Association of
Metropolitan
Sewerage Agencies

January 11, 2002

Whole Effluent Toxicity (WET) Test Method Changes
Comment Clerk (WET-IX)
Water Docket (4101)
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Re: *Guidelines Establishing Test Procedures for the Analysis of Pollutants; Whole Effluent Toxicity Test Methods, 66 Fed. Reg. 49,794 (September 28, 2001)*

Dear Sir or Madam:

The Association of Metropolitan Sewerage Agencies (AMSA) is pleased to provide comments on the U.S. Environmental Protection Agency's (EPA's) *Guidelines Establishing Test Procedures for the Analysis of Pollutants; Whole Effluent Toxicity Test Methods*. Founded in 1970, AMSA represents the interests of over 260 of the nation's publicly owned wastewater utilities (POTWs). AMSA members serve the majority of the sewered population in the United States and collectively treat and reclaim over 18 billion gallons of wastewater every day. Over the past 12 years, AMSA has played a key role in the national dialogue on whole effluent toxicity (WET) and continues to actively engage EPA on the relevant issues facing the POTW community.

In addition to its own advocacy efforts, AMSA continues its active participation in the WET Coalition[1] in an effort to collaborate and share information with other

[1] The WET Coalition consists of the following members: Alliance of Automobile Manufacturers, American Chemistry Council, American Forest & Paper Association, American Petroleum Institute, AMSA, Rubber Manufacturers Association, Utility Water Act Group, VAMWA, WESTCAS, Alcoa, General Electric, Kennecott Utah, and Milliken Company.

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regulated entities. AMSA has contributed substantial technical expertise to the development of the WET Coalition's comments and fully supports the content of those comments. The WET Coalition's comments (attached) should also be considered AMSA comments for the purposes of EPA's review. In addition to the WET Coalition's comments, AMSA feels strongly that several major technical issues warrant additional emphasis.

AMSA has previously expressed concerns with a number of deficiencies in the WET test methods, which were highlighted during EPA's Interlaboratory Variability Study. AMSA is troubled by the fact that EPA has continually failed to consider the magnitude of these deficiencies and the associated implications for permittee liability under the National Pollutant Discharge Elimination System (NPDES) permit rules.

Toxicity tests have proven useful as an investigative tool in identifying potential environmental toxicants. AMSA encourages EPA to utilize the tests in this manner rather than as the basis for enforceable permit limits. Rather than punishing permittees based on a potentially inaccurate test result, permittees would instead be held responsible for pursuing, confirming, and correcting any toxicity issues identified. AMSA also encourages EPA to investigate new ways of interpreting WET test results that may alleviate some of the complexities now encountered by the regulated community and regulators alike. For example, use of the "Percent Effect" (PE) concept may address many of the deficiencies of the WET methods as well as numerous implementation issues.

The following discussion underscores a number of technical issues that must be addressed before the rule is finalized.

Mandatory Test Protocols

During the Agency's Interlaboratory Variability Study, a large number of testing laboratories failed to meet all of the mandatory test conditions. These same failures are likely to arise at least as often in practice and would invalidate test data for submission to permitting authorities to satisfy NPDES permit requirements. If a permittee failed to perform a WET test exactly as required by the mandatory provisions, as did the participating laboratories, the permittee would have to repeat the test. If there was insufficient time remaining to repeat the test during the monitoring period, the permittee would be exposed to liability for failure to comply with the permit provisions. In addition, EPA apparently takes the position that permittees whose laboratories do not strictly follow the mandatory test protocols cannot certify the test results on their discharge monitoring reports (DMRs).

Furthermore, EPA failed to provide adequate reasoning for deviating from the mandatory QA/QC requirements in its test protocols during the Interlaboratory Variability Study, and failed to include related provisions in the proposed rulemaking enabling the regulated community to use the same logic or reasoning to accept or reject data. EPA's actions imply that few of the mandatory requirements in the methods can be used to reliably qualify results, even though the methods as proposed require adherence to those requirements.

It appears that EPA's acceptance or rejection of data from the Interlaboratory Variability Study was based either on the closeness of a particular result to known toxic sample results, or on the relative agreement among the results from different laboratories. However, EPA provides no insight into what decision criteria were used to determine which deviations were acceptable and which were not acceptable. Such comparisons between laboratory results may be reasonable during "round robin" testing, where the results are known. However, such an approach is not feasible in a regulatory context when testing effluent samples from POTWs, where the toxicity is unknown and only one laboratory result is available. Given the fact that these mandatory requirements were not adequate to screen data in the Interlaboratory Variability Study, how can they be retained in the method requirements? If the QA/QC requirements currently in the methods cannot control test results, what requirements can be added to protect permittees against inaccurate results from a method-defined[2] test? It is imperative that the methods include adequate QA/QC provisions that will assure the methods predictably provide reliable results that quantify actual toxicity not method variability.

Insufficient Number of Valid Laboratory Data Points

The data quality objectives for the Interlaboratory Variability Study required that a minimum of nine completed tests from different laboratories would be needed to validate a method. This requirement was strongly affirmed by EPA's official peer reviewers. Many of the methods failed to achieve the nine lab minimum due to an inadequate number of qualified laboratories and the large number of labs that were unable to complete the test successfully.

In addition, during the Interlaboratory Variability Study, EPA did not sufficiently evaluate all endpoints for each species. If a particular method met the nine-lab minimum for one endpoint, EPA assumed that all endpoints were valid. Each endpoint must be considered separately because the performance characteristic of a particular endpoint is independent of the other endpoints for that species and test. Failure to obtain the minimum number of valid tests for an endpoint prevents accurate evaluation of the test for that endpoint.

All of the methods and endpoints with insufficient data for evaluation and validation must be removed from the rulemaking.

Minimum Toxicity Reporting Thresholds

The WET test methods do not include detection limits. EPA has repeatedly compared WET testing to chemical testing, yet EPA has provided no means in the WET methods to take into account a "signal to noise ratio." Chemical tests utilize detection limits to account for background "noise"

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[2] EPA sometimes elects to regulate the effects of pollution when the specific chemical cause may be unknown. In such cases, the measured effect becomes the regulated parameter and the method used to measure that effect serves as the operational definition of the parameter itself. If the method changes, the pollutant "level" may also change even though the actual concentration of unidentified chemicals causing the effect remains unchanged. Toxicity and Biological Oxygen Demand (BOD) are examples of method-defined parameters.

and to ensure that the results are meaningful. Analysis of the Interlaboratory Variability Study can provide the data necessary to evaluate this signal to noise ratio, and develop species and endpoint-specific equivalent toxicity thresholds, below which test results would not be reportable. Failure to provide this threshold value in a manner consistent with chemical tests is a serious omission that will undermine the continued use of WET testing in NPDES permits.

Method Variability at Marginally Toxic Levels

EPA evaluated method variability at highly toxic levels as opposed to marginally toxic levels. The ability of WET to produce reliable and repeatable results given high levels of toxicity is well documented. However, high levels of toxicity are generally not experienced in the NPDES program. Permit requirements and current EPA guidance evaluate toxicity at very low levels of biological variation in undiluted effluents. Small variations in biological responses, which would be considered normal in control situations, are considered "toxic" responses simply because they occurred in effluent. To prevent such misinterpretation, the regulations should require, at a minimum, a significant toxic response measured in two effluent concentrations in adjacent effluent dilutions in the series, in order to confirm a possible toxic event. Such a requirement will also make determinations of toxicity in undiluted samples more certain.

WET Method Accuracy

Accuracy is undeniably the single most important performance characteristic for any analysis. If accuracy were not important, there would be no need to perform any analyses; a guess would be as good as a measurement. Nevertheless, EPA has stated that it is impossible to measure the accuracy of biological test methods like WET. If this is the case, then these methods are no longer suitable for all of their intended purposes.

EPA has relied on the use of reference toxicity tests to determine if a laboratory system is in "control" and producing consistent results. Similar to "calibrating a laboratory instrument," the biological units used in WET tests are "calibrated" to ensure the test results are at least consistent, if not "accurate," within a laboratory. This concept was abandoned in the evaluation of the Interlaboratory Variability Study data. As AMSA understands it, EPA considered the reference toxicity information from the study to be ineffective and therefore did not use this information in evaluating the Interlaboratory Variability Study results. The requirements for reference toxicity were not, however, altered in the proposed rule. It is now evident that there is no method for assessing the ability of WET tests to accurately predict environmental impairment under most discharge scenarios, nor is there a means by which to ensure consistent results between or within laboratories. Accordingly, EPA must reconsider how WET can be used in NPDES permits.

Even if the lack of accuracy in these methods could be overlooked, EPA cannot demonstrate a consistently predictable correlation between effluent toxicity and instream impairment. An independent study by the Water Environment Research Foundation (WERF) has demonstrated that there is no correlation between effluent toxicity, as measured by WET, and instream impairment, under nearly all discharge situations. This conclusion contradicts an earlier claim made by the

Agency, which was based on data from studies that did not properly control for all factors that could affect instream impairment. Together, the lack of accuracy, and any means of assessing accuracy, as well as the lack of correlation between effluent toxicity and instream impairment, are probably the most serious problems with WET and ultimately undermine the utility of using WET tests to set enforceable permit limits.

Conclusion

AMSA is concerned that EPA's proposal ignores many of the deficiencies highlighted during the Agency's Interlaboratory Variability Study, during the peer review process for the study, and over the last few months during discussions with AMSA and the WET Coalition. Unfortunately, this proposal will make few of the needed improvements and ultimately undermine the ability of POTW operators to comply with their Clean Water Act requirements.

The issues presented here and the more detailed concerns presented in the WET Coalition comments, along with the results of the Interlaboratory Variability Study, outline the numerous legal and technical deficiencies of the WET methods. Together these deficiencies underscore AMSA's position that the WET test methods have not been proven to be sufficiently reliable for use in setting enforceable NPDES permit limits. While EPA has repeatedly stated that a single toxicity test result should not form the basis of an enforcement action, EPA continues to write permits, and to expect delegated states to issue permits that contain such limits. EPA must reevaluate how WET is used in applications that carry substantial regulatory consequences, such as NPDES permitting.

Thank you for the opportunity to comment on this critical effort. AMSA looks forward to continued discussions with the Agency on this matter. If you have any questions about AMSA's comments please do not hesitate to call me at 202/833-4653, or Chris Hornback at 202/833-9106 or chornback@amsa-cleanwater.org.

Sincerely,

Ken Kirk
Executive Director

ATTACHMENT