ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 131

[FRL-5196-2]

Stay of Federal Water Quality Criteria for Metals

AGENCY: Environmental Protection Agency (EPA).

ACTION: Administrative stay.

SUMMARY: In December 1992, EPA promulgated water quality criteria for toxic pollutants in order to protect human health and aquatic life in fourteen states that had not adopted the necessary toxics criteria as required by the Clean Water Act. Some of the criteria are for protection of aquatic life from the effects of metals in the water. After EPA promulgated the rule, EPA issued a new policy for setting water quality criteria for metals. In order to allow permitting authorities in the states covered by the rule the flexibility to follow EPA's new policy, the Agency is staying the effectiveness of specific metals criteria promulgated in the rule. The stay will remain in effect until EPA promulgates new metals criteria for the states covered by the rule.

EFFECTIVE DATE: This stay is effective April 14, 1995.

FOR FURTHER INFORMATION CONTACT: Tim Kasten, Office of Science and Technology, Office of Water (4304), USEPA, 401 M Street SW., Washington, D.C. 20460, (202) 260-5994.

SUPPLEMENTARY INFORMATION:

Background

In the National Toxics Rule ("NTR"), EPA promulgated numeric water quality criteria for toxic pollutants for fourteen states and jurisdictions that had not adopted sufficient criteria ("NTR states"). 57 FR 60848 (December 22, 1992). That action brought those states into compliance with section 303(c)(2)(B) of the Clean Water Act ("CWA") which requires states to adopt criteria for all toxic pollutants the discharge or presence of which could interfere with state designated uses of waters, and for which EPA had published criteria.

Among the criteria that EPA promulgated for the NTR states were aquatic life water quality criteria for metals ("metals criteria"). Aquatic life water quality criteria are estimates of the highest concentration of a substance that may be present in water while maintaining the protection of aquatic life from acute or chronic effects. A central issue in establishing and implementing metals criteria is how to accurately determine the fraction of the total metal that is biologically available and toxic.

At the time that EPA promulgated the NTR, the Agency's policy was to express metals criteria using total recoverable metal concentrations ("total recoverable metal"). While metals criteria could be implemented by measuring either total recoverable metal or dissolved metal, total recoverable metal measurement, being more conservative, provided a greater level of protection than dissolved metal measurement. Because the NTR was to cover a substantial number of water bodies, EPA chose the simplest, most protective approach, and the one reflected in its criteria documents to implement the metals criteria, and promulgated metals criteria based on total recoverable metal.

After promulgation of the NTR, the Agency continued to address the issue of how best to express metals criteria. EPA held a meeting with invited experts in January 1993 in Annapolis, Maryland to further elicit comment on the use of total recoverable metal versus dissolved metal in developing national metals criteria. The Agency solicited comments on the recommendations made by presenters at the meeting in the Federal Register on July 9, 1993 (58 FR 32131). Subsequently, EPA determined that dissolved metal approximates the biologically available fraction of waterborne metals for aquatic organisms better than total recoverable metal. On October 1, 1993, the Agency issued guidance on the interpretation and implementation of metals criteria providing that "[i]t is now the policy of the Office of Water that the use of dissolved metal to set and measure compliance with water quality standards is the recommended approach * * *". *Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria.*

A number of parties brought lawsuits challenging the NTR metals criteria. The Plaintiffs in those lawsuits wanted the permitting authorities in the NTR states to use criteria based on dissolved metal. EPA has concluded that it is in the public interest to revise the metals criteria promulgated in the NTR to reflect the new metals policy. In settlement of the litigation, EPA has agreed to stay the numeric aquatic life water quality criteria (expressed as total recoverable metal) for: arsenic, cadmium, chromium (III), chromium (VI), copper, lead, mercury (acute only), nickel, selenium (saltwater only), silver, and zinc. This stay will be in effect until EPA takes action to amend the NTR by promulgating new metals criteria based on dissolved metal.

Effective Date of the Stay

Pursuant to section 705 of the Administrative Procedure Act (APA) (5 U.S.C. 705), "when an agency finds that justice so requires, it may postpone the effective date of actions taken by it, pending judicial review." EPA has determined that this stay is necessary pending resolution of the litigation. Consequently, EPA finds issuance of this stay is in the interests of justice.

In addition, under section 553 of the APA (5 U.S.C. 553), when an Agency finds good cause to exist, it may issue a rule without first providing notice and comment and make the rule immediately effective. EPA believes that it has good cause both to issue this stay without notice and comment and to make the stay immediately effective.

A stay of the metals criteria is central to the settlement of the pending litigation, and it is in the public interest to avoid costly and potentially protracted litigation by issuing a stay. Further, the stay relieves a burden on the regulated community. The stay will avoid potential harm to dischargers in the NTR states for which National Pollutant Discharge Elimination System permits are being issued pursuant to section 402 of the Clean Water Act by allowing permitting authorities to establish permit limits based on dissolved metal concentrations consistent with current Agency policy. It is not in the public interest to require permitting authorities in the NTR states to impose effluent limitations based on total recoverable metal ambient water quality criteria which EPA now considers to be more stringent than may be necessary to protect designated uses.

EPA considers staying the metals criteria to be in the public interest as noted above, and therefore good cause exists to issue the stay without notice and comment and to make the stay immediately effective.

Regulatory Assessment Requirements

A. Executive Order 12866

Under Executive Order 12866 (56 FR 51735, October 4, 1993), the Agency must determine whether the regulatory action is "significant" and therefore subject to all the requirements of the Executive Order (i.e., Regulatory Impact Analysis and review by the Office of Management and Budget). Under section 3(f), the order defines "significant" as those actions likely to lead to a rule: (1) Having an annual effect on the economy of $100 million or more, or adversely and materially

affecting a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities (also known as "economically significant"); (2) creating serious inconsistency or otherwise interfering with an action taken or planned by another agency; (3) materially altering the budgetary impacts of entitlements, grants, user fees, or loan programs; or (4) raising novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this order. Pursuant to the terms of this order, EPA has determined that this stay would not be "significant".

B. Regulatory Flexibility Act

Under the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, EPA is certifying that a stay of these criteria would not have a significant impact on a substantial number of small businesses.

C. Paperwork Reduction Act

There are no information collection requirements associated with this administrative stay covered under the provisions of the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*

List of Subjects in 40 CFR Part 131

Environmental protection, Water pollution control, Water quality standards, Toxic pollutants.

Dated: April 14, 1995.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, part 131 of title 40 of the Code of Federal Regulations is amended as follows:

PART 131—[AMENDED]

1. The authority citation for part 131 continues to read as follows:

Authority: 33 U.S.C. 1251 et seq.

2. Part 131 is amended by adding at the end of § 131.36(b)(1) the following "Note to paragraph (b)(1)":

§ 131.36 Toxics criteria for those States not complying with Clean Water Act Section 303(c)(2)(B).

* * * * *

(b)(1) * * *

Note to paragraph (b)(1): On April 14, 1995, the Environmental Protection Agency issued a stay of certain criteria in paragraph (b)(1) of this section as follows: the criteria in columns B and C for arsenic, cadmium, chromium (VI), copper, lead, nickel, silver, and zinc; the criteria in B1 and C1 for mercury; the criteria in column B for chromium (III); and the criteria in column C for selenium. The stay remains in effect until further notice.

[FR Doc. 95–10147 Filed 5–3–95; 8:45 am]

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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 131

[WH–FRL–5196–1]

Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance—Revision of Metals Criteria

AGENCY: Environmental Protection Agency (EPA).

ACTION: Interim final rule, notice of data availability and request for comments.

SUMMARY: EPA is promulgating new aquatic life metals criteria for nine States, Puerto Rico, and the District of Columbia, that are subject to EPA's 1992 National Toxics Rule ("NTR"). These new metals criteria reflect EPA's current policy for setting water quality criteria for metals. This interim final rule establishes metals criteria that are protective of aquatic life and approximate, better than the 1992 criteria, the biologically available fraction of water borne metals to aquatic organisms. Use of the new metals criteria will allow permitting authorities in the nine States, Puerto Rico and the District of Columbia, to establish effluent limitations based on the new metals criteria rather than the 1992 criteria which EPA now considers to be more stringent than may be necessary to protect designated uses for aquatic life. The interim final rule will be in effect while EPA considers public comments and develops a final rule. This rule terminates the Administrative Stay published elsewhere in this issue of the Federal Register.

DATES: This interim final rule is effective April 15, 1995. Comments on the interim final rule and other data noticed in this preamble will be accepted until July 3, 1995.

ADDRESSES: An original and 3 copies of all comments and references on the interim final rule and data should be addressed to: Revision of the National Toxics Rule-Dissolved Metals Criteria, Comment Clerk; Water Docket (MC–4101), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. The administrative record for this rulemaking is available for review and copying at the Environmental Protection Agency, Office of Water Docket, 401 M Street SW, Washington DC, 20460, Room L102, on weekdays during EPA's normal business hours of 8 a.m. until 4:30 p.m. For access to the Docket materials, call (202) 260–3027 between 9:00a.m.–3:30p.m., for an appointment. A reasonable fee will be charged for photocopies.

FOR FURTHER INFORMATION CONTACT: Timothy J. Kasten, telephone 202–260–5994.

SUPPLEMENTARY INFORMATION:

A. General Background

1. Regulatory Background

In the NTR, EPA promulgated numeric water quality criteria for 12 States, Puerto Rico, and the District of Columbia, that failed to comply fully with Section 303(c)(2)(B) of the Clean Water Act. (57 FR 60848, December 22, 1992 codified in the Code of Federal Regulations at 40 CFR 131.36).[1] Those criteria became the legally enforceable water quality standards in the named States, Puerto Rico, and the District of Columbia, for all purposes and programs under the Clean Water Act on February 5, 1993. Included among the water quality criteria promulgated in the NTR were numeric criteria for the protection of aquatic life for 11 metals: arsenic, cadmium, chromium (III), chromium (VI), copper, lead, mercury, nickel, selenium, silver, and zinc.

The Agency received extensive public comment during the development of the NTR regarding the most appropriate approach for expressing the metals criteria. The principal issue was the correlation between metals that are measured and metals that are bioavailable and toxic to aquatic life.

2. Policy on Aquatic Life Metals Criteria

At the time of the NTR promulgation, Agency policy was to express metals criteria, as recommended in its Section 304(a) criteria documents, as total recoverable metal measurements. Agency guidance prior to the NTR promulgation indicated that metals criteria may be expressed either as total recoverable metal or dissolved metal.[2]

[1] In the NTR, EPA determined compliance with Section 303(c)(2)(B) based on the status of State compliance as of 1991, the date of the proposed rulemaking, and then took into account EPA approval actions between the proposed and final rulemaking for those States included in the proposed rule. EPA acknowledges that, due to subsequent State actions to delete or otherwise modify toxics criteria (*e.g.*, see Table 1, 57 FR 60856, December 22, 1992), all States and Territories currently may not be in full compliance with Section 303(c)(2)(B).

[2] Interim Guidance on Interpretation and Implementation of Aquatic Life Criteria for Metals,

Continued

Because the NTR was to cover a substantial number of water bodies of varying water quality, EPA selected what it considered the simplest, more conservative approach and the approach reflected in its criteria documents, to implement the metals criteria, namely the total recoverable method. Accordingly, the metals criteria promulgated in the NTR were expressed as total recoverable metals, although EPA also provided for site-specific criteria development.[3]

Thereafter, EPA continued to work with States and other interested parties on the issue of metals bioavailability and toxicity. EPA held a workshop of invited experts on this issue; the results of the consultations were published at 58 FR 32131, June 8, 1993. As a result of these consultations, the Agency issued a policy memorandum on October 1, 1993, entitled: *Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria* ("Metals Policy"). (The complete October 1, 1993 memorandum can be obtained from EPA's Office of Water Resource Center (202) 260–7786 or the Office of Water Docket.) The Metals Policy states:

> It is now the policy of the Office of Water that the use of dissolved metal to set and measure compliance with water quality standards is the recommended approach, because dissolved metal more closely approximates the bioavailable fraction of metal in the water column than does total recoverable metal.

It further states:

> Until the scientific uncertainties are better resolved, a range of different risk management decisions can be justified. EPA recommends that State water quality standards be based on dissolved metal. EPA will also approve a State risk management decision to adopt standards based on total recoverable metal, if those standards are otherwise approvable as a matter of law. (See Section 510, Federal Water Pollution Control Act, Public Law 100–4, 33 U.S.C. 466 et seq.)

The adoption of the Metals Policy did not change the Agency's position that the existing total recoverable criteria published under Section 304(a) of the Clean Water Act continue to be scientifically defensible. EPA developed the total recoverable criteria using high-quality analytical data and are still scientifically defensible criteria. When developing and adopting its own standards, a State, in making its risk management decision, may wish to consider sediment, food chain effects and other fate-related issues and decide to adopt total recoverable or dissolved metals criteria.

In general, EPA continues to conduct research on metals toxicity to further refine the criteria and their implementation. However, the aim of both the Clean Water Act and EPA policy is that a more effective way of incorporating new science into the water quality program is for the States to promulgate their own standards and implementation policies. The States can then make appropriate updates, rather than relying on Federal promulgations such as today's rule.

3. Litigation and Settlement of NTR Metals Issues

A number of parties brought lawsuits challenging the NTR metals criteria. See *American Forest and Paper Ass'n, Inc. et al.* v. *EPA*, Consolidated case No. 93–0694 RMU (D.D.C.) The Plaintiffs in those lawsuits wanted the permitting authorities in the NTR States to use criteria based on dissolved metal rather than total recoverable. After careful consideration of the issue, EPA concluded that it was in the public interest to revise the metals criteria promulgated in the NTR to reflect the Office of Water's new metals policy. On February 15, 1995, EPA and the Plaintiffs filed a partial settlement agreement with the court. Pursuant to the terms of the partial settlement agreement, EPA agreed to issue an administrative stay of the numeric aquatic life water quality criteria (expressed as total recoverable metal) for: arsenic, cadmium, chromium (III), chromium (VI), copper, lead, mercury (acute only), nickel, selenium (saltwater only), silver, and zinc. That stay is published in a separate notice in today's Federal Register. The stay is intended to be in effect only until EPA takes action to amend the NTR by promulgating new metals criteria based on dissolved metal. With today's interim final rule, EPA is promulgating new metals criteria for those metals listed in the stay based on dissolved metal and therefore this action will supersede the administrative stay.

B. Today's Interim Final Rule

EPA's action today revises the NTR that established numeric aquatic life metals criteria for 9 States, Puerto Rico and the District of Columbia (Table 1). (Of the 12 NTR States, aquatic life metals criteria were only promulgated for nine.) The numeric criteria in today's rule reflect the Office of Water's current policy with respect to metals. This action promulgates dissolved metals criteria for those total recoverable metals criteria subject to the Agency's administrative stay.

TABLE 1.—STATES SUBJECT TO THE REVISED METALS CRITERIA [1]

Alaska
Arkansas
California
Idaho
Kansas
Michigan
New Jersey
Vermont
Washington
District of Columbia
Puerto Rico

[1] Today's interim final rule may have differing applicability for each of the States in this table depending on the State's individual compliance with Section 303(c)(2)(B) of the Clean Water Act. See 40 CFR 131.36(d) for State applicability.

C. Conversion Factors: Total Recoverable to Dissolved Metal

Because EPA's Section 304(a) criteria are expressed as total recoverable metal, to express the criteria as dissolved, application of a conversion factor is necessary to account for the particulate metal present in the laboratory toxicity tests used to develop the total recoverable criteria. Initially, EPA included a set of recommended freshwater conversion factors with the Metals Policy. Based on additional laboratory evaluations that simulated the original toxicity tests, EPA has refined the procedures used to develop freshwater conversion factors for aquatic life criteria. EPA made new conversion factors available for public comment in the context of EPA's Proposed Guidance for the Great Lakes System on August 30, 1994, at 59 FR 44678.

EPA has also conducted saltwater laboratory simulation tests for the development of conversion factors for saltwater metals criteria. The saltwater simulation tests were conducted using the same methodology as the freshwater tests with minor modifications, necessary to account for saltwater. The saltwater test results are being made available with today's rule. The conversion factors in this rule and other technical reports referenced herein, supersede the conversion factors presented in Attachment #2 of the Metals Policy.

Total recoverable to dissolved metal conversion factors were attached to the partial settlement agreement in the form of a draft guidance entitled, *Guidance to States Subject to the National Toxics Rule For Setting NPDES Limits During the Stay of the Metals Criteria.* (The partial settlement agreement is available from the Water Docket.) The draft guidance used data that were available through December 21, 1994. The

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U.S. EPA, May 1992. (Notice of availability published at 57 FR 24041, June 5, 1992.)

[3] See Interim Guidance on the Determination and Use of Water-Effect Ratios for Metals, February 1994, EPA 823–B–94–001.

conversion factors presented in today's rule reflect the best science available to EPA at the time of promulgation and contain minor modifications from those in the attachment to the February 15 partial settlement agreement. For each metal specific conversion factor, the changes between the draft guidance and today's rule are less than 10%. EPA has determined these changes to be minor.

1. Freshwater Criteria Conversion Factors

The final freshwater conversion factors used in today's rule are contained in: "Derivation of Conversion Factors for the Calculation of Dissolved Freshwater Aquatic Life Criteria for Metals" (U.S. EPA, 1995), available from the Water Docket and are presented in Table 2 below. This study did not include laboratory simulation tests for mercury or silver, therefore, the freshwater conversion factors for mercury and silver used today are from the Metals Policy.

The conversion factors for most freshwater metals were established as constant values. For cadmium and lead however, EPA found that water hardness mediated the conversion factor and should be taken into account when converting total recoverable cadmium and lead criteria to dissolved. Table 2 presents the hardness-dependent conversion factors for cadmium and lead. The hardness-dependent conversion factor for lead was included in the August 30, 1994 Notice of Availability (59 FR 44678). In today's action, EPA is specifically requesting comment on the use of hardness-dependent conversion factor for cadmium.

TABLE 2.—FRESHWATER CRITERIA CONVERSION FACTORS FOR DISSOLVED METALS

Metal	Conversion factors[a]	
	Acute	Chronic
Arsenic	1.000	1.000
Cadmium[b]	0.944	0.909
Chromium (III)	0.316	0.860
Chromium(VI)	0.982	0.962
Copper	0.960	0.960
Lead[b]	0.791	0.791
Mercury	[c]0.85	[d]N/A
Nickel	0.998	0.997
Silver	[c]0.85	[c]N/A
Zinc	0.978	0.986

[a] The conversion factors are given to three decimal places because they are intermediate values in the calculation of dissolved criteria.

[b] Conversion factors are hardness-dependent. The values shown are with a hardness of 100 mg/L as calcium carbonate ($CaCO_3$). Conversion factors (CF) for any hardness can be calculated using the following equations:

Cadmium
Acute: $CF=1.136672-[(\ln hardness)(0.041838)]$
Chronic: $CF=1.101672-[(\ln hardness)(0.041838)]$

Lead (Acute and Chronic): $CF=1.46203-[(\ln hardness)(0.145712)]$

[c] Conversion factor from: Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, October 1, 1993. Factors were expressed to two decimal places.

[d] CCC for mercury cannot be converted to dissolved, because it is based on mercury residues in aquatic organisms rather than toxicity.

[e] Not applicable, EPA has not published final chronic criteria values for silver.

2. Saltwater Criteria Conversion Factors

Acute saltwater conversion factors are being made available through today's rule. The data and the acute criteria conversion factors for saltwater are contained in: "Derivation of Conversion Factors for the Calculation of Dissolved Saltwater Aquatic Life Criteria for Metals" (U.S. EPA 1995). This summary report and its supporting data are available from the Water Docket. Saltwater chronic conversion factors have not been developed separately and therefore are not available for today's rule. Based on close similarities between the freshwater acute and chronic conversion factors, EPA believes that, if calculated, the chronic saltwater conversion factors would be nearly the same as the acute saltwater factors. In the absence of these chronic conversion factors, the saltwater acute conversion factors will apply. The saltwater conversion factors are presented in Table 3 below. Saltwater simulation tests were not completed for mercury or silver, therefore the conversion factors from the Metals Policy will continue to apply.

TABLE 3.—SALTWATER CRITERIA CONVERSION FACTORS FOR DISSOLVED METALS

Metal	Conversion factors[a]
Arsenic	1.000
Cadmium	0.994
Chromium (III)	[d]
Chromium (VI)	0.993
Copper	0.83
Lead	0.951
Mercury	[b][c]0.85
Nickel	0.990
Selenium	0.998
Silver	[b]0.85
Zinc	0.946

[a] Conversion factors on this table were calculated for acute criteria only. Conversion factors for chronic criteria are not currently available. In the absence of chronic conversion factors saltwater acute conversion factors are used.

[b] Conversion factor from: Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, October 1, 1993. Factors were expressed to two decimal places.

[c] CCC for mercury cannot be converted to dissolved, because it is based on mercury residues in aquatic organisms rather than toxicity.

[d] No saltwater criteria.

D. Applicability Requirements for Metals Criteria

Through today's action, EPA is also requesting comments on the applicability requirements in 40 CFR 131.36(c) as they apply to the metals criteria. In particular, EPA is requesting comments on § 131.36(c)(4)(i) regarding the calculation of hardness-dependent freshwater metals criteria. Section 131.36(c)(4)(i) describes the minimum and maximum hardness values (25 mg/L and 400 mg/L as $CaCO_3$, respectively) to be used when calculating hardness-dependent freshwater metals criteria. This requirement is not changed by today's interim final rule, however EPA is requesting comment on an alternative approach. Most of the data used to develop these hardness formulas were in the hardness range of 25 mg/L to 400 mg/L as $CaCO_3$. The formulas are therefore most accurate in this range. Using a hardness of 25 mg/L for calculating criteria, when the actual ambient hardness is less than 25 mg/L, could result in criteria that are under-protective of aquatic life. EPA is therefore requesting comments on the use of the actual ambient hardness for calculating criteria when the hardness is below 25 mg/L as $CaCO_3$.

Most freshwaters of the U.S. have an ambient hardness of less than 400 mg/L as $CaCO_3$. Using 400 mg/L to calculate criteria, for waters with an ambient hardness of greater than 400 mg/L, may result in over-protective criteria because at a hardness above 400 mg/L, other confounding factors, which may cause this hardness, can also affect the toxicity. EPA is requesting comment on an approach that would make two options available for calculating metals criteria for waters with a hardness of greater than 400 mg/L as $CaCO_3$: *Option 1*—use 400 mg/L as $CaCO_3$ for the criteria calculation or, *Option 2*—use the actual hardness and require the use of the water-effect ratio to modify the final criteria value to more accurately reflect ambient conditions. (EPA notes that in the NTR States, the use of the water-effect ratio is assigned a value of 1.0, unless otherwise specified by the permitting authority. See 40 CFR 131.36(c)(4)(iii).)

E. Calculation of Dissolved Metals Criteria

Metals criteria values in 40 CFR 131.36(b)(1), as amended today, are now shown as dissolved metal. These criteria have been calculated in one of two ways. For freshwater metals criteria that are hardness-dependent (denoted by footnote "e" in the matrix), the dissolved metal criteria value must be calculated separately for each hardness using the table at § 131.36(b)(2), as amended today. The hardness-dependent freshwater criteria values presented in the matrix at § 131.36(b)(1) have been calculated using a hardness of 100 mg/L $CaCO_3$ for comparative purposes only. Saltwater metals criteria and freshwater criteria that are not hardness-dependent (criteria denoted by footnote "m" in the matrix) are calculated by taking the total recoverable criteria values (from EPA National Ambient Water Quality Criteria Documents) before rounding, and multiplying them by the appropriate conversion factors from Table 2 or 3 of Section C of this preamble. (The total recoverable criteria values are shown to four figures, where available, because they are intermediate values in the calculation of dissolved metals criteria.) The final dissolved metals criteria values, as they appear in the matrix at § 131.36(b)(1), are rounded to two significant figures. Tables 4a and 4b below, summarize the conversions for saltwater criteria and freshwater criteria that are not hardness-dependent.

EPA notes that if a non-NTR State adopts standards, or an NTR State adopts its own standards (for subsequent withdrawal from the NTR), it may prefer a more conservative approach and adopt total recoverable metals criteria. In doing so, the State may use EPA's total recoverable criteria from Tables 4a and 4b (rounded to two significant figures) or, for hardness-dependent freshwater criteria, omit the conversion factor from the formula presented in § 131.36(b)(2).

Tables 4a and 4b use the following abbreviations and formulas for calculating dissolved metals criteria (CMC and CCC are defined in 40 CFR 131.36(b)(1), footnote d):

CMC—Criterion Maximum Concentration

CCC—Criterion Continuous Concentration

CF—Conversion Factor

Formulas for Calculating Dissolved Metals Criteria:

$CMC_{dissolved} = CMC_{total\ recoverable} \times$ Acute CF

$CCC_{dissolved} = CCC_{total\ recoverable} \times$ Chronic CF

TABLE 4a.—CALCULATION OF FRESHWATER DISSOLVED METALS CRITERIA THAT ARE NOT HARDNESS-DEPENDENT

METAL	Total Recoverable Metals Criteria [1] (µg/L)		Conversion factors [2]		Dissolved metals criteria [3]	
	CMC	CCC	Acute	Chronic	CMC	CCC
Arsenic	359.1	188.9	1.000	1.000	360	190
Chromium(VI)	15.74	10.80	0.982	0.962	15	10
Mercury	2.428	0.0122	0.85	N/A	2.1	N/A

[1] From EPA National Ambient Water Quality Criteria Documents.
[2] From Table 2.
[3] Final dissolved metals criteria have been rounded to two significant figures.

TABLE 4b.—CALCULATION OF SALTWATER DISSOLVED METALS CRITERIA

Metal	Total recoverable metals criteria [1] (µg/L)		Conversion factors [2]		Dissolved metals criteria [3]	
	CMC	CCC	Acute	Chronic	CMC	CCC
Arsenic	68.55	36.05	1.000	1.000	69	36
Cadmium	42.54	9.345	0.994	0.994	42	9.3
Chromium (III)	N/A [4]	N/A [4]	N/A [4]	N/A [4]	N/A [4]	N/A [4]
Chromium (VI)	1079	49.86	0.993	0.993	1100	50
Copper	2.916	2.916	0.83	0.83	2.4	2.4
Lead	217.16	8.468	0.951	0.951	210	8.1
Mercury	2.062	.0250	0.85	N/A [5]	1.8	N/A [5]
Nickel	74.60	8.293	0.990	0.990	74	8.2
Selenium	293.8	70.69	0.998	0.998	290	71
Silver	2.3	N/A [4]	0.85	N/A [4]	1.9	N/A [4]
Zinc	95.10	86.14	0.946	0.946	90	81

[1] From EPA National Ambient Water Quality Criteria Documents.
[2] From Table 3.
[3] Final dissolved metals criteria have been rounded to two significant figures.
[4] Not applicable, national criteria not available.
[5] The CCC for mercury is expressed as total recoverable.

F. Site-Specific Criteria Modifications

EPA has issued guidance (Water Quality Standards Handbook, Second Edition-1993, EPA–823–B–93–002 and update #1, EPA–823–B–94–006, August 1994, at page 3–38 and Appendix L), describing three site-specific criteria development methodologies: recalculation procedure, indicator species procedure (also known as the water-effect ratio (WER)) and resident species procedure. Only the first two of these have been widely used.

In the NTR, EPA identified the WER as the method for optional site-specific criteria development for certain metals. On February 22, 1994, EPA issued *Interim Guidance on the Determination and Use of Water-Effect Ratios for Metals*, EPA 823–B–94–001, now incorporated into the updated Second Edition of the Water Quality Standards Handbook, Appendix L. In accordance with the WER guidance and where application of the WER is deemed

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 (µg/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 µg/L dissolved copper for both CMC and CCC based on conversion of 2.9 µg/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 µg/L dissolved and a CCC of 3.1 µg/L dissolved. In today's rulemaking, EPA is noticing the availability of data to support these

potential changes in the national saltwater copper criteria and solicits comments. The data can be found in the draft document entitled, *Ambient Water Quality Criteria—Copper, Addendum 1995*. This document is available from the Office of Water Resource Center or Water Docket. Based on those comments, the saltwater copper criteria in this interim final rule may be revised in the final rule to reflect these new data.

I. Procedural Requirements

Section 553 of the Administrative Procedure Act provides that when an agency, for good cause, finds that notice and public procedure are impracticable, unnecessary or contrary to the public interest, it may first issue a rule without providing notice and an opportunity to comment. EPA has concluded that there is good cause to issue this interim final rule without notice and comment and to make the rule effective immediately.

In 1987, Congress amended the Clean Water Act to provide that States must adopt numeric criteria to control the discharge of toxic pollutants. Before this requirement was enacted, few States had adopted numeric criteria for toxic pollutants and had to rely on "narrative" criteria (*e.g.*, "free from toxics in toxic amounts") to set discharge limits for such pollutants. Congress, expressing concern over the calculation of discharge limitations for toxics without numeric criteria, required States to adopt numeric, pollutant-specific criteria for toxic pollutants (56 FR 58423–58424, Nov. 19, 1991).

Following promulgation of the NTR, EPA continued to evaluate available information on metals. EPA held a public meeting of experts in which a recommendation was made to express the ambient water criteria as dissolved metal. This recommendation and others, were noticed for public comment at 58 FR 32131, June 8, 1993. It is EPA's judgment that aquatic life criteria for metals, when expressed as dissolved metal provide a more accurate measurement of metals bioavailability to organisms in the water column than when expressed as total recoverable metal. Thus, in some situations, the total recoverable metals criteria in the NTR may result in permit limits that are more stringent than if the criteria were expressed in a dissolved form. As a result, in these situations, permitting authorities in the NTR States may be imposing more stringent (and potentially more costly) effluent limitations on their dischargers than will be required to meet the new dissolved metals aquatic life criteria put in place today.

EPA considered the impacts of a stay of the current metals criteria while it undertook a standard rulemaking (*i.e.*, proposed rule followed by a final) to revise the aquatic life metals criteria to express them in a dissolved form. However, during the effective period of the stay (the interim between proposal and final rule), permitting authorities for the NTR States would generally need to use the States' narrative criteria (*e.g.*, free from toxics in toxic amounts) to develop permit limits for the discharge of toxics. Because the Congressional directive is clear that States must have numeric criteria for toxic pollutants, EPA rejected this approach in favor of an interim final rule.

By today's action the Agency upholds the intent of § 303(c)(2)(B) of the Clean Water Act and avoids the need for permitting authorities to rely on narrative criteria to develop permit limits. Further, this interim final rule is a temporary measure. The Agency notes that considerable public comment has already been obtained on the Metals Policy and the specific criteria being issued in this interim final rule. EPA held a meeting with invited experts in January 1993 in Annapolis, Maryland to further elicit comment on the use of dissolved metals for developing national metals criteria. The Agency solicited comments on the recommendations made by presenters at that meeting in the Federal Register on July 9, 1993 (58 FR 32131). The Metals Policy issued in October 1993 has received wide-spread distribution and informal response from many interested parties. In August 1994, EPA issued a Federal Register notice indicating that the Agency was considering the use of the Metals Policy to develop metals criteria in the Great Lakes Initiative (59 FR 44678, August 30, 1994) and comments were received on this issue. Today's action has the additional benefit of the comments received from the August 1994 notice on the Great Lakes Initiative.

EPA therefore concludes that public comment on this interim measure is unnecessary because ample comment has already been received on the numeric dissolved metals criteria and additional comment is being solicited and will be considered before a final rule is issued. Further, a public comment process before adopting the new metals criteria is contrary to the public interest because: 1) the current metals criteria place a potentially unnecessary regulatory burden on dischargers in the States covered by this rule, without necessarily providing additional protection to aquatic life in the water column and 2) it is in the public interest for the States to have numeric criteria protective of aquatic life.

Because of the potential adverse effect on public interest noted above, the Agency has determined there is good cause for making this regulation effective immediately.

J. Regulatory Assessment Requirements

1. Unfunded Mandates Reform Act of 1995

Section 201 of the Unfunded Mandates Reform Act of 1995 ("Unfunded Mandates Act"), signed into law on March 22, 1995, requires each Agency, unless prohibited by law, to assess the effects of Federal regulation on State, local and tribal governments and the private sector under section 202 of the Act. EPA must prepare a written statement to accompany any rules where the estimated costs to State, local and tribal governments, in the aggregate, or to the private sector will be $100 million or more in any one year. Under section 205, for rules that require a written statement under section 202, EPA must select the most cost-effective and least burdensome alternative that achieves the objective of such a rule and that is consistent with statutory requirements. Also, for such rules, section 203 requires EPA to establish a plan for informing and advising any small governments that may be significantly and uniquely affected by the rule.

EPA estimates that the costs to State, local, and tribal governments, or to the private sector, from today's interim final rule will not be $100 million or more. EPA has determined that this rule should reduce current regulatory requirements imposed by the NTR. By promulgating the metals criteria in the NTR as dissolved metals, rather than total recoverable, EPA is reducing potential costs to discharge permittees and other parties subject to the water quality criteria. Therefore, an unfunded mandates statement pursuant to section 202 is not necessary.

While an unfunded mandates statement is not necessary for this rule, EPA notes that it has previously considered the costs and benefits of promulgating Federal water quality criteria when the Agency issued the NTR in 1992. See 57 FR 60903–60909 (December 22, 1992). That analysis would continue to be relevant with respect to this issue of costs and benefits arising from Federal promulgation of criteria for states. Of course, to the extent today's interim final rule is putting in place less burdensome

requirements than the 1992 rule, the Agency is reducing any potential costs. It is important to note that the Federal criteria in today's rule, as the Federal criteria in the 1992 rule, only impose requirements until the States adopt, and EPA approves, criteria meeting the requirements of section 303(c)(2)(B) of the Clean Water Act. EPA continues to work with the States to assist them in adopting their own criteria thereby enabling EPA to withdraw the Federal criteria.

While section 205 of the Unfunded Mandates Act is not applicable to today's rule because the rule does not require a written statement under section 202, the Agency does believe that today's rule is consistent with the intent of section 205. Section 205 directs agencies to consider regulatory alternatives and to select the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. EPA's decision to promulgate metals criteria expressed as dissolved rather than total recoverable represents the Agency's selection of the least costly, most cost-effective and least burdensome alternative for setting metals criteria. The Agency addressed this issue in detail in the development of the Great Lakes Water Quality Guidance, promulgated on March 13, 1995 (60 FR 15366, March 23, 1995). For today's rule the Agency was obligated pursuant to section 303 to promulgate water quality criteria for states not in compliance with section 303(c)(2)(B). Today's rule achieves that objective consistent with the intent of section 205.

Finally, because today's rule relieves a regulatory requirement, EPA does not believe that the rule will establish requirements that might significantly or uniquely affect small governments within the meaning of section 203. However, the Agency is committed to working with affected small governments by providing notice of requirements that might potentially affect them, enable them to provide meaningful and timely input, and to inform, educate and advise small governments on compliance with any requirements. With respect to today's interim final rule, representatives of State and local governments participated in the development of, and provided comments to the Office of Water's current metals policy. The Agency recognizes the importance of soliciting the input of small governments and will be available to work with them to address any issues related to compliance with today's rule.

2. Executive Order 12866

Under Executive Order 12866 (56 FR 51735, October 4, 1993), the Agency must determine whether the regulatory action is "significant" and therefore subject to all the requirements of the Executive Order (i.e., Regulatory Impact Analysis and review by the Office of Management and Budget). Under section 3(f), the order defines "significant" as those actions likely to lead to a rule: (1) Having an annual effect on the economy of $100 million or more, or adversely and materially affecting a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities (also known as "economically significant"); (2) creating serious inconsistency or otherwise interfering with an action taken or planned by another agency; (3) materially altering the budgetary impacts of entitlements, grants, user fees, or loan programs; or (4) raising novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this order. Pursuant to the terms of this order, EPA has determined that this interim final rule would not be "significant".

3. Presidential Review of the Code of Federal Regulations

On February 22, 1995, President Clinton announced a review of the Code of Federal Regulations by all Federal agencies. The objective of the review is to: eliminate obsolete regulations, withdraw outdated or superseded regulations, propose modifications to simplify or reduce burden, and to identify legislation for needed change. Today's rule, revising the NTR, is consistent with the review announced by the President. EPA has reviewed the NTR (40 CFR 131.36) and determined that the use of dissolved metals criteria in the NTR States, for the metals listed in this rule, should reduce potential regulatory burden.

4. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601, *et seq.*, Pub. L. 96–354) requires EPA to assess whether its regulations create a disproportionate effect on small entities. EPA discussed in the NTR rulemaking (December 22, 1992, 57 FR 60909), the potential effects of the rulemaking on small entities. The Agency concluded that the rulemaking would not result in a significant impact on small entities and a final regulatory flexibility analysis was not required.

Because the potential impact on small entities as a result of this interim final rule revision will be less burdensome on small entities than the original rule, EPA, based on the same factors discussed in the previous final rulemaking, continues to conclude this action will not result in a significant impact on small entities.

5. Paperwork Reduction Act

This interim final rule places no information collection activities on the affected States and therefore no information collection requirement will be submitted to the Office of Management and Budget for review in compliance with the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*

List of Subjects in 40 CFR Part 131

Environmental Protection, Water pollution control, Water quality standards, Toxic pollutants.

Dated: April 14, 1995.

Carol Browner,

Administrator.

For the reasons set out in the preamble, title 40, chapter I part 131 of the Code of Federal Regulations is amended as follows:

PART 131–WATER QUALITY STANDARDS

1. The authority citation for part 131 continues to read as follows:

Authority: 33 U.S.C. 1251 et seq.

2. Section 131.36 is amended by revising entries 2, 4, 5a,5b,6,7,8,9,10,11, and 13 of the table at paragraph (b)(1), revising footnotes "e" and "l" adding footnotes "o" and "p" to the table in paragraph (b)(1), removing the "Note to paragraph (b)(1)", revising paragraph (b)(2) and by revising the first two sentences of paragraph (c)(4)(iii) to read as follows:

§ 131.36 Toxics criteria for those States not complying with Clean Water Act Section 303(c)(2)(B).

* * * * *

(b)(1) *EPA's Section 304(a) Criteria for Priority Toxic Pollutants.*

A		B		C		D	
		Freshwater		Saltwater		Human health (10^{-6} risk for carcinogens)	
(#) Compound	CAS N.	Criteria Maximum Conc.[d] (ug/L) B1	Criteria Continuous Conc.[d] (ug/L) B2	Criteria Maximum Conc.[d] (ug/L) C1	Criteria Continuous Conc.[d] (ug/L) C2	For consumption of: Water & Organisms (ug/L) D1	For consumption of: Organisms only (ug/L) D2
2 Arsenic	7440382	[m]360	[m]190	[m]69	[m]36	[a,b,c]0.018	[a,b,c]0.14
4 Cadmium	7440439	[e]3.7	[e]1.0	[m]42	[m]9.3	[n]	[n]
5a Chromium (III)	16065831	[e]550	[e]180			[n]	[n]
b Chromium (VI)	18540299	[m]15	[m]10	[m]1100	[m]50	[n]	[n]
6 Copper	7440508	17[e]	11[e]	[m]2.4	[m]2.4		
7 Lead	7439921	[e]65	[e]2.5	[m]210	[m]8.1	[n]	[n]
8 Mercury	7439976	[m]2.1	[i,p]0.012	[m]1.8	[i,p]0.025	0.14	0.15
9 Nickel	7440020	[e]1400	[e]160	[m]74	[m]8.2	[a]610	[a]4600
10 Selenium	7782492	[p]20	[p]5.0	[m]290	[m]71	[n]	[n]
11 Silver	7440224	[e]3.4	[m]1.9				
13 Zinc	7440666	[e]110	[e]100	[m]90	[m]81		

Footnotes:

a. Criteria revised to reflect current agency q_1^* or RfD, as contained in the Integrated Risk Information System (IRIS). The fish tissue bioconcentration factor (BCF) from the 1980 criteria documents was retained in all cases.

b. The criteria refers to the inorganic form only.

c. Criteria in the matrix based on carcinogenicity (10^{-6} risk). For a risk level of 10^{-5}, move the decimal point in the matrix value one place to the right.

d. Criteria Maximum Concentration (CMC) = the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time (1-hour average) without deleterious effects. Criteria Continuous Concentration (CCC) = the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects. ug/L = micrograms per liter

e. Freshwater aquatic life criteria for these metals are expressed as a function of total hardness (mg/L as $CaCO_3$), the pollutant's water effect ratio (WER) as defined in § 131.36(c) and multiplied by an appropriate dissolved conversion factor as defined in § 131.36(b)(2). For comparative purposes, the values displayed in this matrix are shown as dissolved metal and correspond to a total hardness of 100 mg/L and a water effect ratio of 1.0.

i. If the CCC for total mercury exceeds 0.012 ug/l more than once in a 3-year period in the ambient water, the edible portion of aquatic species of concern must be analyzed to determine whether the concentration of methyl mercury exceeds the FDA action level (1.0 mg/kg). If the FDA action level is exceeded, the State must notify the appropriate EPA Regional Administrator, initiate a revision of its mercury criterion in its water quality standards so as to protect designated uses, and take other appropriate action such as issuance of a fish consumption advisory for the affected area.

l. [Reserved: this letter not used as a footnote].

m. Criteria for these metals are expressed as a function of the water effect ratio, WER, as defined in 40 CFR 131.36 (c).

CMC=column B1 or C1 value x WER

CCC=column B2 or C2 value x WER

n. EPA is not promulgating human health criteria for this contaminant. However, permit authorities should address this contaminant in NPDES permit actions using the State's existing narrative criteria for toxics.

o. [Reserved: This letter not used as a footnote].

p. Criterion expressed as total recoverable.

(2) Factors for Calculating Hardness-Dependent, Freshwater Metals Criteria

CMC=WER exp $\{m_A[\ln(\text{hardness})]+b_A\}$ x Acute Conversion Factor

CCC=WER exp $\{m_C[\ln(\text{hardness})]+b_C\}$ x Chronic Conversion Factor

Final CMC and CCC values should be rounded to two significant figures.

Metal	m_A	b_A	m_C	b_C	Freshwater conversion factors	
					Acute	Chronic
Cadmium	1.128	−3.828	0.7852	−3.490	[a]0.944	[a]0.909
Chromium (III)	0.8190	3.688	0.8190	1.561	0.316	0.860
Copper	0.9422	−1.464	0.8545	−1.465	0.960	0.960
Lead	1.273	-1.460	1.273	−4.705	[a]0.791	[a]0.791
Nickel	0.8460	3.3612	0.8460	1.1645	0.998	0.997
Silver	1.72	−6.52	[b]N/A	[b]N/A	0.85	[b]N/A
Zinc	0.8473	0.8604	0.8473	0.7614	0.978	0.986

Note to table: The term "exp" represents the base e exponential function.

Footnotes to table:

[a] The freshwater conversion factors (CF) for cadmium and lead are hardness-dependent and can be calculated for any hardness [see limitations in § 131.36(c)(4)] using the following equations:

Cadmium

Acute: CF=1.136672—[(ln hardness)(0.041838)]

Chronic: CF=1.101672—[(ln hardness)(0.041838)]

Lead (Acute and Chronic): CF = 1.46203—[(ln hardness)(0.145712)]

[b] No chronic criteria are available for silver.

(c) * * *

(4) * * *

(iii) Except where otherwise noted, the criteria for metals (compounds #2, #4–# 11, and #13, in paragraph (b) of this section) are expressed as dissolved metal. For purposes of calculating aquatic life criteria for metals from the equations in footnote m. in the criteria matrix in paragraph (b)(1) of this section and the equations in paragraphs (b)(2) of this section, the water-effect ratio is computed as a specific pollutant's acute or chronic toxicity values measured in water from the site covered by the standard, divided by the respective acute or chronic toxicity value in laboratory dilution water. * * *

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[FR Doc. 95–10148 Filed 5–3–95; 8:45 am]

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Appendix H-2

San Francisco Bay Regional Water Quality Control Board Narrative Objectives for Surface Water and Groundwater and Numerical Objectives for Fresh Surface Water, Fresh Groundwater, and Saltwater (1995 SFBRWQCB Basin Plan)

SAN FRANCISCO BAY BASIN (REGION 2)

JUNE 21, 1995

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

2101 Webster Street, Suite 500
Oakland, CA 94612
(510) 286-1255

Approved by

California State Water Resources Control Board on July 20, 1995.
California State Office of Administrative Law on November 13, 1995.

WATER QUALITY CONTROL PLAN

3 WATER QUALITY OBJECTIVES

INTRODUCTION

The overall goals of water quality regulation are to protect and maintain thriving aquatic ecosystems and the resources those systems provide to society and to accomplish these in an economically and socially sound manner. California's regulatory framework uses water quality objectives both to define appropriate levels of environmental quality and to control activities that can adversely affect aquatic systems.

WATER QUALITY OBJECTIVES

There are two types of objectives: narrative and numerical. Narrative objectives present general descriptions of water quality that must be attained through pollutant control measures and watershed management. They also serve as the basis for the development of detailed numerical objectives.

Historically, numerical objectives were developed primarily to limit the adverse effect of pollutants in the water column. Two decades of regulatory experience and extensive research in environmental science have demonstrated that beneficial uses are not fully protected unless pollutant levels in all parts of the aquatic system are also monitored and controlled. The Regional Board is actively working towards an integrated set of objectives, including numerical sediment objectives, that will ensure the protection of all current and potential beneficial uses.

Numerical objectives typically describe pollutant concentrations, physical/chemical conditions of the water itself, and the toxicity of the water to aquatic organisms. These objectives are designed to represent the maximum amount of pollutants that can remain in the water column without causing any adverse effect on organisms using the aquatic system as habitat, on people consuming those organisms or water, and on other current or potential beneficial uses (as described in Chapter 2).

The technical bases of the region's water quality objectives include extensive biological, chemical, and physical partitioning information reported in the scientific literature, national water quality criteria, studies conducted by other agencies, and information gained from local environmental and discharge monitoring (as described in Chapter 6). The Regional Board recognizes that limited information exists in some cases, making it difficult to establish definitive numerical objectives, but the Regional Board believes its conservative approach to setting objectives has been proper. In addition to the technical review, the overall feasibility of reaching objectives in terms of technological, institutional, economic, and administrative factors is considered at many different stages of objective derivation and implementation of the water quality control plan.

Together, the narrative and numerical objectives define the level of water quality that shall be maintained within the region. In instances where water quality is better than that prescribed by the objectives, the state Antidegradation Policy applies (State Board Resolution 68-16: Statement of Policy With Respect to Maintaining High Quality of Waters in California). This policy is aimed at protecting relatively uncontaminated aquatic systems where they exist and preventing further degradation.

When uncontrollable water quality factors result in the degradation of water quality beyond the levels or limits established herein as water quality objectives, the Regional Board will conduct a case-by-case analysis of the benefits and costs of preventing further degradation. In cases where this analysis indicates that beneficial uses will be adversely impacted by allowing further degradation, then the Regional Board will not allow controllable water quality factors to cause any further degradation of water quality. Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the state and that may be reasonably controlled.

QUICK INDEX PAGE

The Regional Board establishes and enforces waste discharge requirements for point and nonpoint source of pollutants at levels necessary to meet numerical and narrative water quality objectives. In setting waste discharge requirements, the Regional Board will consider, among other things, the potential impact on beneficial uses within the area of influence of the discharge, the existing quality of receiving waters, and the appropriate water quality objectives.

In general, the objectives are intended to govern the concentration of pollutant constituents in the main water mass. The same objectives cannot be applied at or immediately adjacent to submerged effluent discharge structures. Zones of initial dilution within which higher concentrations can be tolerated will be allowed for such discharges.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from submerged outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and nonbuoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum-induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.

Compliance with water quality objectives may be prohibitively expensive or technically impossible in some cases. The Regional Board will consider modification of specific water quality objectives as long as the discharger can demonstrate that the alternate objective will protect existing beneficial uses, is scientifically defensible, and is consistent with the state Antidegradation Policy. This exception clause properly indicates that the Regional Board will conservatively compare benefits and costs in these cases because of the difficulty in quantifying beneficial uses.

These water quality objectives are considered necessary to protect the present and potential beneficial uses described in Chapter 2 of this Plan and to protect existing high quality waters of the state. These objectives will be achieved primarily through establishing and enforcing waste discharge requirements and by implementing this water quality control plan.

OBJECTIVES FOR OCEAN WATERS

The provisions of the State Board's "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan) and "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" (Thermal Plan) and any revision to them will apply to ocean waters. These plans describe objectives and effluent limitations for ocean waters.

OBJECTIVES FOR SURFACE WATERS

The following objectives apply to all surface waters within the region, except the Pacific Ocean.

BACTERIA

Table 3-1 provides a summary of the bacterial water quality objectives and identifies the sources of those objectives. Table 3–2 summarizes U.S. EPA's water quality criteria for water contact recreation based on the frequency of use a particular area receives. These criteria will be used to differentiate between pollution sources or to supplement objectives for water contact recreation.

BIOACCUMULATION

Many pollutants can accumulate on particles, in sediment, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.

BIOSTIMULATORY SUBSTANCES

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. Changes in chlorophyll a and associated phytoplankton communities follow complex dynamics that are sometimes associated with a discharge of biostimulatory substances. Irregular and extreme levels of chlorophyll a

or phytoplankton blooms may indicate exceedance of this objective and require investigation.

COLOR

Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

DISSOLVED OXYGEN

For all tidal waters, the following objectives shall apply:

In the Bay:

Downstream of
Carquinez Bridge.....5.0 mg/l minimum

Upstream of
Carquinez Bridge.....7.0 mg/l minimum

For nontidal waters, the following objectives shall apply:

Waters designated as:

Cold water habitat.....7.0 mg/l minimum

Warm water habitat.....5.0 mg/l minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.

Dissolved oxygen is a general index of the state of the health of receiving waters. Although minimum concentrations of 5 mg/l and 7 mg/l are frequently used as objectives to protect fish life, higher concentrations are generally desirable to protect sensitive aquatic forms. In areas unaffected by waste discharges, a level of about 85 percent of oxygen saturation exists. A three-month median objective of 80 percent of oxygen saturation allows for some degradation from this level, but still requires a consistently high oxygen content in the receiving water.

FLOATING MATERIAL

Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

OIL AND GREASE

Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

POPULATION AND COMMUNITY ECOLOGY

All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.

pH

The pH shall not be depressed below 6.5 nor raised above 8.5. This encompasses the pH range usually found in waters within the basin. Controllable water quality factors shall not cause changes greater than 0.5 units in normal ambient pH levels.

SALINITY

Controllable water quality factors shall not increase the total dissolved solids or salinity of waters of the state so as to adversely affect beneficial uses, particularly fish migration and estuarine habitat.

SEDIMENT

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Controllable water quality factors shall not cause a detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life.

SETTLEABLE MATERIAL

Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses.

SUSPENDED MATERIAL

Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

SULFIDE

All water shall be free from dissolved sulfide concentrations above natural background levels. Sulfide occurs in Bay muds as a result of bacterial action on organic matter in an anaerobic environment.

Concentrations of only a few hundredths of a milligram per liter can cause a noticeable odor or be toxic to aquatic life. Violation of the sulfide objective will reflect violation of dissolved oxygen objectives as sulfides cannot exist to a significant degree in an oxygenated environment.

TASTES AND ODORS

Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.

TEMPERATURE

Temperature objectives for enclosed bays and estuaries are as specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California," including any revisions to the plan.

In addition, the following temperature objectives apply to surface waters:

- The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.
- The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8°C) above natural receiving water temperature.

TOXICITY

All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species. There shall be no acute toxicity in ambient waters. Acute toxicity is defined as a median of less than 90 percent survival, or less than 70 percent survival, 10 percent of the time, of test organisms in a 96-hour static or continuous flow test.

There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community. Chronic toxicity generally results from exposures to pollutants exceeding 96 hours. However, chronic toxicity may also be detected through short-term exposure of critical life stages of organisms.

As a minimum, compliance will be evaluated using the bioassay requirements contained in Chapter 4.

The health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.

TURBIDITY

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 NTU.

UN-IONIZED AMMONIA

The discharge of wastes shall not cause receiving waters to contain concentrations of un-ionized ammonia in excess of the following limits (in mg/l as N):

Annual Median	0.025
Maximum, Central Bay (as depicted in Figure 2-5) and upstream	0.16
Maximum, Lower Bay (as depicted in Figures 2-6 and 2-7)	0.4

The intent of this objective is to protect against the chronic toxic effects of ammonia in the receiving waters. An ammonia objective is needed for the following reasons:

- Ammonia (specifically un-ionized ammonia) is a demonstrated toxicant. Ammonia is generally accepted as one of the principle toxicants in municipal waste discharges. Some industries also discharge significant quantities of ammonia.
- Exceptions to the effluent toxicity limitations in Chapter 4 of the Plan allow for the discharge of ammonia in toxic amounts. In most instances, ammonia will be diluted or degraded to a nontoxic state fairly rapidly. However, this does not occur in all cases, the South Bay being a notable example. The ammonia limit is recommended in order to preclude any build up of ammonia in the receiving water.

- A more stringent maximum objective is desirable for the northern reach of the Bay for the protection of the migratory corridor running through Central Bay, San Pablo Bay, and upstream reaches.

OBJECTIVES FOR SPECIFIC CHEMICAL CONSTITUENTS

Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use. Water quality objectives for selected toxic pollutants developed in 1986 for surface waters are given in Tables 3-3 and 3-4.

The Regional Board intends to work towards the derivation of site-specific objectives for the Bay-Delta estuarine system. Site-specific objectives to be considered by the Regional Board shall be developed in accordance with the provisions of the federal Clean Water Act, the State Water Code, State Board water quality control plans, and this Plan. These site-specific objectives will take into consideration factors such as all available scientific information and monitoring data and the latest U.S. EPA guidance, and local environmental conditions and impacts caused by bioaccumulation. Copper, mercury, PCBs, and selenium will be the highest priorities in this effort. Pending the adoption of site-specific objectives, the objectives in Tables 3-3 and 3-4 apply throughout the region.

Based on the concerns raised in the Regional Monitoring Program, pilot fish contamination study, cooperative striped bass study, and other studies, water quality objectives for aromatic hydrocarbons are also needed.

The South Bay below the Dumbarton Bridge is a unique, water-quality-limited, hydrodynamic and biological environment that merits continued special attention by the Regional Board. Site-specific water quality objectives are absolutely necessary in this area for two reasons. First, its unique hydrodynamic environment dramatically affects the environmental fate of pollutants. Second, potentially costly nonpoint source pollution control measures must be implemented to attain any objectives for this area. The costs of those measures must be factored into economic impact considerations by the Regional Board in adopting any objectives for this area. Nowhere else in the region will nonpoint source economic considerations have such an impact on the attainability of objectives. Therefore, for this area, the objectives contained in Tables 3-3 and 3-4 will be considered guidance only, and should be used as part of the basis for site-specific objectives. Programs described in Chapter 4 will be used to develop site-specific objectives. Ambient conditions shall be maintained until site-specific objectives are developed.

CONSTITUENTS OF CONCERN FOR MUNICIPAL AND AGRICULTURAL WATER SUPPLIES

At a minimum, surface waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of constituents in excess of the maximum (MCLs) or secondary maximum contaminant levels (SMCLs) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (SMCLs-Consumer Acceptance Limits) and 64449-B (SMCLs-Ranges) of Section 64449. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. Table 3-5 contains water quality objectives for municipal supply, including the MCLs contained in various sections of Title 22 as of the adoption of this plan.

At a minimum, surface waters designated for use as agricultural supply (AGR) shall not contain concentrations of constituents in excess of the levels specified in Table 3-6.

RADIOACTIVITY

Radionuclides shall not be present in concentrations that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life. Waters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 of Section 64443 (Radioactivity) of Title 22 of the California Code of Regulations, which is incorporated by reference into this Plan. This incorporation is prospective, including future changes to the incorporated provisions as the changes take effect (see Table 3-5).

OBJECTIVES FOR GROUNDWATERS

Groundwater objectives consist primarily of narrative objectives combined with a limited number of numerical objectives. Additionally, the Regional Board will establish basin-

and/or site-specific numerical groundwater objectives as necessary. For example, the Regional Board has groundwater basin-specific objectives for the Alameda Creek watershed above Niles to include the Livermore-Amador Valley as shown in Table 3-7.

The maintenance of existing high quality of groundwater (i.e., "background") is the primary groundwater objective.

In addition, at a minimum, groundwaters shall not contain concentrations of bacteria, chemical constituents, radioactivity, or substances producing taste and odor in excess of the objectives described below unless naturally occurring background concentrations are greater.

BACTERIA

In groundwaters with a beneficial use of municipal and domestic supply, the median of the most probable number of coliform organisms over any seven-day period shall be less than 1.1 MPN/100 mL (based on multiple tube fermentation technique; equivalent test results based on other analytical techniques as specified in the National Primary Drinking Water Regulation, 40 CFR, Part 141.21 (f), revised June 10, 1992, are acceptable).

ORGANIC AND INORGANIC CHEMICAL CONSTITUENTS

All groundwaters shall be maintained free of organic and inorganic chemical constituents in concentrations that adversely affect beneficial uses. To evaluate compliance with water quality objectives, the Regional Board will consider all relevant and scientifically valid evidence, including relevant and scientifically valid numerical criteria and guidelines developed and/or published by other agencies and organizations (e.g.,U.S. EPA, the State Water Resources Control Board, California Department of Health Services, U.S. Food and Drug Administration, National Academy of Sciences, Cal/EPA Office of Environmental Health Hazard Assessment, U.S. Agency for Toxic Substances and Disease Registry, Cal/EPA Department of Toxic Substances Control, and other appropriate organizations.)

At a minimum, groundwaters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of constituents in excess of the maximum (MCLs) or secondary maximum contaminant levels (SMCLs) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, and Table 64444-A (Organic Chemicals) of Section 64444. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. (See Table 3-5.)

Groundwaters with a beneficial use of agricultural supply shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. In determining compliance with this objective, the Regional Board will consider as evidence relevant and scientifically valid water quality goals from sources such as the Food and Agricultural Organizations of the United Nations; University of California Cooperative Extension, Committee of Experts; and McKee and Wolf's "Water Quality Criteria," as well as other relevant and scientifically valid evidence. At a minimum, groundwaters designated for use as agricultural supply (AGR) shall not contain concentrations of constituents in excess of the levels specified in Table 3-6.

Groundwaters with a beneficial use of freshwater replenishment shall not contain concentrations of chemicals in amounts that will adversely affect the beneficial use of the receiving surface water.

Groundwaters with a beneficial use of industrial service supply or industrial process supply shall not contain pollutant levels that impair current or potential industrial uses.

To assist dischargers and other interested parties, the Central Valley Regional Board's staff has compiled many numerical water quality criteria from other appropriate agencies and organizations in its staff report, "A Compilation of Water Quality Goals." This staff report is updated regularly to reflect changes in these numerical criteria.

RADIOACTIVITY

At a minimum, groundwaters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations, which is incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. (See Table 3-5.)