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Sewer Board
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Executive Director
Ken Kirk

December 14, 2000

Via electronic mail
W-00-15
Comment Clerk
Water Docket
Ariel Rios
1200 Pennsylvania Avenue, NW
Washington, DC 20460
ow-docket@epamail.epa.gov

RE: DRAFT REFERENCE DOSE DOCUMENT FOR METHYLMERCURY

Dear Sir/Madam:

The Association of Metropolitan Sewerage Agencies (AMSA) appreciates the opportunity to provide comments to the U.S. Environmental Protection Agency's (EPA) draft reference dose document for methylmercury. After reviewing the draft document and the National Research Council (NRC) report on which this document is based, we find that EPA's decision to issue a new reference dose for methylmercury is premature. We believe EPA needs to obtain more information before it can determine the reference dose because of the conflicting results of the Seychelles study and remaining questions pertaining to the Faroe Islands study.

Our main concern with the draft reference dose document is that the Seychelles study is considered to be a scientifically sound study by NRC and EPA, yet its results are being discounted. While we understand that EPA prefers to use the Faroe Islands study as the critical study because it is more protective with positive results, we do not believe EPA can choose a critical study until it further investigates and resolves the discrepancies between these two well-designed studies. If EPA is to use the best available scientific information in determining the reference dose, it cannot disregard the Seychelles study simply on the basis that it does not give the desired result. In addition, the meaning of the positive results of the Faroe Islands study is still in question due to possible confounders such as

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PCB exposure, genetic-related vulnerability of the Faroe Island population to methylmercury toxicity, fatigued study participants, and the spiked pattern of dietary exposure. As these possible confounders bring into question the appropriateness of the 0.1 ug/kg/day reference dose, we believe EPA needs more information and clarity on these issues in order to develop a scientifically defensible reference dose.

With respect to possible confounding effects in the Faroe Islands study, we are particularly concerned about the fundamental difference in the exposure to methylmercury in the Faroe Islands compared to the methylmercury exposure in the Seychelles Islands and the United States. While all three populations have significant methylmercury exposure through fish consumption, only in the Faroe Islands is pilot whale meat consumption an additional major source of ingested methylmercury. Consumption of whale meat can result in a different exposure to methylmercury for at least two reasons. First, being from animals much higher in the food chain, the whale meat tends to exhibit much higher levels of methylmercury than fish tissue. Second, due to whale meat's much fattier content than fish tissue as well as the whale's position in the food chain, the whale meat tends to also exhibit much higher levels of lipophilic PCBs. Because of the higher methylmercury and PCB levels in whale meat, we have concerns, as explained below, regarding spiked exposures, the application of the study results to the U.S. population, and PCB exposures.

High, short-term spike exposures of methylmercury are a concern to us because this pattern of exposure could be primarily responsible for the adverse effects observed in the Faroese population but not observed in the Seychelles population despite equivalent long-term average exposures and body burdens. EPA recognizes this possibility in the RfD document but dismisses the concerns suggested by this consideration after noting that "most [U.S.] sport fishers . . . consume fish on an intermittent basis," like Faroese eat whale meat, and claiming that "it is not uncommon for piscivorous fish in inland waters to have mercury levels exceeding 1 to 2 ppm," similar to average concentrations in whale meat. We believe this greatly exaggerates the likelihood that individuals in the United States will have short-term methylmercury exposures equivalent to those occurring in the Faroese population. The RfD document presents pilot whale meat methylmercury concentrations ranging from 0.59 to 3.30 ppm and averaging 1.9 ppm. According to data from the National Survey of Mercury Concentrations in Fish (EPA-823-R-99-014), however, this minimum whale meat value of 0.59 ppm exceeds mercury concentrations in more than 80 percent of edible fish in the United States, and the average whale meat value of 1.9 ppm exceeds mercury concentrations in more than 99 percent of edible fish in the United States! Therefore, we contend that EPA's conclusion that the consumption pattern of the Faroe Islands population represents the U.S. pattern of exposure better than the Seychelles study is flawed because it ignores the great difference in short-term exposure of these populations to methylmercury.

In addition to downplaying likely differences in exposure patterns between the U.S. and Faroese populations to methylmercury, EPA also downplays the role of PCBs. In the RfD document, EPA acknowledges that the Confounders and Variables Panel concluded that both PCBs and methylmercury

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had adverse effects and that the NRC suggested that “. . . both of those contaminants adversely affect those outcomes.” However, EPA then downplays the role of PCBs and entirely fails to recognize the likelihood of short-term spike exposures to PCBs in the Faroe Islands. As noted above, PCB concentrations in whale meat can be extremely high and are likely to be much higher than PCB concentrations in fish typically consumed in the United States. Yet, in assessing potential confounding by PCBs in the Faroe Islands, EPA only presents evaluations of PCB body burden, which reflect the long-term average and not the short-term spike exposure. This oversight is further compounded by the analysis of PCBs in umbilical cord tissue which, because it is lean, is not a reliable indicator of PCB body burden by EPA’s own admission and is certainly an even less reliable indicator of intermittent, short-term high exposure to PCBs. As a result of this oversight and questions we have raised, we believe the role of PCBs in the Faroe Island study requires further examination before a reference dose can be based on this study.

In conclusion, a scientifically defensible reference dose is important to us because the regulatory and financial impacts of the reference dose will be far-reaching. Using the new methodology for deriving human health criteria, we have calculated the water quality criteria with the 0.1 ug/kg/day reference dose to be about 0.025 ng/l. Without a doubt, compliance with a criterion at this level will cost wastewater agencies millions, or perhaps billions, of dollars. Because of this high cost, we believe EPA must be absolutely sure that the reference dose is appropriate before asking ratepayers and taxpayers to take on this financial burden, and, as stated previously, we believe further study is needed for EPA to be able to provide such assurances.

AMSA appreciates this opportunity to provide comments. If you have any questions or comments, please contact me at 562-699-7411 x2502 or Mark Hoeke, AMSA at 202/833-9106.

Sincerely,

A handwritten signature in black ink, appearing to read "Margie Nellor", with a horizontal line extending to the right.

Margie Nellor
Co-Chair, AMSA Mercury Workgroup