State Water Resources Control Board

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NOTICE OF OPPORTUNITY TO COMMENT

PROPOSED APPROVAL OF AN AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE SAN FRANCISCO BAY REGION (BASIN PLAN) TO ESTABLISH NEW WATER QUALITY OBJECTIVES, TOTAL MAXIMUM DAILY LOADS (TMDLs), AND AN IMPLEMENTATION PLAN, AND TO VACATE AN EXISTING WATER QUALITY OBJECTIVE, FOR MERCURY IN THE GUADALUPE RIVER WATERSHED

NOTICE IS HEREBY GIVEN THAT the State Water Resources Control Board (State Water Board) will accept comments on the proposed approval of an amendment to the Basin Plan that would establish TMDLs for mercury in the Guadalupe River watershed. The amendment will also establish two new water quality objectives for mercury while vacating the existing water quality objective. The amendment, the State Water Board agenda language, and draft resolution are available on the State Water Board's Web site at http://www.waterboards.ca.gov/water_issues/programs/tmdl/index.shtml#rb2 or can be received by mail by contacting Peter Martin Jr., at (916) 341-5557. The amendment was adopted by the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) on October 8, 2008. The State Water Board will separately publish a notice of the meeting at which it will consider approval of the amendment.

Comment letters to the State Water Board **must be received by 12:00 noon on October 19, 2009**. After the October deadline, State Water Board staff will not accept additional written comments unless the State Water Board determines that such comments should be accepted. Please send comments on the proposed State Water Board approval of the amendment to: Jeanine Townsend, Clerk to the Board, by email at (commentletters@waterboards.ca.gov) **(If 15 megabytes in size or less),** (916) 341-5620 (fax), or by mail addressed to State Water Resources Control Board, 1001 I Street, Sacramento, CA 95814. Please also indicate in the subject line, "**Comment Letter – Guadalupe River Watershed Mercury TMDLs**."

Incorporation of Comments by Reference: Comments must specifically address the version of the amendment that is currently being considered for approval by the State Water Board. If similar or identical comments were submitted to the San Francisco Bay Water Board, the commenter must explain why and in what manner each of the responses provided by the San Francisco Bay Water Board to each comment was inadequate or incorrect. If the comment does not include such an explanation, the State Water Board will presume that the San Francisco Bay Water Board's response adequately addressed the commenter's concern.

Please direct questions about this notice to Peter Martin Jr., Division of Water Quality, at (916) 341-5557 (pmartin@waterboards.ca.gov) or Steven H. Blum, Office of Chief Counsel, at (916) 341-5177 (sblum@waterboards.ca.gov).

September 17, 2009
Date

Jeanine Townsend
Clerk to the Board

D R A F T

STATE WATER RESOURCES CONTROL BOARD
BOARD MEETING SESSION – DIVISION OF WATER QUALITY
TBD

ITEM

SUBJECT

CONSIDERATION OF A RESOLUTION APPROVING AN AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE SAN FRANCISCO BAY REGION (BASIN PLAN) TO ESTABLISH NEW WATER QUALITY OBJECTIVES, TOTAL MAXIMUM DAILY LOADS (TMDLs), AND AN IMPLEMENTATION PLAN, AND TO VACATE AN EXISTING WATER QUALITY OBJECTIVE, FOR MERCURY IN THE GUADALUPE RIVER WATERSHED

BACKGROUND

On October 8, 2008, the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) adopted Resolution R2-2008-0089 amending the Basin Plan to establish new mercury water quality objectives, vacate an existing mercury water quality objective, and establish TMDLs for mercury in seven waters of the Guadalupe Creek Watershed (Alamitos Creek, Guadalupe Creek, Guadalupe River, Guadalupe Reservoir, Almaden Reservoir, Calero Reservoir, and Lake Almaden). These waters are listed on the federal Clean Water Act (CWA) section 303(d) list as impaired for mercury. The main source of mercury is legacy mercury mining waste, which is found at and downstream of historic mine sites. The New Almaden Mining District in the headwaters of the Guadalupe River Watershed was at one time the largest-producing mercury mine in North America, and the world's fifth-largest. Typical of the time, waste management practices largely consisted of discarding roasted ores, or calcines, into and around creeks. Large winter storms would then wash the mercury-laden calcines downstream. The TMDLs are closely aligned with the San Francisco Bay mercury TMDL, which was approved by the State Water Resources Control Board (State Water Board) in 2007 and by the United States Environmental Protection Agency (U.S. EPA) in 2008.

In 1987, Santa Clara County issued a fish consumption advisory warning people against consuming fish from Guadalupe, Almaden, and Calero Reservoirs, Guadalupe and Alamitos Creeks, Guadalupe River, and percolation ponds along the river and creeks. In 2004, Guadalupe Reservoir had the highest recorded fish mercury concentrations in California. Because these waters do not meet water quality standards for mercury, CWA section 303(d) requires establishment of a TMDL. A TMDL specifies load allocations for nonpoint sources and waste load allocations for point sources that, when implemented, are expected to result in attainment of applicable water quality standards. State law requires an implementation plan and schedule to ensure that the TMDLs are met. The TMDLs address the mercury impairment and are designed to ensure that water quality standards will be achieved, and that beneficial uses in the watershed will be protected. The beneficial uses that are impaired by mercury are body contact recreation (REC1) (which includes sport fishing), preservation of wildlife habitat (WILD), and protection of rare and endangered species (RARE).

WATER QUALITY OBJECTIVES

The amendment establishes water quality objectives similar to those of the approved Walker Creek Watershed mercury TMDL, which empties into Tomales Bay in Marin County. The

amendment vacates an outdated existing four-day water-column water quality objective and establishes two new freshwater numeric fish tissue-based water quality objectives for mercury. Replacement of the four-day average freshwater mercury objective with these fish tissue objectives reflects current scientific information and the latest U.S. EPA and U.S. Fish and Wildlife Service (USFWS) guidance.

The amendment also establishes numeric targets equal to the fish tissue water quality objectives. These objectives and targets are protective of aquatic organisms and wildlife, including piscivorous (fish-eating) birds, which are at the highest risk due to bioaccumulation of methylmercury. These targets are also protective of humans who consume as much as one meal per week of watershed fish.

These objectives and targets apply to fish consumed by piscivorous birds in the watershed. The objectives are:

- 0.05 milligrams (mg) methylmercury per Kilogram (kg) fish (average wet weight concentration measured in whole trophic level 3 fish) for fish from 5 up to 15 centimeters (cm) in length, and
- 0.1 mg methylmercury per kg fish (average wet weight concentration measured in whole trophic level 3 fish) for fish greater than 15 up to 35 cm in length.

TMDLs AND ALLOCATIONS

The amendment establishes numeric targets equal to the fish tissue water quality objectives of 0.05 mg methylmercury per kg of fish on a wet weight basis for fish size 5-15 cm in length, and 0.1 mg methylmercury per kg of fish on a wet weight basis for fish size between 15-35 cm in length. The TMDL establishes concentration-based allocations in water and sediment that, when attained, are expected to lead to attainment of the methylmercury fish tissue targets and the fish tissue objectives.

The TMDL allocations, which are expressed in terms of mercury concentration in sediment runoff and wastewater discharges, are designed to achieve the TMDL fish-tissue targets. In other words, if dischargers meet the concentration-based allocations, the Regional Board calculated that the fish in these waters should meet the fish-tissue objectives for mercury. These TMDL targets will also ensure compliance with the allocation assigned by the San Francisco Bay mercury TMDL to the Guadalupe River Watershed. The amendment establishes two TMDLs for the Guadalupe River Watershed: one for impaired creeks and rivers, and one for reservoirs and lakes. The TMDLs are expressed as mercury concentrations in suspended sediment for impaired creeks and rivers, and methylmercury concentrations in the water column for reservoirs and lakes.

For impaired creeks and rivers in the watershed (Alamitos Creek, Guadalupe Creek, and Guadalupe River) the TMDL target is 0.2 mg mercury per kg suspended sediment (dry weight, annual median). For reservoirs and lakes in the watershed (Guadalupe Reservoir, Almaden Reservoir, Calero Reservoir, and Lake Almaden), the TMDL target is 1.5 nanograms (ng) total methylmercury per liter of water, represented as a seasonal maximum measured in the hypolimnion (deep) layer of the lake or reservoir. A 5 percent explicit margin of safety has been incorporated into the TMDL for the methylmercury allocation. An implicit margin of safety has been included by using the most protective level of trophic level 3 fish for the numeric fish-tissue based water quality objectives.

Load allocations were established for mining waste, impaired waterways, nonurban stormwater runoff, atmospheric deposition, and methylmercury production in reservoirs and lakes. A wasteload allocation was established for urban stormwater runoff. The load allocation for mining waste in the Guadalupe River Watershed is 0.2 mg mercury per kg erodible[1] mercury mining waste (dry weight, median). The load allocation assigned to mercury-laden sediment discharged from depositional features in the impaired waterways is also 0.2 mg mercury per kg erodible sediment (dry weight, median). Nonurban stormwater runoff discharges are given a load allocation of 0.1 mg mercury per kg of suspended sediment (dry weight, annual median). Atmospheric deposition is assigned a load allocation 0.02 mg mercury per square meter of water surface per year, equal to the rate established in the San Francisco Bay TMDL. For reservoirs and lakes, the load allocation is 1.5 ng total methylmercury per liter of water (seasonal maximum, measured in the hypolimnion). Finally, a wasteload allocation of 0.2 mg mercury per kg of suspended sediment (dry weight, annual median) is given to urban stormwater runoff.

IMPLEMENTATION

The TMDLs for mercury in the Guadalupe River Watershed will be implemented in two phases, with targets to be achieved in 20 years. Mercury mining waste control actions are phased so that mercury discharges from upstream will be eliminated or significantly reduced (in the first 10 years) before downstream projects are undertaken (in the second 10 years).

The amendment uses an adaptive implementation plan which will use data and relevant scientific information to indicate the progress towards meeting the fish tissue targets. The San Francisco Bay Water Board will receive an annual report from its staff on implementation progress, and it will evaluate information from implementation actions, monitoring, special studies, and scientific literature. A comprehensive review of progress and prospects for achieving the TMDLs will be conducted 10 years from the effective date. At that time, the San Francisco Bay Water Board will evaluate the TMDL and the progress that has been made in the implementation plan if necessary to ensure attainment of fish tissue targets in a timely manner.

MONITORING

The monitoring program together with the special studies will measure progress in attaining the goals of this TMDL project and inform the adaptive implementation process. Specifically, the monitoring program encompasses the following:

- Monitoring to ensure continued effectiveness of erosion control measures to reduce discharges of mercury mining wastes, including mercury-laden sediment,
- Monitoring of mercury load at the points of discharge to demonstrate progress in reducing loads,
- Fish tissue mercury monitoring to assess progress in attaining targets,

[1] "Erodible" refers to materials readily available for transport by stormwater runoff to surface waters.

- Monitoring of mercury load to San Francisco Bay to assess progress in attaining the legacy and urban stormwater runoff mass load allocations assigned by the Bay mercury TMDL, and

- Special studies to inform adaptive implementation of these TMDLs.

The San Francisco Bay Water Board stated that it will compel the responsible parties to conduct monitoring through Water Code §13267 and §13304 orders, and other authorities as needed. Although the responsible parties are required to satisfy the monitoring requirements individually, the San Francisco Bay Water Board encourages a coordinated watershed approach particularly for mercury in fish tissue and loads to San Francisco Bay. The San Francisco Bay Water Board stated that it will collaborate with other resource agencies to coordinate fish monitoring, to leverage their expertise and, where possible, to coordinate and achieve multiple objectives.

ECONOMIC CONSIDERATIONS

The implementation costs associated with required actions in the Basin Plan amendment have been estimated for all source categories as required by Public Resources Code §21159. An upper and lower range of cost estimates has been provided. There is uncertainty about the actual costs due to a lack of knowledge on the extent of the impact of mercury mining waste in the watershed and the developmental state of water column methylmercury controls. In many cases, the particular elements of the implementation action are required to be developed and implemented at a future time, and, therefore, the specifics are unknown. Cost estimates are projected for the 20 years of phased implementation planned for in this TMDL project.

In the first phase of implementation, the Basin Plan amendment requires that responsible parties control erosion of mercury mining waste and conduct monitoring at historic mercury mining operations. For these mining operations, remedial costs are estimated at $800,000 per acre, which includes project management, administration, design, and permitting. Since the size, preferred method of remediation, and complexity is uncertain for most of the legacy sites, a wide range of $23 million to $680 million was estimated for one-time costs associated with erosion control and cleanup measures. Annual costs over the 20-year implementation time frame for mercury mines also include monitoring and maintenance of erosion control measures, and were estimated at $10,000 to $50,000 per year.

There are no costs associated with the TMDL for impaired waterways, namely depositional areas in creeks and the Guadalupe River downstream of mercury mines. The Basin Plan amendment does not require responsible parties to undertake any new or additional actions in depositional areas. However, it anticipates that public agencies will seek funding for and implement cleanup and restoration of highly-polluted Alamitos Creek for stream stewardship and flood control purposes, at an estimated cost of $135 million to $270 million.

The TMDL requires the Santa Clara Valley Water District (District), which is the party responsible for lakes and reservoirs, to conduct technical studies of hypolimnion methylmercury controls and other reservoir management techniques that have the potential to reduce bioaccumulation of mercury, and implement all reasonable and feasible control actions. The District has already begun technical studies and pilot projects employing solar powered water circulators in reservoirs. It has created a three-phase project to evaluate this technology and its feasibility with an estimated one-time cost of $1.5 million. An alternate technology using direct delivery of liquid oxygen or ozone is also a possibility if the solar powered water circulators are not effective. The associated one-time cost of this alternative is estimated at 10 times the cost

of solar powered circulators, which equals approximately $15 million. Annual costs associated with these technologies are estimated to range from $40,000 to $400,000.

No additional costs for urban stormwater runoff are associated with implementation actions required by the TMDL because the amendment does not require responsible parties to take any additional actions beyond those already required by the San Francisco Bay mercury TMDL.

The TMDL requires monitoring to assess attainment of fish tissue targets and to monitor mercury loads flowing into San Francisco Bay. Fish tissue monitoring will occur at least 15 times over the 20-year timeframe at an annual cost of approximately $100,000. The San Francisco Bay Water Board estimates that required monitoring of mercury loads to San Francisco Bay will cost approximately $300,000. Special studies may also be required to determine progress for TMDL attainment and source control at an estimated cost of $200,000 dollars annually. San Francisco Bay Water Board staff is currently working with implementing parties, including the District and urban storm water runoff dischargers, to create a coordinated watershed monitoring effort.

POLICY ISSUE

Should the State Water Board approve the amendment to the Basin Plan to establish new mercury water quality objectives, vacate an existing objective, and establish TMDLs and an implementation plan to reduce mercury in the Guadalupe Creek Watershed?

FISCAL IMPACT

San Francisco Bay Water Board and State Water Board staff work associated with or resulting from this action will be addressed with existing and future budgeted resources.

REGIONAL WATER BOARD IMPACT

Yes, approval of this resolution will amend the San Francisco Bay Water Board's Basin Plan.

STAFF RECOMMENDATION

That the State Water Board:

1. Approves the amendment to the Basin Plan adopted under San Francisco Bay Water Board Resolution R2-2008-0089.

2. Authorizes the Executive Director, or designee, to transmit the amendment adopted under San Francisco Bay Water Board Resolution R2-2008-0089 to the Office of Administrative Law and the TMDL to U.S. EPA for approval.

State Water Board action on this item will assist the Water Boards in reaching Goal 1 of the Strategic Plan Update: 2008-2012 to implement strategies to fully support the beneficial uses for all 2006-listed water bodies by 2030. In particular, approval of this item will assist in fulfilling Action 1 to prepare, adopt, and take steps to carry out Total Maximum Daily Loads (TMDLs), designed to meet water quality standards, for all impaired water bodies on the 2006 list.

D R A F T

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2009-

APPROVING AN AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE SAN FRANCISCO BAY REGION (BASIN PLAN) TO ESTABLISH NEW WATER QUALITY OBJECTIVES, TOTAL MAXIMUM DAILY LOADS (TMDLs), AND AN IMPLEMENTATION PLAN, AND TO VACATE AN EXISTING WATER QUALITY OBJECTIVE, FOR MERCURY IN THE GUADALUPE RIVER WATERSHED

WHEREAS:

1. On October 8, 2008, the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) adopted Resolution R2-2008-0089 amending the Basin Plan to establish new water quality objectives, vacate an existing water quality objective, and establish TMDLs for the Guadalupe River Watershed.

2. The amendment meets the necessity standard of the Administrative Procedures Act, Government Code section 11353, subdivision (b).

3. San Francisco Bay Water Board found that the adoption of this amendment would be consistent with the State Antidegradation Policy (State Water Board Resolution No. 68-16) and federal antidegradation requirements (40 Code of Federal Regulations 131.6).

4. The rescission of the four-day average total mercury water quality objective and the adoption of two fish tissue methylmercury objectives is not anticipated to lower water quality because the new objectives are more stringent and based on more current scientific understanding of mercury bioaccumulation. The TMDL implementation plan is designed to attain the existing Basin Plan narrative water quality objective for bioaccumulation and the two Basin Plan fish tissue water quality objectives for methylmercury. Therefore, because the San Francisco Bay Water Board's action will maintain the level of water quality necessary for the protection of the existing uses, the action is consistent with state and federal antidegradation requirements.

5. The process of basin planning has been certified by the Secretary for Resources as exempt from the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code section 21000 et seq.) to prepare an Environmental Impact Report or Negative Declaration. The Basin Plan amendment package includes a Staff Report, an Environmental Checklist, a response to comments, an assessment of the potential environmental impacts of the Basin Plan amendment, a discussion of reasonably foreseeable methods of compliance, and the impacts and potential costs thereof, and a discussion of alternatives. The San Francisco Bay Water Board found that the Basin Plan amendment, Environmental Checklist, Staff Report, and documentation serve as a substitute environmental document under the State Water Resources Control Board's (State Water Board's) certified regulatory program and comply with the requirements of the State Water Board's certified regulatory CEQA process, as set forth in the California Code of Regulations, Title 23, section 3775 et seq.

6. The State Water Board finds that the Basin Plan amendment is in conformance with Water Code section 13240, which specifies that Regional Water Quality Control Boards may revise Basin Plans; section 13241, which authorizes Regional Water Quality Control Boards to establish water quality objectives; section 13242, which requires a program of implementation of water quality objectives; and section 13243 which authorizes Regional Water Quality Control Boards to specify certain conditions or areas where the discharges of certain types of waste will not be permitted. The State Water Board also finds that the two TMDLs, as reflected in the Basin Plan amendment, are consistent with the requirements of federal Clean Water Act section 303(d).

7. The amendment establishes numeric targets equal to the fish tissue water quality objectives of 0.05 milligrams (mg) methylmercury per kilogram of fish on a wet weight basis for fish size 5-15 centimeters (cm) in length, and 0.1 mg methylmercury per kilogram of fish on a wet weight basis for fish size between 15-35 cm in length.

8. The Basin Plan amendment does not become effective until approved by the State Water Board and until the regulatory provisions are approved by the Office of Administrative Law (OAL). The TMDL must also be approved by the U.S. Environmental Protection Agency (U.S. EPA).

THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. Approves the amendment to the Basin Plan adopted under San Francisco Bay Water Board Resolution R2-2008-0089.

2. Authorizes the Executive Director, or designee, to transmit the amendment adopted under San Francisco Bay Water Board Resolution R2-2008-0089 to OAL and the TMDL to U.S. EPA for approval.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on (TBD).

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Jeanine Townsend
Clerk to the Board