guidance on both direct implementation of the criterion in TMDLs and NPDES permits and on converting a fish tissue-based number, using BAFs, into a water column concentration. EPA notes its strong preference for developing site-specific BAFs, but these studies are extremely complex and expensive and may lead states to simply adopt modeled BAFs or national defaults. For this and other reasons, it

is critical that the *Draft Guidance* be clear, correct, and sufficiently detailed to ensure states have adequate information to incorporate the criterion into their water quality standards and implement it in permits and TMDLs.

NACWA has reviewed the document and is providing both general comments on the content of the document and specific comments organized by chapter. NACWA is also supportive of the comments submitted on the *Draft Guidance* by its individual members and the Federal Water Quality Coalition.

GENERAL COMMENTS

1. Again, NACWA supports the use of a fish-tissue based criterion and believes it should be implemented directly in TMDLs and permitting, without the use of BAFs to translate it into water column concentrations. NACWA believes that EPA must make a stronger recommendation for the use of site-specific information, in lieu of national defaults, to implement a water column-based standard should a state choose not to directly implement the fish tissue criterion. The level of uncertainty associated with national default information, particularly in calculating BAFs, is not acceptable when making regulatory decisions. The complexity of developing site-specific BAFs will be a strong disincentive for states interested in converting to a water column figure for ease of implementation, and EPA must make it clear that the default numbers are not appropriate in most cases.

NACWA also supports EPA's recommendation that states may modify the methylmercury criterion by using other scientifically defensible methods or different assumptions, namely local or regional fish consumption rates (in lieu of default values) and the presence/absence of endangered species.

2. Figure 6 (p. 85) outlines the pathway for determining whether a discharger has reasonable potential to exceed the fish-tissue criterion (where no water column value has been calculated). Based on Figure 6 and the subsequent text, every publicly owned treatment work (POTW) with quantifiable mercury discharges could be required to develop a mercury minimization plan (MMP), regardless of fish tissue impairment. NACWA believes that few if any POTWs will not have quantifiable mercury levels in their discharges. With the required use of EPA Method 1631, which can quantify at sub-part-per-trillion levels, it is highly unlikely that any facility will have non-detectable quantities of mercury in its effluent (NACWA study, *Evaluation of Domestic Sources of Mercury, August 2000*).

While NACWA supports considering pollutant minimization plans for quantifiable discharges under some circumstances in the absence of fish tissue impairment, NACWA strongly believes that the fish tissue criterion is the most important measure as to whether or not a water body is complying with methylmercury goals. Requiring NPDES effluent monitoring in water bodies that do not exhibit fish tissue impairment is not scientifically valid. Figure 6 should begin with assessing fish tissue impairment. Where there is no impairment, no further action should be necessary. NACWA believes that the impairment conclusion (whether the fish tissue-based criterion is being met) should be the first step in the reasonable potential determination (i.e., before determining whether dischargers have quantifiable levels of mercury).

3. Even where mercury is quantifiable in a discharge and the fish tissue is impaired, NACWA believes there should be an option to not require a WQBEL if there is a determination that the discharge is not significantly contributing to the impairment. This determination would not necessarily rely simply upon the fraction of the receiving water's mercury load that is attributable to the discharge. Rather, it could be based on a characterization of the site-specific factors affecting the bioavailability and/or bioaccumulation potential of the discharged mercury in the receiving water. Research on these factors

is underway, and the guidance should allow for consideration of such findings in determinations of discharge significance.

4. NACWA generally supports EPA's approach for determining appropriate WQBELs, drawing a distinction first between significant and non-significant dischargers of mercury. NACWA believes that additional clarification on how a state can determine whether a source is significant would be helpful. NACWA believes that most POTWs would fall into the category of 'not significant', but requests further clarification on possible scenarios where POTWs may be considered significant dischargers.

Another distinction used in the guidance is whether a particular discharger is using mercury or accepting wastewater containing mercury in their processes. NACWA interprets the guidance to mean that all POTWs accept wastewater containing mercury and would therefore be subject to more stringent permit requirements if it is determined that they are significant sources.

In the approach described by EPA for assigning WQBELs to non-significant dischargers and significant dischargers that do not use mercury and do not accept wastewater containing mercury in their process, numeric effluent limits for the mass loading of mercury at the existing level may be required. However, EPA needs to account for the fact that, with the variability inherent in measuring mercury at low levels, a POTW could violate such a limit just because of technical lab differences.

5. For non-significant mercury discharges, NACWA has some concern regarding the recommendation to establish mass-based permit limits at current levels. This approach does not address growth or changes in flow that are likely to occur over time. If a source is not significant, it would seem appropriate to include some allowance for growth when deriving the WQBEL. This allowance for growth is critical for POTWs as any increase in flow may result in an increase in mercury concentration simply from residential sources.
6. NACWA believes that the State of Idaho has developed a reasonable approach to implementing the methylmercury criterion for both NPDES permitting and TMDLs. NACWA recommends that the final guidance include reference to the Idaho approach once it is approved by EPA Region X. (Details on the Idaho approach are available online:
http://www.deq.state.id.us/water/data_reports/surface_water/monitoring/parameters.cfm#merc)
7. Given that reductions in mercury emissions are anticipated to continue and that atmospheric sources have been documented to be the largest contributor in most water bodies, especially in the eastern United States, NACWA believes that many mercury impairments may not be appropriately addressed through the TMDL program. EPA has acknowledged this issue and has provided some flexibility in its 4b impaired waters list category for waters where loadings will be reduced through non-Clean Water Act programs. This category has its limitations for mercury and EPA is now working on special listing guidance for mercury that would allow states to delay TMDL development. All of this suggests that limited resources would be better utilized to address other contaminants.
8. The use of non-promulgated analytical methods, in this case for methylmercury in water or fish, is unacceptable in a regulatory context, regardless of how often the method is documented in the literature or used in nonregulatory studies. The integrity of criteria development and implementation is dependent on the reliability of analytical methods used to characterize environmental exposure and, hence, risk. Since EPA does not incorporate measurement quality objectives (MQOs) in its criterion development process, the public cannot be assured that the proposed criteria are reliable if the analytical methods used to measure contaminants are not properly validated and promulgated.

Specific issues with regard to non-promulgated methods are addressed in several specific comments that follow.

The reliability, precision and bias of analytical methods must be demonstrated and documented by EPA through inter-laboratory validation studies. These studies provide the foundation upon which analytical methods are promulgated in 40 CFR Part 136; the methods used to show compliance with NPDES permits. NACWA firmly believes that all criteria or other benchmarks used to make regulatory decisions must remain in draft form until promulgated analytical methods are in place to reliably determine if those criteria or benchmarks are technically and scientifically sound and defensible, and to provide reliable methods for evaluating compliance with those criteria. Additionally, analytical methods that have not been validated must not be specified in NPDES permits simply through guidance.

9. The *Draft Guidance* should explicitly recognize that, although the wildlife (not human health) criterion is likely to be controlling in Great Lakes permits, many of the concepts expressed in the guidance may nonetheless be applicable and appropriate in the Great Lakes. The *Draft Guidance's* implementation concepts were designed to address the relative importance of the sources to be regulated, the uniqueness of mercury's behavior in the environment, and the infeasibility of applying conventional implementation procedures to this unique pollutant. The *Draft Guidance* concepts are applicable, irrespective of which biota, humans or wildlife, the criteria were developed to protect.

EPA's test for consistency with the Great Lakes Initiative (GLI) rules has been whether any alternative procedures are "as protective." (This is not the same thing as being "as stringent.") The fish tissue basis for the GLI wildlife criterion can be determined, and at least some of the *Draft Guidance's* implementation procedures could be applied to meet this value. The *Draft Guidance* must acknowledge the possibility that such an approach could conceivably be "as protective" as the GLI rules.

10. The *Draft Guidance* does not appear to contain the most current available information in several areas. For example, the food intake survey is from 1994-1996 and new analytical methods for low-level mercury have been promulgated since 2001. During the past decade, Americans' eating habits have changed to include more lean meats (i.e., fish). The USDA and DHHS have food survey information as recent as 2003-2004.

SPECIFIC COMMENTS

Chapter 2

- Section 2.1.2
 - The text in the second paragraph indicates that the data presented in Figure 1 is biased high as a result of using data that had not been normalized to a set of standard species and lengths. The figure found in "The Regulatory Impact Analysis of the Clean Air Mercury Rule" (Figure 5-11 on page 5-16) has the bias removed and is, therefore, the more accurate of the figures. The more accurate figure should be used in place of the current biased figure.

Chapter 3

- Section 3.1.2.1
 - "A fish tissue sample is currently easier to analyze for methylmercury and analysts are more experienced in analyzing methylmercury in fish tissue than in water samples." This statement should be accompanied with documentation supporting the basis of the comment. From the perspective of several NACWA

members, water samples are much easier to analyze due to the more complex steps required for tissue homogenization and sample analysis. Additionally, environmental labs have been analyzing mercury in water far longer and more frequently than in tissue and therefore have more experience analyzing mercury in water than in tissue.

- Section 3.1.2.2
 - The national surveys for fish data are approximately 10 years old. More recent and relevant data should be required, not suggested. Current fish consumption levels are likely to have changed substantially in light of new dietary guidelines and habits resulting in greater fish consumption rates at varying trophic levels.
- Section 3.1.3.1
 - Should a state choose not to implement a fish tissue criterion, it should be more strongly encouraged to utilize site-specific information to defensibly translate a water column-based standard. The BAF translator is a site- and species-specific measurement dependent on a number of physical and chemical characteristics in a water body and the organism itself. Use of national default BAFs will contribute to an unacceptable level of uncertainty.
- Section 3.1.3.2
 - *“EPA has not yet published analytical methods to measure methylmercury in either water or fish in 40 CFR Part 136. However, for fish tissue, states and authorized tribes can measure methylmercury concentrations using the same analytical method used to measure for total mercury...”* Prior to this point, Method 1631 is the only method that has been referenced for total mercury. However, Method 1631, Rev. E Section 1.1 states that this method is *“...for the determination of mercury in aqueous samples...”*. Method 1631, Rev. E should not be used for regulatory analysis of tissues or other solid samples.
 - The supposition that total mercury and methylmercury are approximately equivalent in fish tissue is based on limited data and has a wide range of variability (80 – 100%). This also only applies to trophic levels 3 and 4 for fish older than 3 years of age. These caveats are lost in later text in which fish tissue total mercury and methylmercury are claimed to be equivalent within 10%. These are critical conditions associated with this assumption and should be emphasized.
 - With a methylmercury criterion for tissue of 0.3 mg/kg, consideration should be given to using SW-846 Method 7471A as a method for analysis of total recoverable mercury in solids and tissues. Method 7471A will easily meet the MQO of 0.3 mg/kg.
 - *“...fish should be of similar size so that the smallest individual...is no less than 75 percent of the total length...of the largest individual.”* While comments later in the text indicate that these fish are the same species, it would be helpful to provide clarification in this section of the text as to whether this is talking about within the same species or within the sample set collected.
 - The use of non-promulgated methods is unacceptable for use in a regulatory context, regardless of how often the method is documented in the literature. In this instance, site-specific data used to calculate BAFs will be generated using inappropriate, unvalidated and/or unpromulgated methods. The uncertainty associated with this data can result in seriously flawed management and regulatory decisions resulting in inappropriate allocations of limited resources.

- Section 3.2.2.1
 - When discussing the applicability of “*Human caused conditions that cannot be remedied*”, to granting variances, the text states that “...*if air deposition modeling shows that the atmospheric deposition from outside the United States was a substantial cause of impairment, the variance may be warranted*”. Air deposition outside of a particular state, from other U.S. sources, should also warrant consideration of a variance; individual states cannot regulate atmospheric sources from other states any better than they can regulate international sources, and consideration of these sources that cannot be remedied should be included in any variance determination.
 - NACWA supports EPA’s recommendation that states consider administering a multiple-discharger or state-wide variance and believe this should be done as a part of a state’s standard-setting process. NACWA believes that in many cases it will not be technically or economically feasible for wastewater treatment agencies to meet permit conditions based on a state-adopted methylmercury standard by controlling industrial sources or implementing appropriate and feasible control technologies.

Chapter 4

- Section 4.1
 - Method 1631, Rev. E does not measure methylmercury, it only measures total and dissolved mercury (Sections 3.1 & 3.2 of Method 1631, Rev. E). This method was validated only for total and dissolved mercury in aqueous samples. Use of this method beyond the scope stated in the method is not appropriate.
 - UW-Madison’s SOP and the USGS method have not been promulgated and are not found in 40 CFR Part 136. Therefore, regardless of the similarity of the methods, the use for nonregulatory studies, or the number of citations in the literature, these methods do not meet the 40 CFR Part 122 requirements that NPDES monitoring be conducted according to test procedures approved under Part 136.
 - Total and dissolved Hg methods are specified as “...*the most appropriate methods for measuring compliance with new or revised methylmercury criteria...*” Methods expressly developed for aqueous matrices must not be used for compliance monitoring of fish tissue. Often, the MQOs and DQOs for solid and aqueous samples are very different simply because of the matrix type. There are no methods that have been fully validated and promulgated in 40 CFR Part 136 for methylmercury in aqueous or solid samples; the document must make this clear.
 - Method 1631 has gone through a full EPA validation study and MQOs have been developed from the study results. Method 1630 has not been fully validated, leaving the MQOs stated in the method as suspect.
 - Successful use of techniques in studies and literature does not ensure that the method(s) is appropriate for compliance monitoring. Study DQOs and MQOs may be very different than those for regulatory compliance. Also, since the studies were not for regulatory compliance, data may be skewed and/or invalid if the method was not followed exactly as written.
 - Appendix A to Method 1631, which describes the preparation of fish tissue samples for analysis by Method 1631, has not been formally incorporated into Part 136. While this aqueous method has been “well-characterized and approved”, it does not mean that the method is appropriate for a tissue or solid matrix or for regulatory use. Citing a validation study by a single contract laboratory does not alleviate our concerns with the method.

- Section 4.1.1
 - The detection and quantitation limits for Method 1631, App. A are largely unknown. It has only been validated by a single laboratory. Reports of these techniques in literature and the ability of one laboratory to use the method are not acceptable indicators of the appropriateness of the method for regulatory compliance monitoring. MQO criteria developed in aqueous matrices often do not directly translate to tissue or solid matrices.

- Section 4.3.1
 - It is very unclear whether the objective of this guidance is to quantify mercury as low as possible regardless of the need, or if it is to use an appropriate method that meets the DQOs. Forcing permittees to always use the most sensitive method available, even when unnecessary, will almost always yield detectable values and may result in needless expenditure of resources. No consideration has been given to using Method 245.7 (which has been promulgated) as an alternative to Method 1631, even though it may meet regulatory objectives.

 - The guidance recommends that $\frac{1}{2}$ of the value of the MDL be used for all non-detect data. Should the data fall between the MDL and the QL, the value used is $\frac{1}{2}$ the difference between the two values plus the MDL. This is a departure from the GLI and earlier EPA guidance in which nonquantifiable values are treated as 0. This guidance also contradicts the definition of EPA's MDL where values below the MDL are not statistically different from zero; they therefore cannot be represented as different from zero. The additional recommendation of a sensitivity analysis to ascertain the consequence of what value is used to quantify samples below the detection level is a defensible method for evaluating this data ($\frac{1}{2}$ the MDL vs 0). Should the results indicate that the choice of how to represent results below detection affects the management decision, then a more robust analysis must be performed. As this approach requires minimal resource expenditure, it should be required as opposed to recommended in order to increase the reliability and accuracy of the decision-making process.

Chapter 6

- Section 6.2.2
 - Much of the air modeling is limited in its accuracy and applicability. In particular, the Mercury Maps model contains numerous limitations and disclaimers and should not be used in a regulatory context. Lack of better options does not make these models acceptable for use.

- Section 6.2.3.2.5
 - Without models capable of predicting methylation rates, the amount of uncertainty in developing TMDLs and subsequent Waste Load Allocations (WLAs) will be tremendous. This is inappropriate in a regulatory context because undue burdens (fiscal, legal) will result.

- Section 6.2.3.4
 - The TMDL process seems to assume that the total mercury discharged by the permittee is all methylated and, therefore, contributes to the fish tissue impairment of the water body. This may not be the case. Resources would be better utilized in studies aimed at characterizing methylation processes in order to reduce the uncertainty associated with the TMDL process.

Chapter 7

- Section 7.2
 - Again, NACWA strongly believes that the fish tissue criterion is the most important measure as to whether or not a water body is complying with methylmercury goals. As such, requiring NPDES effluent monitoring in water bodies that do not exhibit fish tissue impairment is not scientifically valid. The flow chart for determining “reasonable potential” (Figure 6. Determining reasonable potential, p.85) should begin with assessing fish tissue impairment. Where there is no impairment, no further action is necessary. As the flowchart is depicted currently, all POTWs, with very few exceptions, will be required to consider a MMP as they will all have quantifiable mercury in their effluents when measured by Method 1631.
 - For states that adopt both the criterion as fish tissue and water column translation, it is unclear how exceedances of criteria are assessed. Unless the translation was calculated with a minimum of uncertainty (a very unlikely scenario), it is possible for a water body to be listed as impaired based upon a water column criterion even though the fish tissue criterion is not exceeded. Impairment of a water body into which a permittee discharges has direct regulatory consequences. The guidance should support use of the fish tissue criterion rather than of the water quality-based criterion when both are available.
- Section 7.3
 - Methylmercury test methods that have not been validated nor promulgated must not be specified in permits. There are promulgated low-level total mercury methods that are available for use and meet the MQOs of this document. Additionally, the use of total mercury methods would provide data describing the worst-case scenario, since methylmercury is a fraction of total mercury and methylation of effluents in varying water bodies is not adequately understood.
- Section 7.5.1
 - Using EPA Method 1631 will nearly always result in quantifiable levels of mercury in POTW effluent. Domestic waste alone is known to have mercury levels of approximately 50 parts per trillion. Fish tissue impairment must be the driver for all subsequent monitoring.
 - The use of this methodology for assessing reasonable potential is touted as “...significantly reducing environmental monitoring costs...” Requiring effluent monitoring only when fish tissue is impaired would represent even greater cost savings.
- Section 7.5.1.1.1
 - Fish tissue data collected by the regulator should be designated as the first line of screening. If fish tissue data is less than the criterion of 0.3mg/kg, monitoring by Method 1631 is not required.
 - If the mercury concentration in the permittee’s effluent or fish tissue is unknown, the number of data points to determine compliance with the standard should be defined in the *Draft Guidance*. This will ensure that undue burdens for sampling and analysis will not be assumed yet decisions will not be based on inadequate quantities and quality of data.
- Section 7.5.1.1.2
 - The text refers to ensuring that the samples are representative only if data are below the limit of detection. Samples should be representative of the nature of discharge regardless of whether mercury is quantifiable or not. As it reads now, it appears that unless the permittee has quantifiable

data points, the regulatory authority will deem the data unrepresentative and require additional monitoring.

- Section 7.5.1.2.1

- It is unclear who should characterize a water body. NACWA believes that this role is the responsibility of the regulatory authority. While there are permittees that would welcome the opportunity to collect this data, the responsibility should lie with the permitting authority. If a permittee is unable to reasonably conduct ambient sampling, the permitting authority must conduct all sampling and analyses required to make defensible decisions.
- References are made to characterizing the entire water body and also to only characterizing the water body near the facility's discharge point. Some water bodies (e.g., Chesapeake Bay, James River, etc.) are tremendous in size. Further clarification on what is meant by "entire water body" is necessary. Definitions for the terms water body and water segment would be helpful and provide clarification.

- Section 7.5.2.1

- EPA recommends that permitting authorities take air deposition and other nonpoint sources into account when developing WQBELs. As described in this document, the mercury maps and air models are very unreliable at this time. Use of these tools cannot be used with any certainty and may place undue hardships on permittees. Only tools with known certainty should be used in the development of WQBELs and TMDLs.
- "*Municipal wastewater treatment plants and pulp and paper mills were considered significant when their estimated cumulative load contributed greater than 5 percent of the estimated waterbody-delivered air deposition load.*" Sources from which this statement was developed should be included in this document.
- "*Point sources...could create hot spots... if fish stay in the immediate area.*" Unless fish are tagged, there is no way to determine the movement of fish. This also assumes that the point source discharge of mercury is converting to methylmercury at some expected rate. Sources used to develop this statement must be included in this document since there are no methylation models available and the statement alleges responsibility on the part of wastewater plants that is not substantiated in the document.

- Section 7.5.2.2

- Because domestic wastewater is known to contain approximately 50 parts per trillion mercury, public education may not be helpful in this area. Most of the products that were analyzed in the NACWA study for trace levels of mercury were foods, personal hygiene products, and other household products. Mercury is not listed as an "ingredient" on the label and the average person is unaware of the trace levels of mercury present in products that are used daily in households. EPA and other regulatory authorities must realize that effectively "banning" mercury with this type of approach is not realistic because mercury is naturally occurring and ubiquitous.

Later discussions (Section 7.5.2.4) imply that some distinction might be made between POTWs with industrial users discharging mercury to the plant and those accepting predominately residential sources. Given the limited opportunities for reducing levels of mercury in residential wastewater, NACWA believes that some consideration of these limitations in developing requirements for MMPs or limits should be made.

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Again, NACWA appreciates the opportunity to provide comment on the *Draft Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion*. Please contact me at 202/833-9106 or chornback@nacwa.org if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Hornback". The signature is fluid and cursive, with a large initial "C" and "H".

Chris Hornback
Senior Director, Regulatory Affairs