CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: Honorable Mayor & City Council Members

FROM: Lee Price, MMC City Clerk

SUBJECT: The Public Record January 5-11, 2007

DATE: January 11, 2007

ITEMS TRANSMITTED TO THE ADMINISTRATION

ITEMS FILED FOR THE PUBLIC RECORD

(a) Letter from David S. Wall to Mayor Reed and San Jose City Council dated January 5, 2007 regarding Revenue Source for "Arts" programs via profits from a Recording Studio.

(b) Email from State Water Resources Control Board to City Clerk Lee Price received January 5, 2007 regarding a Notice of Two Public California Environmental Quality Act Scoping Meetings.

Lee Price, MMC
City Clerk

LP/np

Distribution:
Mayor/Council
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Assistant City Manager
Assistant to City Manager
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Public Record a

David S. Wall
455 North San Pedro Street
San José, California 95110
Phone (408) - 287 - 6838
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RECEIVED
San Jose City Clerk

2007 JAN -5 P 2:43

January 5, 2007

Mayor Reed and Members San José City Council
200 East Santa Clara Street
San José, California 95113-1905

Re: Revenue Source for "Arts" programs via profits from a Recording Studio.

It is a matter of public record, that YOU folks (newbie's to the Council excluded as of the date of this writing), will do just about anything to fund failed "Arts" programs. The San José Repertory Theatre and the American Musical Theatre-(Councilmember Reed abstained due to a conflict of interest) are the chief recipients to date to receive unsecured loans (gifts of taxpayer monies) to allow their drudgeries to be heaped upon whomever decides to buy a ticket to their inane programs.

Arguably, despite acknowledged incompetent management practices, another reason these business entities are a financial wreck, is that the public at large do not support them. This begs the question, "if the public does not support them why do you?"

Now, if YOU really want to put San José on the Artistic Map" of the United States, consider investing into a "state of the art" Recording Studio. I believe Redevelopment Funds could be used for the initial seed capital, but I am not sure. The ARTS STABILIZIATION FUND could certainly be used for this purpose. Make inquiries to our Honorable City Attorney for direction.

The formulation is simplistic to me. There is an enormous amount of musical talent in the Bay area, specifically in San José. Get a copy of the ***Metro*** [OCTOBER 18-24, 2006 VOL 22 NO 33]. The issue; "CAN'T STOP THE ROCK- Meet the bands that are keeping San José's live scene on the cutting edge P28". Also, get a copy of the "***EYE***" Entertainment Guide- San José Mercury News Nov 16-22 2006.

From these two publications alone, if YOU can't fathom the resources that could be harnessed to create revenue streams to support your "Arts" programs that nobody else thinks are worth saving, stop reading this letter and resign.

Otherwise, continue to include in your thoughts; the Silicon Valley Symphony, performances at the H.P. Pavilion, University, Junior Colleges, High schools and other musical events that could be recorded onto popularly used music playback media (C.D.'s, MP3, etc.) for sale to the public-money generated to pay for operating expenses the rest for the "Arts" programs depending upon their success stories (as opposed to failures).

YOU might even get some donations from the Entertainment industry to promote this form of government behavior.

I believe this idea is sound and worth the investment. Even if this idea fails, at least San José will have a Recording Studio which is a better return on taxpayer monies on the "ARTS" than what is currently being thrown away.

Respectfully submitted,

David S. Wall 01.05.2007

Cc: City Attorney / City Auditor / Interim City Manager

Public Record b.

Pimentel, Nora

From: Price, Lee
Sent: Friday, January 05, 2007 6:04 PM
To: Pimentel, Nora
Subject: FW: Mercury-Objectives & Offset Policy: Scoping Meetings


Scoping Mtg Notice.pdf (46 KB)...


Hg Bay-Delta Offset Scoping.pd...


MeHgScopingDoc.pdf (106 KB)


ATT560213.txt (208 B)


ATT560214.txt (351 B)

Public record

-----Original Message-----
From: lyris@swrcb18.waterboards.ca.gov [mailto:lyris@swrcb18.waterboards.ca.gov]
Sent: Friday, January 05, 2007 2:11 PM
To: Lee Price
Subject: Mercury-Objectives & Offset Policy: Scoping Meetings

Dear Interested Parties:

Attached to this e-mail is a Notice of Two Public Scoping Meetings, and two informational documents. The purpose of the scoping meetings is to seek input on the scope and content of the environmental information that should be considered in the development of these projects.

This Notice is being sent to you because you have expressed an interest in the above or related subjects, either at the State Water Resources Control Board or your Regional Water Quality Control Board. The State Water Board has now created a Lyris List specifically for information and notices on the development of proposed policies and objectives related to mercury and methylmercury.

If you wish to receive future notices and information on these specific projects, please subscribe to our electronic emailing list located on our web page at http://www.waterboards.ca.gov/lyrisforms/swrcb_subscribe.html. Subscribe to "Mercury - Objectives & Offset Policy" .

If you know of anyone else who would be interested in this matter, please bring the above information and accompanying documents to their attention.

If you need any additional assitance or information on this topic please contact Joanne Cox at jcox@waterboards.ca.gov or (916) 341-5552, or Tom Kimball at tkimball@waterboards.ca.gov at (916) 323-9689.

Joanne Cox
TMDL Coordinator
State Water Resources Control Board
Division of Water Quality
1001 I Street, 15th floor
Sacramento, Ca 95814
(916) 341-5552

/cp

Linda S. Adams
Secretary for
Environmental Protection

State Water Resources Control Board

Executive Office

Tam M. Doduc, Board Chair
1001 I Street • Sacramento, California 95814 • (916) 341-5615
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
Fax (916) 341-5621 • http://www.waterboards.ca.gov

Arnold Schwarzenegger
Governor

NOTICE OF TWO PUBLIC CALIFORNIA ENVIRONMENTAL QUALITY ACT SCOPING MEETINGS

Wednesday, February 7, 2007
Coastal Hearing Room – Second Floor
Joe Serna, Jr. Cal/EPA Headquarters Building
1001 "I" Street, Sacramento, CA 95814

Starting at 10:00 a.m.

1. **PROPOSED STATE POLICY FOR WATER QUALITY CONTROL, SAN FRANCISCO BAY, SACRAMENTO-SAN JOAQUIN RIVER DELTA AND TRIBUTARIES MERCURY DISCHARGE OFFSET POLICY**

Starting no earlier than 1:30 p.m.

2. **PROPOSED METHYLMERCURY OBJECTIVES FOR INLAND SURFACE WATERS, ENCLOSED BAYS, AND ESTUARIES IN CALIFORNIA**

NOTICE IS HEREBY GIVEN that the State Water Resources Control Board (State Water Board) staff will hold two California Environmental Quality Act (CEQA) scoping meetings to seek input on the scope and content of the environmental information that should be considered in:

1. A proposed State Policy for water quality control, San Francisco Bay, Sacramento-San Joaquin River Delta and tributaries mercury discharge offset policy (Bay-Delta mercury offset policy); and

2. Proposed methylmercury objectives for all inland surface waters, enclosed bays, and estuaries in California.

The purpose of the scoping meetings is to provide a forum for early public consultation on the development of both the proposed Bay-Delta mercury offset policy and proposed methylmercury objectives (fish tissue and/or water column). These consultations 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 meetings. No action will be taken by the State Water Board at the scoping meetings.

DOCUMENT AVAILABILITY

Individual informational scoping documents on both the proposed Bay-Delta mercury offset policy and the proposed methylmercury objectives may be obtained via the Internet on the State Water Board Web site at http://www.waterboards.ca.gov. You may also receive a paper copy of the proposed Bay-Delta mercury offset policy scoping document by writing Joanne Cox, Division of Water Quality, State Water Resources Control Board, 1001 I Street, Sacramento, CA 95814, or by contacting Ms. Cox at (916) 341-5552, email: (jcox@waterboards.ca.gov). You may also receive a paper copy of the proposed methylmercury objectives scoping document by writing Tom Kimball, Division of Water Quality, State Water Resources Control Board, 1001 I Street, Sacramento, CA 95814, or by contacting Mr. Kimball at (916) 323-9689, email: tkimball@waterboards.ca.gov

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 these CEQA projects. All submissions must be received on or before February 15, 2007. Written comments should be submitted to: Song Her, Clerk to the Board, Executive Office, State Water Resources Control Board, P.O. Box 100, Sacramento, CA 95812-0100. (Fax: 916-341-5620 or email: commentletters@waterboards.ca.gov). Please indicate the project you are commenting upon in the subject line, "Comment Letter – Bay-Delta Mercury Offset Policy" or "Comment Letter – Methylmercury Objectives." Electronic submission via email is preferred.

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

PARKING AND ACCESSIBILITY

For directions and parking information, please refer to: http://www.waterboards.ca.gov/centralvalley/contact_us/sacto_location.html. The facilities are accessible to persons with disabilities. Individuals requiring special accommodations are requested to contact Mr. Adrian Perez at (916) 341-5880 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.

January 5, 2007
Date

Song Her
Clerk to the Board

INFORMATIONAL DOCUMENT

Public Scoping Meeting
for
Proposed State Policy for Water Quality Control,
San Francisco Bay, Sacramento-San Joaquin River Delta and
Tributaries Mercury Discharge Offset Policy

January 2007

STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

INTRODUCTION

On September 7, 2005, the State Water Resources Control Board (State Water Board) adopted Resolution No. 2005–0060, which remanded to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) for reconsideration a proposed San Francisco Bay Mercury Total Maximum Daily Load (TMDL). In the remand resolution, the State Water Board directed State Water Board staff to develop

> "[A] State policy for water quality control that establishes alternative methods to allow dischargers to meet mercury effluent limitations that are directed to preventing contributions to excursions above water quality standards. The policy shall allow dischargers to perform other activities aside from eliminating more mercury from their discharges than they would be required to remove by applicable technology-based effluent limitations. This policy shall require more rigorous activities for: (a) dischargers not in compliance with their wasteload allocations and/or other applicable criteria or objectives; and (b) dischargers seeking to increase their mercury load. The policy shall include provisions that recognize the efforts of those dischargers who are meeting or outperforming their wasteload allocations, and that recognize the expenditures made by dischargers who are employing higher treatment levels. The policy shall not include requirements that would leverage existing point source discharges as a means of forcing dischargers to bear more than their fair share of responsibility for causing or contributing to any violation of water quality standards. In this context "fair share" shall refer to the dischargers' proportional contribution to the impairment. The policy shall also include provisions that prevent localized disparate impacts."

In response to the direction of the State Water Board, and in consideration of the fact that both the San Francisco Bay and the Sacramento-San Joaquin River Delta and tributaries are impaired by mercury, staff is proposing a mercury discharge offset policy (Policy) for the San Francisco Bay, Sacramento-San Joaquin River Delta and tributaries (Bay–Delta system). The State Water Board has the authority to establish pollutant offset programs, pollutant trading, and other market programs to achieve water quality standards. This authority is described in an attached memorandum from Michael Lauffer, Chief, Office of Chief Counsel, to Board Members Baggett and Wolff. Offsets refer to voluntary abatement efforts by a discharger to remove a specified pollutant from a different existing source, to compensate for all or a portion of the discharger's own discharge of that same pollutant. Offsets are voluntary because dischargers may choose among options to meet wasteload allocations. Under the Policy, individual dischargers may obtain offsets:

1. To help meet their wasteload or load allocations;

2. To allow an increase above their wasteload or load allocation as a result of expansion that would otherwise result in additional mercury loading to the Bay–Delta system; or

3. To initiate a new discharge that would otherwise result in new mercury loading to the Bay–Delta system.

BACKGROUND

Under the California Water Code ("Water Code"), the Regional Water Quality Control Boards (Regional Water Boards) adopt Water Quality Control Plans (Basin Plans) in which they designate the beneficial uses of the waters of the region and establish water quality objectives to

protect those beneficial uses. The Water Code also requires that Basin Plans include a plan of implementation to ensure that waters achieve the water quality objectives. The federal Clean Water Act requires states to establish water quality standards for surface waters. The Clean Water Act defines "water quality standard" as consisting of the designated uses of the navigable waters and the water quality criteria to protect the designated uses. The Regional Water Boards have adopted, and the State Water Board has approved, beneficial use designations and water quality objectives that are considered equivalent to the federal water quality standard.

The Clean Water Act establishes the National Pollutant Discharge Elimination System (NPDES) permit as the primary mechanism for achieving water quality standards in navigable waters. NPDES permits are issued to point source dischargers and include effluent and receiving water limitations. Receiving water limitations are based on the water quality objectives in the applicable Basin Plan and are designed to attain and maintain water quality standards in the receiving waters. Receiving water limitations commonly equal the water quality objectives.

For those waters that do not attain water quality standards even after NPDES permits are issued to point sources with the effluent limitations described above, the Clean Water Act requires states to adopt TMDLs for the pollutants causing the impairment in a water body. TMDLs are designed to restore water quality by controlling the pollutants that cause or contribute to such excursions. A TMDL assigns wasteload allocations for specific pollutants to point sources discharging effluent pursuant to the terms and conditions of NPDES permits. A TMDL also assigns load allocations to nonpoint source discharges. Attainment of all load and wasteload allocations would, in most cases, result in compliance with the water quality standards within a reasonable time period.

NPDES permits must control all pollutants in the permitted discharge that " . . . have the reasonable potential . . ." to " . . . cause or contribute to an excursion above any state water quality standard . . . ." 40 Code of Federal Regulations §122.44(d)(1)(i). Effluent limits in NPDES permits must also be consistent with the assumptions and requirements of wasteload allocations assigned in an applicable TMDL. Therefore, compliance with permits that are adopted following adoption of a TMDL should result in compliance with water quality standards, even in impaired waters, over a reasonable period of time.

Concentrations of mercury, a bio-accumulative substance, are causing impairment of the water quality standards designed to protect wildlife and human consumption of fish. Beneficial uses of water impacted by mercury include: Commercial and Sports Fishing; Water Contact Recreation, Cold Freshwater Habitat; Warm Freshwater Habitat; Estuarine Habitat; Marine Habitat; Wildlife Habitat; and Rare, Threatened, or Endangered Species.

Reduction or elimination of mercury loads from point source discharges alone will not bring the Bay–Delta system into compliance with water quality standards. Compliance with water quality standards will require reductions in both point and nonpoint sources and will result to some degree from erosion and flushing of mercury from Bay bottom sediments. Because mercury is bioaccumulative, mercury added to the system from legacy sources will contribute to the impairment until those sources of mercury are controlled or eliminated, and sufficient amounts of mercury have eroded to the ocean.

Mining-legacy mercury that has washed into the riverbeds and the San Francisco Bay attaching to sediments is a major source of mercury loading to the Bay–Delta aquatic ecosystem. Mercury in the water column is primarily associated with suspended sediment. Mercury is also present in bed sediments. Offsets may consider removal of mercury from sediments.

POLICY PRINCIPLES

The Policy will describe the requirements that must be met before any NPDES permit may be issued to discharge mercury in amounts that exceed wasteload allocations specified in a TMDL. It will also describe the factors that must be considered in determining the appropriate offset amount for any given offset proposal.

General Principles

1. Offset projects must result in a net environmental benefit in the Bay-Delta system.

2. Dischargers must implement pollution prevention measures before qualifying for an offset. Dischargers will not be allowed to avoid the responsibility to perform at the highest level feasible.

3. Dischargers may be allowed to offset a portion of the mercury in their discharges if, after the effective date of the applicable TMDL, their discharge level exceeds their wasteload allocation.

4. A Regional Water Board may issue a permit allowing a new or additional discharge of mercury only from a new facility or an expansion of an existing facility, and only when offset consistent with this Policy. In all other circumstances, even when authorizing an offset, the Regional Water Board may not allow the mass or concentration of mercury in an existing discharge to increase.

5. Offsets for individual dischargers will be established in individual NPDES permits.

6. Dischargers should make an effort to locate their offset project near the discharge it is offsetting; however, if demonstrated to not be practical, a project not in the vicinity of the discharge may be considered.

7. Offsets must not allow a discharge to result in disparate localized impacts.

Principles Affecting the Offset Amounts

Offset amounts granted to individual dischargers should always involve an offset ratio of greater than 1:1, defined as the ratio of off-site mercury reduction proposed divided by the proposed exceedance of their TMDL-specified wasteload or load allocation. The Regional Water Boards shall also take into account at least the factors listed below.

1. Offset ratios will be based upon:

   a. The degree to which a discharger fails to meet its wasteload or load allocations; the ratio should be greater as the magnitude of the exceedance of the wasteload or load allocation increases;

   b. The projected cost savings from performing an offset;

   c. The expected length of time before the discharger complies with the wasteload or load allocation; the ratio should be greater for longer compliance schedules.

2. The types of projects that could qualify as offset projects include, but are not limited to: restoration of watersheds affected by mercury; stream bank stabilization; mass removal; mine remediation; removal of mercury contaminated sediments in impoundments; reduction of atmospheric deposition from local sources upwind of the discharge point (Bay Area Air Quality Management District coordination); reduction of in-Bay discharges of dredged material containing mercury; collection and appropriate disposal of mercury and mercury-containing objects from the public; and removal of legacy mercury.

Principles Affecting Implementation of Offsets

1. The Regional Water Board(s) shall review the individual offset amounts and projects at a frequency to ensure that the assigned offset is appropriate to the discharge and receiving water quality.

2. NPDES permit offset requirements must be fully enforceable. Enforcement actions should be taken, for example, if the discharge mass exceeds the offset-adjusted mass or concentration limits or if the offset is not completed.

3. Dischargers will be responsible for implementing offset projects and monitoring to demonstrate that the offset project is contributing to attainment of water quality standards. All such data must be readily available to the public. Monitoring should demonstrate that the project is meeting its stated objective of removing a specific load of mercury and not creating or contributing to disparate local impacts.

4. The Regional Water Board(s) shall consider request(s) to complete offset project(s) as part of the normal NPDES permit(s) renewal cycle(s) or at the discretion of the Regional Water Board(s).

5. Offset projects may not be approved if the mercury reduction to be achieved by the offset project is already the responsibility of some other party. An exception to this principle is for offset projects on public land where the public agency did not cause the mercury pollution.

CONSIDERATIONS REGARDING POLLUTANT TRADING

This Policy will not address pollutant trading; the State Water Board may consider the issue in the future. Establishing trading (market) provisions is exceedingly complex and, therefore, will be deferred. Pollutant trading generally refers to an exchange of either permitted discharge levels or required abatement levels between two or more dischargers, either in a formal commodities market or banking system or a less-structured exchange.

Considerations which make the introduction of trading provisions complex include: whether credits expire; whether credits could be traded more than once; and whether credits would be available on a spot market only, or as futures under specified conditions (e.g., for insurance in case of a spill or treatment malfunction).

DRAFT

INFORMATIONAL DOCUMENT

Public Scoping Meeting for Proposed Methylmercury Objectives for Inland Surface Waters, Enclosed Bays, and Estuaries in California

December 2006

DIVISION OF WATER QUALITY
STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Introduction

The California State Water Resources Control Board (State Water Board) is considering adopting a statewide policy for methylmercury that would apply to inland waters, enclosed bays, and estuaries in the State. Based on the U.S. Environmental Protection Agency's (USEPA's) revised methylmercury (MeHg) fish tissue-based criteria guidance (USEPA, 2001), elements of the proposed policy may include a methylmercury fish tissue objective, a total mercury water quality objective, a methylmercury water quality objective, or some combination of these objectives. The proposed policy may also include implementation procedures related to the National Pollutant Discharge Elimination System (NPDES) permitting process. This document provides a summary of issues to be addressed and elements that may be included in the proposed policy.

Background

Under the Clean Water Act (CWA), states have primary authority for establishing designated uses for water bodies and for developing water quality criteria (referred to as water quality 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 the Agency has issued a criteria guidance document per 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.

In 2000, USEPA promulgated the California Toxics Rule (CTR; USEPA, 2000) to bring California into compliance with CWA section 303(c)(2)(B). With the CTR, USEPA promulgated total recoverable mercury criteria for the protection of human health for California waters of 0.050 micrograms per liter (µg/L) for consumption of water and organisms, and 0.051 µg/L for consumption of organisms only. Some California Regional Water Quality Control Boards (Regional Water Boards), however, have water quality control plans (Basin Plans) that contain mercury objectives that are as stringent as, or more stringent than, the CTR criteria. If there is both a CTR criterion and an applicable objective for a water body, the more stringent of the two values applies.

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 human health. After review of the mercury human health criteria, USEPA concluded that it was more appropriate to derive a section 304(a) criteria guidance for methylmercury based on fish tissue (including shellfish) concentrations, rather than water column-concentrations. An acceptable fish tissue concentration is more closely tied to the CWA goal of protecting the public health because it is based directly on the dominant human exposure route for methylmercury. Therefore, USEPA published revised methylmercury fish tissue criteria guidance in 2001 (USEPA, 2001).

In promulgating the CTR in 2000, USEPA agreed to update the CTR's mercury criteria based on consultation with the U.S. Fish and Wildlife Service (USFWS) and the U.S. National Marine Fisheries Service (USNMFS), pursuant to the Endangered Species Act. However, USEPA has not yet proposed revisions to the mercury criteria in the CTR, therefore the State Water Board is considering adopting objectives based on USEPA's 2001 criteria document, as well as implementation procedures based on Water Code considerations.

Potential Objectives Subject to Scoping Consideration

USEPA's recommended fish tissue criterion for methylmercury (USEPA, 2001) is based on the concentration of methylmercury in fish tissue, calculated using the following equation (USEPA, 2001):

$$TRC = \frac{BW*(RfD - RSC)}{\sum_{i=2}^{4} FI_i}$$

where:

TRC = tissue residue concentration: milligrams (mg) methylmercury/kilogram (kg) fish tissue

BW = human body weight default value of 70 kg

RfD = reference dose based on noncancer human health effects of 0.0001 mg methylmercury/kg body weight-day

RSC = relative source contribution, estimated at 2.7×10^{-5} mg methylmercury/kg body weight-day [subtracted from the reference dose to account for fish consumption from other sources (e.g., marine fish)]

FI_i = human fish consumption of trophic level[1] i (kg fish/day).

The criterion can either be implemented as is (i.e., a fish tissue-based objective or FTO), or it can be converted into an ambient methylmercury water quality objective (AWQO) using bioaccumulation factors [(BAFs) see appendix - Calculations for Alternative Objectives]:

$$AWQO = (RfD - RSC)\left[\frac{BW}{DI + \sum_{i=2}^{4}(FI_i * BAF_i)}\right]$$

where:

AWQO= ambient water quality criterion in mg MeHg/L

BW = human body weight default value of 70 kg

[1] Trophic levels are defined by the food relationship of fish in the food chain. There are four trophic levels that make up the aquatic food chain: trophic level 1 consists of primary producers such as phytoplankton and other plants; trophic level 2 contains zooplankton, benthic filter feeders, grazers, and herbivorous fish; trophic level 3 consists of fish that eat prey items from the trophic level 2 group; and trophic level 4 consists of fish that eat prey items from the trophic level 3 group.

RfD = reference dose based on noncancer human health effects of 0.0001 mg MeHg/kg body weight-day
RSC = relative source contribution, estimated at 2.7×10^{-5} mg MeHg/kg body weight-day
DI = drinking water intake default value of 2 Liters (L) of water/day
FI_i = human fish consumption of trophic level i (kg fish/day)
BAF_i = bioaccumulation factor for trophic level i (L/kg fish).

In converting to an AWQO, the FI_i values can reflect USEPA's default total fish consumption rate of 0.0175 kg fish/day or site-specific consumption rates that more accurately reflect actual consumption patterns. California-specific consumption information is available from a study conducted by the San Francisco Estuary Institute (SFEI, 2000) and was used in developing the draft San Francisco Bay Total Maximum Daily Load for mercury (San Francisco Bay Water Board, 2006). SFEI (2000) estimated that the 95th percentile consumption rate for consumers of San Francisco Bay fish is 0.032 kg fish/day. Note that this value is adjusted for avidity bias to more closely reflect consumption patterns of the general population of San Francisco Bay anglers. Thus, the SFEI (2000) consumption rate may more closely estimate the amount of fish eaten from inland waters, enclosed bays, and estuaries in California than the USEPA consumption rate.

Any adopted fish tissue objective should be protective of the populations most likely to consume fish and should be representative of the types of fish that those populations are most likely to eat. If target populations consume fish from different trophic levels, the State Water Board may consider factoring the consumption by trophic level in computing the average mercury in fish tissue (i.e., calculate a consumption-weighted average fish tissue mercury concentration). Conversely, to choose a method likely to be more protective, the State Water Board may consider only the highest trophic level fish that inhabit a given water body. In most cases, this will be trophic level 4 fish; however, in some water bodies, only lower trophic level organisms may be present.

As part of the endangered species consultation with the USFWS and the USNMFS on the CTR, the USFWS evaluated whether USEPA's human health methylmercury criterion of 0.3 mg/kg would be sufficient to protect federally listed aquatic and aquatic-dependent wildlife species in California. The USFWS found that the criterion of 0.3 mg/kg would only be sufficiently protective of four of seven species evaluated (USFWS, 2003). Lower criteria values would be necessary to protect all seven of the species, including the California Least Tern.

Exhibit 1 provides a summary of alternatives for revising the mercury objectives.

Exhibit 1. Alternatives for Human and Wildlife Health Objectives for Mercury

Option	Consumption Rate	Protection of Human Health					Protection of Wildlife	
		MeHg FTO	Dissolved MeHg AWQO	Total Hg AWQO			MeHg FTO[2]	MeHg FTO, 50 mm[3]
				Lake	River	Estuary		
1 – No action (CTR criteria)[1]	18.7 g/day	NA	NA	50/51 ng/L	50/51 ng/L	50/51 ng/L	NA	NA
2 – USEPA default values to convert human health TRC to AWQO; wildlife objectives based on USFWS evaluation.	17.5 g/day	0.3 mg/kg	0.24 ng/L	7.5 ng/L	17.1 ng/L	17.1 ng/L	0.20 mg/kg	0.03 mg/kg
3 – USEPA default values applied to trophic level 4 (TL_4) fish only to convert human health TRC to AWQO; wildlife objectives based on USFWS evaluation.	17.5 g/day	0.3 mg/kg	0.11 ng/L	3.4 ng/L	7.7 ng/L	7.7 ng/L	0.20 mg/kg	0.03 mg/kg
4 – CA-specific consumption rate; USEPA default values to convert human health TRC to AWQO; wildlife objectives based on USFWS evaluation.	32 g/day[4]	0.16 mg/kg	0.13 ng/L	4.1 ng/L	9.4 ng/L	9.4 ng/L	0.20 mg/kg	0.03 mg/kg
5 – CA-specific consumption rate; USEPA default values applied to TL_4 fish only to convert to AWQO; wildlife objectives based on USFWS evaluation.	32 g/day[4]	0.16 mg/kg	0.06 ng/L	1.8 ng/L	4.2 ng/L	4.2 ng/L	0.20 mg/kg	0.03 mg/kg
6 – CA-specific consumption rate; do not convert to AWQO; wildlife objectives based on USFWS evaluation.	32 g/day[4]	0.16 mg/kg	NA	NA	NA	NA	0.20 mg/kg	0.03 mg/kg

AWQO = Ambient water quality objective; FTO = fish tissue objective; Hg = mercury; MeHg = methylmercury; NA = not applicable

TRC = tissue residue concentration in mg methylmercury/kg fish

1. The human health criteria are 50 ng/l to protect for consumption of water and organisms, and 51 ng/L to protect for consumption of organisms only.
2. Protective of 6 of 7 sensitive species that the USFWS (2003, 2004) evaluated, based on consumption of highest trophic level fish.
3. Site-specific wildlife objectives apply where sensitive species (e.g., California Least Tern) exist. The FTO in small fish 30-50 mm, protective of the Least Tern as evaluated by the USFWS (2003), applies to water bodies where California Least Tern are found.
4. Source: SFEI (2000).

Implementation Procedures

For alternatives in which the fish tissue objective is converted to a water column objective, the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) contains procedures for implementing water column objectives for toxic pollutants in permits. In particular, the SIP addresses how to determine whether a permit must include a water quality-based effluent limitation and, if a limit is necessary, how to calculate it. For a fish tissue-based objective that is not converted to a water column value, procedures are needed to implement the objective in NPDES permits and other water quality regulatory programs (see Exhibit 2). Additional monitoring requirements may be needed for any alternative.

Exhibit 2 provides examples of implementation procedures for the alternative objectives.

Exhibit 2. Potential Implementation Procedures for Point Sources

Option	Reasonable Potential (RP)	Effluent Limits	Monitoring Requirements	Variance Requirements
1-5	---------- Requirements are contained within the SIP ----------			
6	Fish tissue exceeds a screening level based on a margin of safety (e.g., 80% of FTO); water column exceeds AWQO calculated using USEPA default values (for BAFs and translators).[1]	If RP exists, implement PMP and limit mercury as appropriate.	RP or no data Effluent: Hg and MeHg monthly Water column: Hg and MeHg quarterly Fish tissue: MeHg yearly No RP Effluent: Hg and MeHg quarterly Fish tissue: MeHg yearly	Not applicable

AWQO = ambient water quality objective
BAF = bioaccumulation factor
Hg = mercury
MeHg = methylmercury
PMP = pollutant minimization program
RP = reasonable potential
1. Or site-specific values, where available.

If the State Water Board adopts a water column objective for methylmercury, point source dischargers may not be able to feasibly meet the low mercury effluent limitations implementing the objective. In this case, a variance procedure (for individual discharges or statewide), with certain requirements [e.g., pollutant minimization program (PMP) implementation], could provide regulatory relief while ensuring that all cost-effective mercury control measures are implemented. Any variance procedure would need to conform with the requirements in 40 Code of Federal Regulations 131.10(g).

Under a fish tissue only objective, PMPs may be required as well as a numeric effluent limit (e.g., for the mass loading of mercury established at the existing effluent level or

any existing numeric limit), as appropriate. Possible PMP requirements could include:

- Pollution prevention
- Source control
- Actions to reduce or eliminate mercury discharges
- Treatment optimization and cost-effective control measures (including Best Management Practices)
- Public outreach and education efforts

Possible implementation requirements could include:

- Source identification and tracking
- Monitoring influent, effluent, and biosolids
- Schedule for achieving reductions in mercury concentrations in the discharge
- Annual status reports on the PMP program

The state will also consider recommendations for implementation of a fish tissue objective contained in draft USEPA mercury guidance.[2]

[2] 71 Fed. Reg. 45560-45564 (August 9, 2006).

Appendix

Calculations for Alternative Objectives

This section describes the calculation of a Bioaccumulation Factor and provides the values for calculating the proposed mercury human health objective alternatives.

A BAF is a ratio that relates the concentration of a chemical in water to its expected concentration in commonly consumed aquatic organisms (USEPA, 2001):

$$BAF = \frac{C_{FT}}{C_{WC}}$$

where:

C_{FT} = concentration of methylmercury in fish tissue in mg MeHg/kg-fish
C_{WC} = concentration of dissolved methylmercury in water column in mg MeHg/L

The following equation converts the dissolved methylmercury AWQO to a total mercury AWQO (USEPA, 2001):

$$AWQO_{Hg} = \frac{AWQO_{MeHg}}{f_d}$$

where:

$AWQO_{Hg}$ = total mercury ambient water quality criterion
$AWQO_{MeHg}$ = dissolved methylmercury ambient water quality criterion
f_d = translator, ratio of dissolved methylmercury to total mercury in the water column

Exhibit 3 illustrates the calculation of the human health objectives.

Exhibit 3. Calculation of Alternatives for Human Health Objectives for Mercury [1]

Parameter	1 – No action (CTR criteria)[1]	2 – USEPA defaults to convert TRC to AWQO[2]	3 – USEPA defaults applied to TL4 fish only to convert TRC to AWQO	4 – CA-specific consumption; USEPA defaults to convert to AWQO[3]	5 – CA-specific consumption; USEPA BAF for TL4 fish only; default translators to convert to AWQO	6 – CA-specific consumption; not converted to AWQO
Fish Consumption (FI) (g/day)	18.7	17.5	17.5	32[4]	32[4]	32[4]
Trophic Level 2 (FI_2)	NA	3.8	NA	6.9	NA	NA
Trophic Level 3 (FI_3)	NA	8.0	NA	14.6	NA	NA
Trophic Level 4 (FI_4)	NA	5.7	17.5	10.4	32	NA
Body weight (kg)	70	70	70	70	70	70
Reference Dose (RfD) (mg/kg-day)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
RSC (mg/kg-day)	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027
Methylmercury TRC (FTO) (mg/kg)	**NA**	**0.3**	**0.3**	**0.16**	**0.16**	**0.16**
Drinking Water Intake (DI) (L/day)	2	2	2	2	2	2
Bioaccumulation Factors (BAF) (L/kg)						
Trophic Level 2 (BAF_2)	NA	120,000	NA	120,000	NA	NA
Trophic Level 3 (BAF_3)	NA	680,000	NA	680,000	NA	NA
Trophic Level 4 (BAF_4)	NA	2,700,000	2,700,000	2,700,000	2,700,000	NA
Methylmercury AWQO (ng/L)	**NA**	**0.24**	**0.11**	**0.13**	**0.06**	**NA**
Total Mercury translator (f_d) (unitless)						
River	NA	0.014	0.014	0.014	0.014	NA
Lake	NA	0.032	0.032	0.032	0.032	NA
Estuary	NA	0.014	0.014	0.014	0.014	NA
Total Mercury AWQO (ng/L)						
River	**50**	**17.1**	**7.7**	**9.4**	**4.2**	**NA**
Lake	**50**	**7.5**	**3.4**	**4.1**	**1.8**	**NA**
Estuary	**51**	**17.1**	**7.7**	**9.4**	**4.2**	**NA**

AWQO = ambient water quality objective
FTO = fish tissue objective
RSC = relative source contribution
TRC = tissue residual concentration

1. Source: USEPA (2000).
2. Source: USEPA (2001).
3. Consumption allocated to trophic level based on USEPA (2001) defaults: TL2=21.7%; TL3=45.7%; TL4=32.6%
4. Source: SFEI (2000).

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