

appropriate, EPA strongly encourages the application of the WER on a watershed or waterbody basis as opposed to application on a discharger-by-discharger basis. This approach is technically sound, an efficient use of resources, and allowable for permitting authorities under the NTR.

EPA's endorsement of the use of the WER is not affected by today's rule. As noted in the NTR at 57 FR 60879, the WER is a more comprehensive mechanism for addressing bioavailability issues than simply expressing the criteria in terms of dissolved metal. Consequently, expressing the criteria in terms of dissolved metal, as done in today's rule, does not completely eliminate the utility of the WER. This is particularly true for copper, a metal that forms reduced-toxicity complexes with dissolved organic matter.

The *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals*, Appendix D, explains the relationship between WERs for dissolved criteria, and WERs for total recoverable criteria. Dissolved measurements are to be used in the site-specific toxicity testing underlying the WERs for dissolved criteria. Because WERs for dissolved criteria generally are little affected by elevated particulate concentrations, EPA expects those WERs to be somewhat less than WERs for total recoverable criteria in such situations. Nevertheless, after the site-specific ratio of dissolved to total metal has been taken into account, EPA expects a permit limit derived using a WER for a dissolved criterion to be similar to the permit limit that would be derived from the WER for the corresponding total recoverable criterion.

Because WERs for dissolved criteria generally are little affected by particulate concentrations, those WERs also may often exhibit less time variability than WERs for total recoverable criteria. Consequently, WER-adjusted dissolved criteria may have somewhat greater certainty than WER-adjusted total recoverable criteria.

EPA expects the use of WERs for dissolved criteria to provide the same level of protection as the use of WERs for total recoverable criteria in the NTR. However, the increased reliability of the dissolved criteria prior to WER adjustment (compared to the total recoverable criteria unadjusted) will reduce the need for site-specific WER determinations.

G. Technical Guidance

EPA continues to urge the States affected by this rule to adopt their own

standards and negate the need for Federal action. Should a State choose to adopt dissolved criteria, EPA recommends use of the Metals Policy, its attachments (as updated herein) and other guidance referenced in this preamble for implementation of dissolved metals criteria. Attachments to the Metals Policy include: guidance on dynamic modeling and translators (Attachment #3), and clean analytical techniques and monitoring (Attachment #4). Additional guidance on clean and ultra-clean techniques is available and under development (see discussion below). EPA will continue to update implementation guidance as needed in the future.

1. Total Maximum Daily Loads (TMDLs) and National Pollutant Discharge Elimination System (NPDES) Permits

EPA's NPDES regulations require that limits for metals in permits be stated as total recoverable in most cases {see 40 CFR § 122.45(c)} except when an effluent guideline specifies the limitation in another form of the metal, the approved analytical methods measure only dissolved metal, or the permit writer expresses a metal's limit in another form (e.g., dissolved, specific valence, or total) when required to carry out provisions of the Clean Water Act. This is because the chemical conditions in ambient waters frequently differ substantially from those in the effluent and there is no assurance that effluent particulate metal would not dissolve after discharge. The NPDES permit regulations do not require that State water quality standards be expressed as total recoverable; rather, the regulations require permit writers to develop permit limits that are expressed in terms of metals concentrations and loadings that are measured using the total recoverable method. Expressing criteria as dissolved metal requires translation between different metal forms in the calculation of the permit limit so that a total recoverable permit limit can be established that will achieve water quality standards. Both the TMDL and NPDES permit use of water quality criteria in NTR States now require the ability to translate between dissolved metal in ambient waters and total recoverable metal in effluents. In addition to the guidance on dynamic modeling and translators attached to the Metals Policy, EPA's *Interim Guidance on the Determination and Use of Water-Effect Ratios for Metals*, February 1994, EPA 823-B-94-001 (pages 116 and 128-130), presents an effluent-specific approach for calculating a total recoverable metal permit limit from a dissolved metal criterion. EPA is

expecting to complete additional guidance on translators in 1995.

2. Monitoring

a. Use of Clean Sampling and Analytical Techniques

In assessing waterbodies to determine the potential for toxicity problems due to metals, the quality of the data used is an important issue. Depending on the concentration of metal present, the use of "clean" and "ultra-clean" techniques for sampling and analysis may be critical to accurate data for implementation of aquatic life criteria for metals.

"Clean" techniques refer to those requirements (or practices for sample collection and handling) necessary to produce reliable analytical data in the microgram per liter ($\mu\text{g/L}$) or part per billion (ppb) range. "Ultra-clean" techniques refer to those requirements or practices necessary to produce reliable analytical data in the nanogram per liter (ng/L) or part per trillion (ppt) range. Because typical concentrations of metals in surface waters and effluents vary from one metal to another, the effect of contamination on the quality of metals monitoring data varies appreciably.

EPA has developed protocols on the use of clean techniques in coordination with the United States Geological Survey (USGS). The guidance, entitled *Method 1669: Sampling Ambient Water for Determination of Trace Metals at EPA Water Quality Criteria Levels* is available from the Office of Water Resource Center as part of the Trace Metals Package. Draft protocols for ultra-clean techniques will be available in late calendar year 1995.

H. Saltwater Copper Criteria

The saltwater copper criteria in today's interim final rule are $2.4 \mu\text{g/L}$ dissolved copper for both CMC and CCC based on conversion of $2.9 \mu\text{g/L}$ for both the CMC and CCC from total recoverable to dissolved metal. New data collected from a study for the New York/New Jersey Harbor indicate the potential need to revise the copper criteria document to reflect a change in the saltwater CMC and CCC aquatic life values. A comprehensive literature search was conducted and toxicity test data for seven new species were added to the database for the saltwater copper criteria. EPA believes these new data have national implications and indicate the national criteria may be more accurate at a CMC of $4.8 \mu\text{g/L}$ dissolved and a CCC of $3.1 \mu\text{g/L}$ dissolved. In today's rulemaking, EPA is noticing the availability of data to support these