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State Water Resources Control Board

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Arnold Schwarzenegger
Governor

NOTICE OF PUBLIC CALIFORNIA ENVIRONMENTAL QUALITY ACT SCOPING MEETING

PROPOSED AMENDMENT TO THE POLICY FOR IMPLEMENTATION OF TOXICS STANDARDS FOR INLAND SURFACE WATERS, ENCLOSED BAYS, AND ESTUARIES OF CALIFORNIA TO ESTABLISH WATER QUALITY OBJECTIVES FOR CADMIUM AND RELATED IMPLEMENTATION METHODS

NOTICE IS HEREBY GIVEN THAT the State Water Resources Control Board (State Water Board) staff will hold a California Environmental Quality Act (CEQA) scoping meeting to seek input on the scope and content of the environmental information that should be considered in a proposed amendment to the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California to establish water quality objectives for cadmium and related implementation methods. The location and time of the meeting are provided below.

Monday, October 6, 2008 – 10:00 a.m.
Cal/EPA Headquarters Building
Coastal Hearing Room – Second Floor
1001 I Street
Sacramento, CA 95814

BACKGROUND

The purpose of the scoping meeting is to provide a forum for early public consultation on the development of the proposed amendment. This consultation will assist the State Water Board in determining the scope and content of the environmental information that the Responsible and Trustee Agencies, as well as other interested parties, may require.

Scoping is helpful to the State Water Board in identifying the range of actions, alternatives, mitigation measures, and significant environmental effects to be analyzed prior to the decision making process. Scoping has been found to be an effective way to bring together and resolve the concerns of affected federal, State, and local agencies, the proponent of the actions, and other interested persons including those who might not be in accord with the actions on environmental grounds.

A quorum of State Water Board members may be present at the scoping meeting. No action will be taken by the State Water Board at the scoping meeting.

DOCUMENT AVAILABILITY

An individual informational scoping document on the proposed amendment may be obtained via the Internet on the State Water Board Web site at:

http://www.waterboards.ca.gov/publications_forms/available_documents/index.shtml

You may also receive a paper copy of the proposed amendment scoping document by writing Steve Camacho, Division of Water Quality, State Water Resources Control Board, 1001 I Street, Sacramento, CA 95814, or by contacting Mr. Camacho at (916) 341-5561, scamacho@waterboards.ca.gov. To subscribe to an email list for future notifications about the proposed amendment, go to the State Water Board's Web site at:

http://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml, and choose "Water Quality Objectives for Cadmium and Related Implementation Methods".

SUBMISSION OF CEQA SCOPING COMMENTS

The State Water Board will accept both written and oral suggestions on the scope and content of the information included in the scoping documents. Comments should be limited to identifying the range of actions, alternatives, mitigation measures, and potential significant environmental effects to be analyzed in-depth in the development of this CEQA project. Written comments must be received by **12 p.m. on October 23, 2008** and addressed to:

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Comment letters may be submitted to the Clerk to the Board by email at commentletters@waterboards.ca.gov (if less than 15 megabytes in total size) or by fax at (916) 341-5620. Please indicate in the subject line: "**Comment Letter – Water Quality Objectives for Cadmium and Related Implementation Methods.**" Electronic submission via email is preferred.

Couriers delivering comment letters must check in with lobby security personnel, who can contact Jeanine Townsend at (916) 341-5602.

An audio broadcast of the meeting will be available via the Internet and can be accessed at: <http://www.calepa.ca.gov/broadcast/>.

PROCEDURAL MATTERS

The meeting will be informal. There will be no sworn testimony or cross-examination of participants, but the State Water Board and its staff may ask clarifying questions. Participants are encouraged to submit written comments prior to the meeting. At the meeting, participants will be given an opportunity to summarize and supplement their written materials with oral presentations. To ensure a productive and efficient meeting in which all participants have an opportunity to participate, oral presentations may be time-limited. For other presentation recommendations, go to the State Water Board's Website at:

http://www.waterboards.ca.gov/board_info/meetings/board_presentations.shtml.

Questions concerning the meeting may also be directed to Steve Camacho, Division of Water Quality, at (916) 341-5561.

PARKING AND ACCESSIBILITY

For directions and parking information, please refer to:

<http://www.calepa.ca.gov/EPAblDg/location.htm>

The facilities are accessible to persons with disabilities. Individuals requiring special accommodations are requested to contact Catherine Foreman, Equal Employment Opportunity Officer, at (916) 341-5881 at least five working days prior to the meeting. TTY users may contact the California Relay Service at 1-800-735-2929 or voice line at 1-800-735-2922.

All visitors are required to sign in and receive a badge prior to attending any meeting in the building. The Visitor and Environmental Services Center is located just inside and to the left of the Cal/EPA Building's public entrance. Valid picture identification may be required due to the security level. Please allow up to 15 minutes for receiving clearance, and then proceed to the Coastal Hearing Room.

ADDITIONAL INFORMATION

Please direct questions about this notice to Steve Camacho at (916) 341-5561 (scamacho@waterboards.ca.gov) or Rik Rasmussen at (916) 341-5549 (rrasmussen@waterboards.ca.gov).

June 16, 2008

Date


Jeanine Townsend
Clerk to the Board

SCOPING DOCUMENT

Proposed Amendment to the
Policy for Implementation of Toxics Standards for Inland Surface Waters,
Enclosed Bays, and Estuaries of California to Establish Water Quality Objectives
for Cadmium and Related Implementation Methods

2008

Division of Water Quality
State Water Resources Control Board
California Environmental Protection Agency

Introduction

State Water Resources Control Board (State Water Board) staff are proposing an amendment to the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California to establish water quality objectives for cadmium and related implementation methods (Proposed Amendment). Based on the U.S. Environmental Protection Agency's (USEPA's) revised cadmium criteria guidance (USEPA, 2001), elements of the Proposed Amendment may include revised saltwater objectives and hardness-based equations solely for freshwater objectives. This Proposed Amendment may also include implementation procedures related to the National Pollutant Discharge Elimination System (NPDES) permitting process. This document provides a summary of issues that could be addressed and elements that may be included.

Background

The Clean Water Act (CWA) gives states the primary authority, with oversight by USEPA, to establish designated uses (or "beneficial uses" under State law) for water bodies and for developing water quality criteria (or "objectives" under State law) to protect those designated uses. Under section 303(c)(2)(B) of the CWA, whenever a state adopts new water quality standards or reviews or revises existing water quality standards, it must adopt numeric water quality criteria for priority toxic pollutants [as defined by section 307(a) of the CWA and for which USEPA has issued a criteria guidance document according to section 304(a) of the CWA] if the absence of such criteria could reasonably be expected to interfere with a designated use of a water body.

Under section 304(a) of the CWA, USEPA must periodically revise criteria for water quality to accurately reflect the latest scientific knowledge on the kind and extent of all identifiable effects of pollutants on aquatic life. After review of the aquatic life cadmium criteria, USEPA published revised criteria guidance in 2001 (USEPA, 2001). The revised criteria guidance contains average concentrations of cadmium that can be present in a water body without resulting in unacceptable effects on aquatic organisms and their uses.

CWA section 303(c)(2)(B) requires the states to adopt numeric water quality criteria for toxic priority pollutants. CWA section 303(c)(2)(4) authorizes the USEPA Administrator to promulgate standards where necessary to meet the requirements of the CWA. In December 1992, USEPA promulgated the National Toxics Rule (NTR) for certain states, including California. In 2000, USEPA promulgated the California Toxics Rule (CTR) to fully implement section 303(c)(2)(B) in California. The CTR established acute and chronic dissolved freshwater criteria for cadmium as 4.3 micrograms per liter ($\mu\text{g/L}$) and 2.2 $\mu\text{g/L}$, respectively. The CTR also established acute and chronic dissolved saltwater criteria for cadmium of 42 $\mu\text{g/L}$ and 9.3 $\mu\text{g/L}$, respectively. USEPA promulgated the current freshwater and saltwater cadmium criteria with the agreement to reserve revised criteria guidance once it has been established. The U.S. Fish and Wildlife Service (FWS) found that the current freshwater and saltwater cadmium criteria are not

protective of threatened and endangered species. As part of its Endangered Species Act consultation with FWS on the CTR, USEPA made a commitment to review the effects of cadmium criteria on threatened and endangered species and to promulgate revised criteria by March 2008. However, USEPA has not yet proposed to revise the cadmium criteria in the CTR. Therefore, State Water Board staff are proposing adoption of USEPA's 2001 recommended cadmium criteria.

Potential Objectives Subject to Scoping Consideration

Present Statewide Policy

The CTR established cadmium criteria for California as dissolved metal concentrations. Freshwater aquatic life criteria for metals are expressed as a function of total hardness (milligrams/liter [mg/L]) in the water body. The current acute and chronic freshwater aquatic life criteria for cadmium are 4.3 µg/L and 2.2 µg/L, respectively, based on a default hardness of 100 mg/L. Other hardness can be used between 0-400 mg/L. For example, at hardnesses of 50 mg/L and 200 mg/L as calcium carbonate (CaCO₃), the acute freshwater criteria of cadmium are 2.0 µg/L and 9.0 µg/L, respectively, and the chronic freshwater criterion of cadmium are 1.3 µg/L and 3.7 µg/L. The acute freshwater criterion is calculated using the following equation:

$$\text{CMC} = \text{WER} \times \text{ACF} \times e^{m_A [\ln(H)] + b_A} \quad \text{Equation 1}$$

where,

- CMC = criterion maximum concentration (in µg/L)
- WER = water effects ratio (equals 1 for cadmium)
- ACF = acute conversion factor (unitless)
- m_A = acute slope of 1.128 (unitless)
- b_A = acute intercept of -3.6867 (unitless)
- H = hardness (in mg/L)

The chronic freshwater criterion is calculated using the following equation:

$$\text{CCC} = \text{WER} \times \text{CCF} \times e^{m_C [\ln(H)] + b_C} \quad \text{Equation 2}$$

where,

- CCC = criterion continuous concentration (in µg/L)
- WER = water effects ratio (equals 1 for cadmium)
- CCF = chronic conversion factor (unitless)
- m_C = chronic slope of 0.7852 (unitless)
- b_C = chronic intercept -2.715 (unitless)
- H = hardness (in mg/L)

The following acute and chronic conversion factors, also based on hardness, are used to convert the total recoverable criteria to the dissolved fraction:

$$\text{ACF} = 1.136672 - [\ln(H) \times 0.041838] \quad \text{Equation 3}$$

$$\text{CCF} = 1.101672 - [\ln(H) \times 0.041838] \quad \text{Equation 4}$$

The acute and chronic dissolved saltwater criteria are 42 µg/L and 9.3 µg/L, respectively. The saltwater criteria are salinity-dependent; therefore, they are not derived using the same hardness-dependent equations used to derive freshwater criteria.

USEPA Recommended Criteria Guidance Update

In 2001, USEPA updated its recommended aquatic life cadmium criteria based on more recent science (literature search conducted in June 1999, plus some newer information). The 2001 document included toxicity results for certain threatened and endangered species that were not available earlier. This 2001 document contains a database of 55 freshwater genera for acute toxicity (43 genera were in the 1995 document), and 15 genera for freshwater chronic toxicity (12 genera were provided in the 1995 document). As a result of the additional data, the acute and chronic hardness derived slopes and y-intercepts are different in the 2001 document relative to previous versions. Therefore, equations 1 and 2 above can be used to calculate the 2001 recommended dissolved freshwater criteria, where $m_A = 1.0166$, $b_A = -3.924$, $m_C = 0.7409$, and $b_C = -4.719$.

Between the 1999 national recommended water quality criteria and 2001 documents, saltwater cadmium criteria remained relatively the same. The 2001 document recommended a new saltwater CMC of 40 µg/L dissolved cadmium that is only slightly lower than the previous national recommended water quality criteria of 42 µg/L cadmium. The 2001 document chronic CCC dropped slightly to 8.8 µg/L cadmium from the previously recommended value of 9.3 µg/L. The recommended 2001 saltwater criteria are slightly lower in part due to additional data of species/toxicity test results. The 2001 document acute saltwater database has 54 genera (the 1984 document had 33 genera), and both the 2001 and 1984 documents have the same two saltwater chronic genera (the 2001 document added a third *A. bahia* chronic value).

Alternatives for State Water Board Action

1. No action

If the State Water Board does not take action, existing CTR criteria for cadmium would remain in place. The Regional Water Quality Control Boards may choose to adopt USEPA's 2001 revised recommended water quality criteria for cadmium in their individual water quality control plans (Basin Plans). USEPA also has the option of

updating the CTR to promulgate its 2001 revised criteria guidance for inland surface waters, enclosed bays, and estuaries of California.

2. Adoption of revised freshwater criteria based on specified hardness value and adoption of saltwater criteria

As with the current CTR, the State Water Board could adopt acute and chronic objectives based on a default hardness value rather than adopting the freshwater equations and allowing permit writers to calculate criteria specific to each water body based on available hardness data.

For freshwater, using the default hardness value would eliminate the need for receiving water data and would allow permit writers to determine the applicable criteria for those waters for which receiving water data may not be available. However, this approach could also result in objectives that are under or overprotective. The State could continue to allow correction based on hardness.

For saltwater, the State Water Board could adopt the revised USEPA recommended guidance for acute and chronic saltwater cadmium objectives of 40 µg/L and 8.8 µg/L, respectively.

3. Adoption of freshwater criteria equations without a specified hardness value and adoption of revised saltwater criteria

The State Water Board could adopt only the hardness-based equations for the freshwater criteria without a specified hardness value. This alternative would require hardness data to calculate the applicable criteria. Options for determining representative hardness would include the collection of data from upstream receiving water, effluent, downstream, or mixed, receiving water. It should be noted that calculated criteria could be substantially different depending on whether upstream, effluent, or mixed hardness values are used, and that singular selection of one hardness source value, i.e., upstream, effluent, or mixed, for all cases may result in the application of unprotective criteria. Thus, this approach would also require that a method be developed for implementation of the hardness-based criteria under the variable effluent and receiving water hardness configurations seen throughout the State. This approach would require more effort; it would also result in the appropriate level of protection for aquatic life in a given water body.

Additionally, if a method for implementation of the hardness-based equations for cadmium were adopted, implementation provisions for the other metals with hardness-based water quality criteria equations (copper, chromium (III), lead, nickel, silver, and zinc) should be adopted concurrently.

The State Water Board could adopt the revised USEPA recommended guidance for acute and chronic saltwater cadmium objectives of 40 µg/L and 8.8 µg/L, respectively.

Staff Recommended Alternative

The State Water Board staff are proposing alternative 3.

References

State Water Resources Control Board (SWRCB) 2000. Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Phase I of the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan).

USEPA. 2001. 2001 Update of Ambient Water Quality Criteria for Cadmium. EPA-822-R-01-001.