



Association of
Metropolitan
Sewerage Agencies

President
Kumar Kishinchand
Water Commissioner
Philadelphia Water Department
Philadelphia, PA

Vice President
William L. Pugh
Public Works Director
City of Tacoma
Public Works Department
Tacoma, WA

Treasurer
Gurnie C. Gunter
Director
Kansas City Water
Services Department
Kansas City, MO

Secretary
Paul Pinault
Executive Director
Narragansett Bay Water
Quality Management
District Commission
Providence, RI

Executive Director
Ken Kirk

May 15, 2000

Geoff Grubbs
Director
Office of Science and Technology (4301)
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460

RE: AMSA COMMENTS ON DRAFT IMPLEMENTATION GUIDANCE FOR
AMBIENT WATER QUALITY CRITERIA FOR BACTERIA

Dear Geoff:

Thank you for the opportunity to comment on EPA's January 2000 *Draft Implementation Guidance for Ambient Water Quality Criteria for Bacteria -- 1986*. The Association of Metropolitan Sewerage Agencies (AMSA) represents the interests of 244 of the country's publicly-owned wastewater treatment agencies, which collectively serve the majority of the sewered population in the United States, and treat and reclaim more than 18 billion gallons of wastewater each day. In addition to their primary responsibility for collecting and treating the Nation's domestic, commercial, and industrial wastewater, AMSA member agencies play a major part in their local communities, often leading watershed management efforts, promoting pollution prevention, water conservation, and recycling, and developing urban stormwater management programs.

As front-line water quality managers, AMSA members foremost goals are to protect public health and our nation's valuable water resources by treating and reclaiming wastewater to meet the ambitious goals of the Clean Water Act. As such, AMSA supports the development and use of an effective indicator organism(s), where appropriate to protect primary contact recreational uses. However, AMSA does have significant issues with the science behind the 1986 criteria, especially the studies used to support EPA's recommended enterococcus criteria, and the impact that the recommended

enterococcus standard would have on POTW compliance, even in cases where there have been no bacteria-related health impacts due to the discharge of treated wastewater effluents.

AMSA concurs with the May 5, 2000 comments submitted by the Hampton Roads Sanitation District (HRSD), regarding the original derivation of the 1986 criteria, as well as the more recent supporting studies that EPA has used to confirm and validate this criteria. HRSD has echoed the concerns of many AMSA members that the 1986 criteria was developed based on an extremely limited and unconvincing data set, which would be difficult to extrapolate for application to all the nation's waters. In addition, HRSD's review of 11 supporting studies, which EPA believes confirm and validate the findings of its earlier studies, sheds significant doubt as to the defensibility of the 1986 enterococcus criteria.

EPA should re-evaluate the context of these studies, review all other studies which have tested enterococcus as a broad based indicator of risk to swimmers and reconcile EPA's continued support of enterococcus as the indicator of choice with the results of these studies. At a minimum, the Santa Monica Bay Restoration Projects's epidemiology study and the study of California coastal monitoring data completed for the California State Water Resources Control Board, "An Analysis of Marine Bacterial Indicator Monitoring Data" (Spear, Robert C., Helen Xu, Steve Selvin, and Robert Cooper, July 1998) should be reviewed carefully. The report to the California SWRB makes a very cogent point in defining the difference between using indicators to measure risk and using indicators to manage risk. Most public agencies (including public health departments) are engaged in managing risk on a daily basis. The study makes it clear that, in California's coastal waters, enterococcus adds nothing to the information offered by total coliform or fecal coliform densities. EPA should abandon its narrow marketing of enterococcus, create a much more geographically broad water quality indicator database, and facilitate the development of a menu of indicators for risk management.

POTW Impacts

The guidance does not discuss the ultimate impact development of effluent limits for the proposed bacterial organisms, E.coli or enterococci would have on the nation's POTWs. Existing treatment works have been designed and constructed to demonstrate disinfection effectiveness using a fecal coliform standard.

Considerable work has been conducted in Oregon on the issue of bacterial indicators. In 1991 the indicator organism in the Oregon water quality standard for bacteria was changed from fecal coliform to enterococci. This change prompted the Oregon Association of Clean Water Agencies to conduct a study comparing the fecal coliform and enterococci densities in treated wastewater discharges from 16 treatment facilities. The main conclusion from this study was that, under existing disinfection procedures, the enterococci standard would be very difficult for wastewater treatment plants to meet. Treatment plant

effluents were out of compliance with the monthly average 36% of the time, and exceeded the single sample limit on 37% of the tests performed.

In 1992, Oregon reinstated fecal coliform as the indicator organism in the state's water quality standard, pending further study of the issue in the 1992-94 Triennial Review of water quality standards. After much discussion, the advisory committee for the Triennial Review recommended a change in indicator organism to E. coli. Enterococci was not considered as an appropriate indicator organism because of the longer analysis time required, and the results of the ACWA study, indicating that current disinfection practices at wastewater treatment plants would not result in enterococci densities lower than the standard. It was estimated that compliance with the enterococci standard would require a significant increase in chlorine usage, with associated environmental and worker health and safety concerns. Chlorine usage to comply with the E. coli standard was estimated to be equal to the chlorine usage to meet the fecal coliform standard. Note that there are not documented health impacts from treated wastewater effluents in Oregon while using the fecal coliform standard - the level of disinfection required to meet the fecal coliform standard therefore appears to be adequate to protect public health. Since the EPA guidance concludes that equal protection is afforded by either the E. coli or the enterococci criteria densities, and E. coli avoids the problems cited above, E. coli was recommended as the indicator organism. There is no public health reason to choose enterococci over E. coli as the indicator organism. The state finally adopted E. coli as the indicator in 1996.

In addition to compliance related issues, there does not seem to be adequate information on the relationship of enterococcus in POTW effluent versus the receiving water. East Bay Municipal Utility District in Oakland, California, has extensively examined receiving water and plant effluent samples for enterococcus during its Chlorine Reduction/Fecal Coliform study. The study indicated that no statistical relationship between enterococcus in the receiving water and enterococcus in the EBMUD effluent (even when samples were collected directly above the outfall). While EBMUD rarely detected anything either in the receiving water or in POTW effluent during the study, on those few occasions when effluent samples showed detectable to high levels, enterococci were not detected in the receiving water. On the other hand, when enterococci were detected in the receiving water, it was not found in the effluent. The study highlights the difficulty in relating POTW discharge and receiving water quality with respect to enterococcus.

Wet Weather Flows

The vast majority of water quality impacts are associated with wet weather flows. Accordingly, the maximum value for bacteria is the critical element of the two water quality criteria. The guidance has not addressed stream flows or high wet weather flows, which significantly effects the maximum criteria and how it is measured, therefore complete comments on this document are considered premature. It should be noted that the maximum criteria represents a daily value (water quality criteria requires a minimum 24-

AMSA Comments on Draft Bacteria Guidance
May 15, 2000
Page 4

hours between bacteria samples) and should be related to a daily load based upon daily flows so that a TMDL allocation can be developed. The remaining reserved sections of this document and the forthcoming Assessment Methodology Guidance must address this issue.

Conclusion

AMSA does not believe EPA has adequate scientific support to recommend the use of enterococci criteria for marine waters. The potential impact of these criteria to the nation's POTWs, as well as the costs to the public in terms of unnecessary beach closures, and actions to address impairment, emphasize the need for EPA to invest in additional bacterial indicators research to ensure that decisions are based on the most appropriate data. To date, no perfect indicator organism has been discovered. There are advantages and disadvantages that can be ascribed to the use of any particular organism chosen. Again, AMSA recommends that EPA develop a more geographically broad water quality indicator database, and provide flexibility to the States in the implementation of standards to protect the public from illness related to fecal contamination. If you have any questions, please call me at 202/833-9106.

Sincerely,



Mark Hoeke
Director, Government Affairs

cc: Norm LeBlanc, HRSD
Peter Ruffier, City of Eugene