

Appendix D

Responses to Comments

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Mercury in San Francisco Bay

Total Maximum Daily Load (TMDL)
Responses to Comments



**California Regional Water Quality Control Board
San Francisco Bay Region**

August 1, 2006

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I. INTRODUCTION

This document provides the San Francisco Bay Regional Water Quality Control Board (Water Board) staff's responses to written comments from stakeholders, as well as oral comments from members of the public and the Water Board heard at the June 14, 2006 testimony hearing. All of these comments and responses refer to the public-noticed version of the proposed *Basin Plan Amendment and Staff Report for Revised Total Maximum Daily Load (TMDL) and Proposed Mercury Water Quality Objectives* dated April 21, 2006.

Background

On September 15, 2004, the Water Board adopted Resolution No. R2-2004-0082, *Amending the Water Quality Control Plan for the San Francisco Bay Region to Establish a Total Maximum Daily Load and Implementation Plan for Mercury in San Francisco Bay*. On September 7, 2005, the State Water Resources Control Board (State Water Board) adopted Resolution No. 2005-0060, *Remanding an Amendment to the Water Quality Control Plan for the San Francisco Bay Region to Incorporate a Total Maximum Daily Load (TMDL) for Mercury in San Francisco Bay*. The Remand returned the 2004 mercury TMDL amendment to the Water Board for further consideration.

In its Remand Order, the State Water Board requested specific revisions to the TMDL and associated implementation plan that will:

- Accelerate achievement of water quality objectives for mercury in the Bay
- Be more protective of fish and other wildlife
- Ensure maximum practical pollution prevention by municipal and industrial wastewater dischargers
- More clearly incorporate risk reduction measures addressing public health impacts on subsistence fishers and their families

Scope of staff responses

The April 21, 2006 public notice for the proposed revised amendment stated that "comments on the proposed revisions to the Mercury TMDL Amendment are limited only to those issues identified in the State Water Board remand order and the revisions being proposed," consistent with the Water Board's direction of Board staff at its November 2005 meeting. Still, some commenters raised issues beyond the scope of the Remand. While staff would like to be able to accommodate all comments, it would be unfair to those who abided by the terms of the public notice if we were to respond to comments outside the scope in a manner that changes the substance of the proposed Basin Plan amendment. Therefore, for comments outside the scope we only provide a contextual response that recognizes the commenter's overall view and intent, and describe actions we are taking or intend to take that do not involve changes to the proposed Basin Plan amendment.

Please note that during the testimony hearing, Water Board staff responded in some detail to a number of comments and questions. We have reiterated some of those responses here, but for fullest understanding of the issues we refer readers to the hearing transcript.

Organization of this document

This Responses to Comments document is organized as follows:

- I. Introduction including general response to comments raised by Board members and/or multiple commenters (“Key Issues”)
- II. Questions and comments from Water Board members
- III. Written comments
- IV. Oral comments
- V. Staff-initiated changes
- VI. References

Proposed changes to the mercury TMDL amendment adopted by the Water Board in September 2004 are indicated in single ~~strikeout~~ or underline in the August 9 board package documents (as they were in the April 21, 2006 documents for public review).

Changes proposed in response to comments received during the recent comment period, on the April 21, 2006 *Draft for Public Review*, are shown in double ~~strikeout~~ or underline.

Changes to the proposed Basin Plan amendment or staff report are indicated in this indented typeface.

Key Issues

A number of important issues and key questions were raised by members of the Water Board and attendees at the June testimony hearing, and/or by those who submitted written comments. In this section of the Introduction we summarize those key issues and our responses.

U.S. EPA Support

U.S. EPA expressed their support for staff’s revisions to the mercury water quality objectives and individual wasteload allocations, and the application of compliance triggers.

We note and greatly appreciate the supportive statements from U.S. EPA and others (see comment letters nos. 3 and 7, and comment no. 5.4, in the Written Comments section of this document).

Wastewater – Enforceable Limits

Members of the Water Board and stakeholders expressed concerns regarding whether wasteload allocations for wastewater dischargers will result in enforceable limits.

Our comprehensive, watershed approach to reducing mercury in Bay fish is a protective and reasonable strategy that includes enforceable limits. The water quality-based effluent limitations we propose for wastewater dischargers include both numeric limits and narrative requirements. In response to the remand, we have reduced municipal wastewater allocations by 33 percent in order to, in the State Water Board’s words, “incorporate the most effective treatment methods and pollution prevention practices practicable for [municipal and industrial point source] discharges.” In response to comments, we have also tightened requirements to evaluate *and correct* problems when triggers are exceeded.

We believe this is good policy – it is both protective of human and wildlife health and proportionate with the magnitude of the problem caused by wastewater dischargers. Our reasons are several:

- Both municipal and industrial individual effluent limits based on individual allocations are enforceable when aggregate limits are exceeded (see Figure RTC-1).
- Monthly concentration and mass triggers provide further accountability and corrective actions for both municipal and industrial dischargers (see Figure RTC-2).
- Narrative requirements provide a third level of accountability under which dischargers must recurrently demonstrate they are implementing effective pollution prevention and treatment systems.
- The aggregate final municipal wastewater wasteload allocation (11 kg/yr) is less than 2 percent of the TMDL of 700 kg/yr. Any individual wastewater discharge would account for less than 0.3 percent of the TMDL.

For more detail, please see our response to Board member Wolff’s third question, in the next section of this document.

Wastewater – Reducing Allocations

At the testimony hearing, Water Board members discussed the environmental value of staff’s proposal to reduce the allocation to wastewater from 18 to 12 kg/yr, in the context of the reality that the revised allocation is less than 2 percent of the TMDL (see Figure RTC-3). Members also commented that TMDLs may, indeed, be our final chance to address this legacy mercury problem when permits have not been stringent enough.

We share the Board’s concern about the focus on a category which amounts to less than 2 percent of the TMDL. In response to the remand, we have reduced municipal wastewater allocations by 33 percent in order to, in the State Water Board’s words,

“incorporate the most effective treatment methods and pollution prevention practices practicable for [municipal and industrial point source] discharges.”

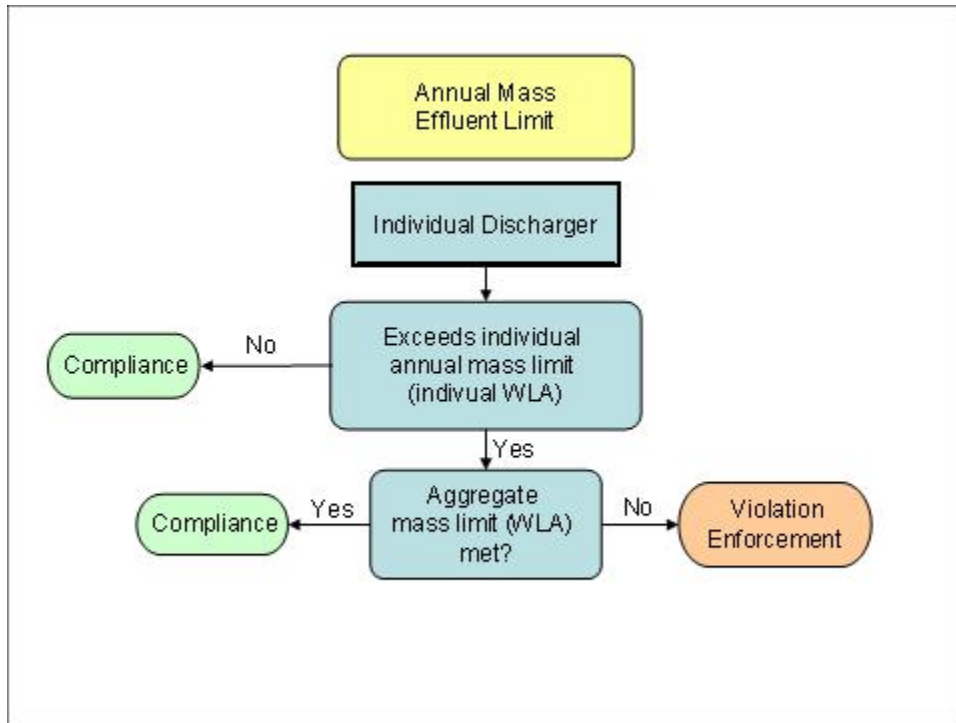


Figure RTC-1. Enforceable individual wasteload allocations (WLAs)

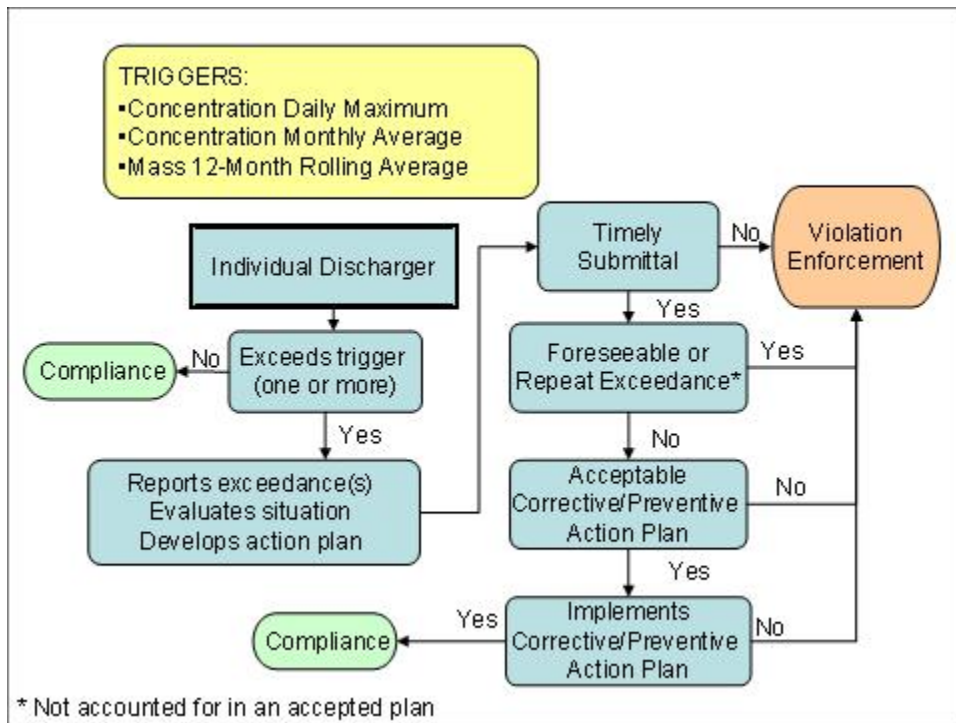
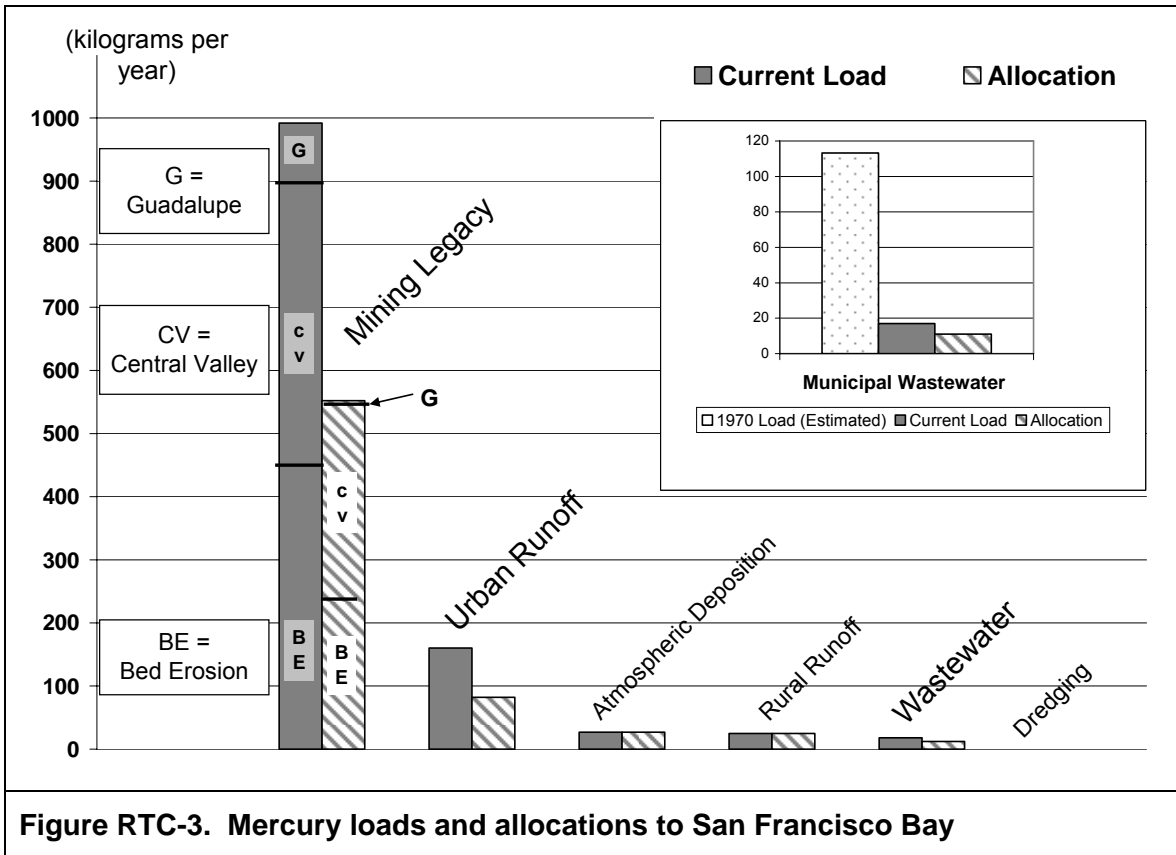


Figure RTC-2. Enforceable triggers

However, as shown in Figure RTC-3, the NPDES program has already been effective in reducing wastewater mercury discharges. Since the 1970's when the first NPDES permits were issued, municipal wastewater discharges of suspended solids to the Bay have been reduced by 85 percent. Because most mercury in wastewater is attached to suspended solids, we estimate that municipal dischargers have decreased their mercury discharges by 85 percent in three decades.



In fact, the Bay's very real and significant mercury problem is largely a legacy of gold mining. This TMDL provides the challenge and the opportunity for other sources—namely, mining legacy and urban runoff—to achieve sufficient reductions in their mercury load such that Bay fish are safe for consumption.

Urban Runoff "Deemed In Compliance"

In response to requests from Water Board members, we are removing the "deemed in compliance" statement associated with urban runoff permit requirements. Omission of this language, as Board member Waldeck suggests, will be consistent with the recently adopted pesticides TMDL. For more detail, please see our response to Board member Wolff's first question, in the next section of this document.

Pollutant Offsets

A number of commenters articulated interest and concern with the issues of pollutant offsets. Board member Wolff articulated the basic premise of the watershed approach, which explains why the Water Board might want to allow pollutant trading: “because by working as a group, more can be achieved with the same dollar investment.” He added, “When we come to mercury in the Bay, if all mercury is the same and it does not matter where it is discharged, then offsets will be a good thing. But if it turns out that where you release the mercury is critically important to the harm that occurs, it is not appropriate to use offsets. [We should not] let people engage in trading unless we know there are no local impacts.”

Staff heartily agree. The proposed TMDL does not establish a pollutant offset or trading program, but it does communicate conditions for such a program that reflect Board member Wolff’s perspective and concerns raised by commenters. As specified in the remand, development of such a scheme is in the hands of the State Water Board.

If, after all other appropriate measures are undertaken to meet the wastewater allocations, it is apparent that offsets are still needed, the Water Board will not be committed to raising allocations. The proposed amendment only states a commitment to consider modifying allocations and the schedule to attain them.

CEQA and Regulatory Analyses

Several commenters questioned the completeness, accuracy, and adequacy of staff’s California Environmental Quality Act (CEQA) analysis, and the Water Code Section 13241 regulatory analysis, which requires consideration of economics.

We have revisited the analyses and, based on currently available information, find them to be sound. In response to these comments, however, we have revised our explanation of the Environmental Checklist in order to clarify the basis of our conclusion that the revisions to the 2004 mercury TMDL and the water quality objectives we now propose will not result in significant environmental impacts. In our checklist revision we explain that upgrading to advanced treatment, while it has the potential for construction impacts, is not a reasonably foreseeable method of compliance with the more stringent wasteload allocation requirements. We base this conclusion directly on the Bay Area Clean Water Agencies' (BACWA’s) comment that major treatment process upgrades are not anticipated (due to prohibitive cost), and that BACWA intends to investigate more reasonable and feasible means to comply.

II. WATER BOARD MEMBERS QUESTIONS AND COMMENTS

Comment from Board members Bruce and Warren

Board members Bruce and Warren posed questions about the mercury TMDLs in process at the Central Valley Water Board. "What is the timetable for the Central Valley Region's mercury TMDLs? ...What kind of coordination will we have with the Central Valley Water Board? What will happen if their TMDLs are not stringent enough to implement our allocation to the Central Valley Board?"

The Central Valley Water Board has just released a draft report for the Sacramento-San Joaquin Delta Estuary mercury TMDL, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Methylmercury in the Sacramento-San Joaquin Delta Estuary, Staff Report, Draft Report for Scientific Peer Review, June 2006* (CVRWQCB 2006). The Delta TMDL is well underway. Action by the Central Valley Board is expected in 2007.

Staff of both boards confer frequently to make sure that all of the mercury TMDLs are coordinated. The proposed water quality objectives to protect human health in both the Central Valley and San Francisco Bay regions are based on the same Bay/Delta fish consumption rate of 32 grams per day. The Central Valley Delta mercury TMDL is being designed to attain the 110 kg/yr load reduction assigned in the Bay mercury TMDL. In addition, Central Valley board staff are evaluating a variety of strategies to control methylmercury production. We eagerly await their results and look forward to benefiting from this work.

Comments from Board member Wolff

Board member Wolff asked about three topics: stormwater 'deemed in compliance' language, methylmercury, and enforceable individual wasteload allocations.

Comment 1: Board member Wolff questioned language in Appendix A, p. 16: "An urban runoff management agency that complies with these permit requirements shall be deemed to be in compliance with the receiving water limitations relative to mercury." Dr. Wolff noted that he asked for this "illogical sentence" to be removed in the Pesticide TMDL and questioned why in the language reappears in the mercury TMDL.

At the hearing, Dr. Mumley responded to Dr. Wolff that since this issue was not raised by State Water Board in its Remand Order, staff chose not to deal with it in this revision of the TMDL. However, staff concur with Mr. Wolff's request that the language be removed, and in deference to his comment have made the following change on page A-16 to the proposed Basin Plan amendment.

~~An urban runoff management agency that complies with these permit requirements shall be deemed to be in compliance with receiving water limitations relative to mercury.~~ Once the Water Board accepts that a requirement has been completed by an urban runoff management agency, it need not be included in subsequent permits for that agency. These requirements apply to municipalities covered by the statewide municipal stormwater general permit (issued by the State Water Resources Control Board) five years after the effective date of this Mercury TMDL.

Also, in order to explain this change and to provide context, the following passage was added to the end of section 4 on page III-9 of the Staff Report.

Additionally, a sentence was removed from page A-16 of the proposed Basin Plan amendment that suggested that urban runoff management agencies that comply with “permit requirements shall be deemed to be in compliance with receiving water limitations relative to mercury.”

The deleted sentence is, strictly speaking, not necessary in this context. The receiving water limitations referenced in the deleted sentence state that “discharges shall not cause or contribute to violations of applicable water quality standards.” Under State Board Order WQ. 99-05, the Water Board must require urban runoff management agencies via their NPDES permits to demonstrate compliance with receiving water limitations through the timely implementation of control measures and other actions designed to effectively reduce pollutants in discharges. By design, the urban stormwater wasteload allocations in the TMDL reflect the loads stormwater discharges must attain to manage their cause and contributions to violations of applicable water quality standards for mercury. The associated implementation plan provides a means for urban runoff management agencies, to the extent it results in attainment of the wasteload allocations, to demonstrate attainment of receiving water limitations.

Comment 2: Dr. Wolff requested inclusion of more specific references to methylmercury allocations in the proposed Basin Plan amendment. Specifically, he

- **Requested the addition of the following to the third question on page A-24 of the proposed Basin Plan amendment re: adaptive implementation: “In particular, is there new evidence regarding methylmercury that might justify a methylmercury TMDL or allocation, either in addition to or instead of the total mercury approach used initially in this Basin Plan amendment?”**
- **Requested clarifying language added to the proposed Basin Plan amendment on p. A-19 (last bullet), and p. A-20 (fourth bullet): “Conduct or cause to be conducted studies aimed at a better understanding mercury fate and transport, biological uptake, and the conditions [in] which methylmercury occurs in the San Francisco Bay Basin and tidal areas....The first such studies shall be**

completed no later than four years after adoption of this Basin Plan amendment by the Regional Board.”

- Requested the addition, on p. A-18, last bullet, and p. A-20, fourth bullet, of the following: “and the conditions which methylation occurs in the San Francisco Bay and tidal areas.”
- Asked that a timeframe be included in the Basin Plan for completion of the first round of these studies

In addition, he requested adding the following to the third question on page A-24 of the proposed Basin Plan amendment re: adaptive implementation: “In particular, is there new evidence regarding methylmercury that might justify a methylmercury TMDL or allocation, either in addition to or instead of the total mercury approach used initially in this Basin Plan amendment?”

Staff concur with the request to include more specific references to methylmercury. We have made the changes indicated below to the proposed Basin Plan amendment.

Last bullet on page A-18 and fourth bullet on page A-20:

- Conduct or cause to be conducted studies aimed at better understanding mercury fate, transport, the conditions under which mercury methylation occurs, and biological uptake in San Francisco Bay and tidal areas;

Third question on page A-24:

3. Is there new, reliable, and widely accepted scientific information that suggests modifications to targets, allocations, or implementation actions? In particular, is there new evidence regarding methylmercury that might justify a methylmercury TMDL or allocation, either in addition to or instead of the total mercury TMDL and allocations? If so, how should the TMDL be modified?

In regard to adding a timeframe for completion of studies, initial efforts are already underway to study methylmercury production in Bay wetlands via a Water Board Proposition 13 grant, and via a Water Environment Research Foundation project to study the bioavailability of mercury from municipal wastewater and other sources. These studies are scheduled to be completed by 2009. Rather than pose a timeframe in the Basin Plan, our preferred alternative is to prepare a work plan for adaptive implementation studies that would provide a basis and context for the five year review cycle called for in the Adaptive Implementation section of the proposed Basin Plan amendment.

Comment 3: In his third question, Dr. Wolff asked for clarification of staff’s intent in “this very difficult question” of individual, enforceable permit limits for mercury, and the difference between such limits and the aggregate limits referenced in the

TMDL. “How do those wasteload allocations in the TMDL compare with the existing limits that are in the permits?”

He suggested that the following language be substituted on p. A-19 of the proposed Basin Plan amendment, in the section that enumerates consequences for facilities that exceed their individual mercury load allocations or effluent trigger concentrations: “If a facility exceeds its individual mercury load allocation, or an effluent mercury trigger concentration, it shall be in violation of its permit unless it has both (a) obtained a credit for additional discharges through the procedures specified in its permit, and (b) demonstrated no local effects of mercury discharges according to the criteria specified in its permit. Permit limits plus credits obtained, or minus credits granted to other dischargers, shall be the enforceable numeric criteria for determining individual violations.”

The individual effluent limits that currently exist in municipal and industrial NPDES wastewater permits are performance-based interim limits that are computed based on an upper bound estimate of current effluent mercury concentrations from all facilities multiplied by the yearly flow rate from each facility. The sum of the current, performance-based mass effluent limits in NPDES permits is greater than the sum of the individual wasteload allocations.

The individual wasteload allocations were derived by first computing the mean yearly mercury mass discharged from all wastewater treatment plants for a number of years and the standard deviation of this mass over the same time period. Then, to take interannual variability into account, current mean yearly mercury mass loading from all facilities was estimated as the 99th percent upper confidence level of the mean yearly mercury mass discharged, computed from the mean of each year and the standard deviation. A separate current loading estimate was computed for all municipal facilities combined and all industrial facilities combined. Then, for municipal facilities, the current combined (aggregate) loading estimate was allocated to individual facilities (to arrive at individual wasteload allocations) based on a factor that considered the proportion of total mass and total effluent volume contributed by each facility. For industrial facilities, a similar approach, but with slightly different factors for mass and volume, was used to allocate to individual facilities. These individual wasteload allocations sum to the current aggregate load estimate for all facilities combined, 17 kg/yr for municipal and 1.3 kg/yr for industrial facilities.

We have considered the credit-based enforcement approach suggested by Dr. Wolff and make the following observations that give us cause to maintain the comprehensive approach proposed in the April 2006 Staff Report and Basin Plan amendment. First, although we are confident that adverse local effects are unlikely, and there is work underway investigating local impacts, there is currently no consensus about the precise way to determine what constitutes a local receiving water impact. Thus, it may not be

possible at this time to make the explicit demonstration that there are no local effects. Second, compared to the implementation plan in the proposed Basin Plan amendment (described further below as water-quality based effluent limitations), there may be less corrective action taken because it would be possible for a discharger to obtain credit to increase its effluent limit and thus avoid the automatic requirements to implement corrective action plans if triggers are hit. Third, the credit-based proposed approach introduces an additional level of complexity for implementation with presumably no additional water quality benefit.

The implementation strategy for wastewater sources in the proposed Basin Plan Amendment includes both numeric and narrative water-quality based effluent limitations all of which are enforceable. The narrative requirements include: continued strong pollution prevention programs, monitoring effluent for methylmercury, and the obligation to study potential localized effects at the point of discharge, Bay mercury studies, and risk reduction activities. Numeric requirements consist of facility-specific mass load effluent limits equal to individual wasteload allocations. Implementation consists of a two-tiered enforcement scheme in which enforcement action would be taken on individual facilities that exceed their mass limits if the aggregate limit is exceeded. Additional numeric limitations consist of compliance triggers for effluent concentration and mass (for more detail see response to comment 3.2b in Section III. Written comments), which will result in the equivalent of immediate enforcement action requiring corrective action without the need to take a formal enforcement action.

Our proposed water-quality based effluent limitations provide individual accountability, and our plan does so in a way that encourages innovative and flexible strategies on the part of the dischargers. The State Water Board is already in the process of developing a pollutant offset program. The proposed scheme for wastewater represents a limited trial approach for such an offset program by recognizing implicit (rather than explicit) trading between sources. In using the proposed approach, it is much more likely that a facility would take on an extra responsibility in helping to treat a waste stream from another entity (like urban runoff) since it would not be exclusively preoccupied with exceeding its individual allocation to the exclusion of all other considerations, including proactive stewardship. For example, the City of Palo Alto is currently seeking grant funding for a proposed a project to route dry weather urban runoff to its wastewater treatment plant.

There are still concerns about local effects near the point of discharge, but these concerns would not be addressed merely by taking enforcement action on individual wastewater facilities without regard for the total mass from all facilities. Until we know more about the impacts of wastewater (and other) discharges on receiving waters, there is no basis for supposing that an exceedance of an individual allocation would cause an adverse impact in the receiving water. Our implementation plan addresses the issue of local

effects directly by including narrative requirements to measure methylmercury in effluent and to study the potential for local effects at the point of discharge.

Finally, wastewater dischargers want to demonstrate that a group approach will work. With very few exceptions, local dischargers have already been demonstrating proactive stewardship in this arena. They want to be able to show that they can take responsibility for solving problems on their own. If certain dischargers are not performing, our approach will foster a spirit of self regulation that will cause the group to pressure underperformers.

This comprehensive, numeric and narrative approach provides a protective and reasonable implementation strategy in view of both the relative aggregate contribution of wastewater sources to the Bay and the state of scientific knowledge regarding its relevance to the overall mercury problem. This approach results in reduced loads from wastewater sources, provides for individual accountability with immediate corrective action, and addresses outstanding concerns about local impacts of wastewater discharges.

Questions and comments from Board member Eliahu

Board member Eliahu asked whether the federal Bureau of Reclamation's projected "retirement" of a substantial portion of the Westlands (agricultural lands in the San Joaquin river basin west of Highway 5) will have an impact on mercury coming from the Central Valley.

Retirement of Westlands agricultural land is expected to reduce selenium discharges to the San Joaquin River and to San Francisco Bay. Mercury naturally occurs in the Coast Range, and in the Sierras due to historic use in gold mining. The Central Valley Water Board staff calculated that over 90 percent of the mercury load to the Delta (and hence to San Francisco Bay) is from the Sacramento (not the San Joaquin) river basin.

Board member Eliahu expressed discomfort with reducing the wastewater wasteload allocation in the context of much, much larger loads from other sources. He suggested a smaller reduction in the wastewater allocation than the 33 percent proposed by staff, for example, an allocation of 16 kg/yr rather than the proposed 12 kg/yr (reductions from the current load of 18 kg/yr).

Staff appreciates Mr. Eliahu's continued support of the approach in the mercury TMDL the Water Board adopted in 2004, which capped wastewater discharges at their current loading. Nonetheless, the Remand Order directed staff to "modify the wasteload allocations to ensure that they are set at a level that would require municipal and industrial point source dischargers to incorporate the most effective treatment methods and pollution prevention practices practicable for their discharges." The percent

reduction was selected because it is achievable through the implementation of reasonably foreseeable measures and improvements in treatment technology.

For more information on this point, see “Wastewater – Reducing Allocations” in the summary of key issues, above.

Mr. Eliahu also expressed concern over the continued, and in his opinion disproportionate, focus on wastewater in the revised TMDL. He asked, “In 20 years...[if] you don’t meet your objective of reducing the bedload in the Central Valley, what are you going to do? Go back to the [wastewater allocation] and reduce it to zero?”

The TMDL is scheduled for review every five years when staff will evaluate new and relevant information from monitoring, special studies, and scientific literature. The special studies would include studies undertaken by wastewater dischargers to:

- Better understand mercury fate, transport, and biological uptake in San Francisco Bay and tidal areas
- Evaluate the presence or potential for local effects on fish, wildlife, and rare and endangered species in the vicinity of wastewater discharges

It is our hope that the completion of these studies will resolve whether the focus on wastewater is disproportionate or appropriate. During the review process, staff will determine whether modifications to the targets, allocations, or implementation plan are necessary, and make a recommendation to the Water Board.

Comments from Board member Waldeck

Board member Waldeck communicated his concerns to the Executive Officer via email before the testimony hearing (see Written Comments).

Comment 1: Hundreds of thousands of women of child-bearing age in this country have levels of mercury in their bodies that exceed the dose considered unsafe by U.S.EPA. Women in the Bay Area have particularly high levels because we have both high-end consumers of large prey fish and ...significant numbers of subsistence fishing families who eat contaminated fish from the Bay. I am very concerned about the health of our residents—I believe we should be doing everything in our authority to help protect them by creating an aggressive policy to clean up mercury.

We share Mr. Waldeck’s concern and are confident that the proposed TMDL and implementation plan reflect an aggressive strategy, within our authority, to protect both humans and wildlife who eat Bay fish. We are also aware that we need to clarify the current understanding of mercury levels in Bay Area women relative to consumption of Bay fish.

At this time we do not have information about mercury in the bodies of subsistence fishers' families. However, a study published in 2003 by California Pacific Medical Center in San Francisco evaluating mercury levels in patients of a private internal medicine practice in San Francisco found that over 90 percent of these middle- to upper-income patients had mercury in their bodies above the U.S EPA safe level. However, the study's participants exclusively consumed *commercially-caught* fish; consumers of Bay or other local fish were excluded from the study. The study found that contribution of mercury from vaccines and silver/mercury dental amalgams was insignificant compared to diet, and that consuming swordfish had the highest correlation with mercury level. Stopping, or greatly reducing, consumption of moderate- to high-mercury-content fish was effective in reducing mercury levels, but took longer than 21 weeks for many individuals.

Further information regarding mercury risks to human health can be found at the Turtle Island Restoration Network's Mercury in Seafood campaign website at <http://www.gotmercury.org>. This website provides a useful tool for individuals to calculate their mercury exposure, explains the U.S. EPA "reference dose" in plain English, and contrasts it with the U.S. Food and Drug Administration action level.

Comment 2: "I would like staff to consider removing [the "stormwater 'deemed in compliance'" language] to be consistent with ... the policy decision we already made in the pesticide TMDL."

Please see the response to Board member Wolff's first question, above.

Comment 3: According to staff's best estimate, there is almost as much mercury coming into the Bay Area in crude oil as there is coming in from the mining legacy in the Central Valley....Why are we letting the refineries off the hook, here?... I would like to ask staff to add one question to the list here requiring the refineries to tell us how much mercury is contained in the crude oil they bring into the Bay Area every year and where it is going."

Actually, the Water Board has imposed a requirement on petroleum refineries, under section 13267 of the California Water Code, to prepare technical reports regarding the fate of mercury in crude oil as it relates to discharges of mercury into the Bay. This 13267 requirement is to estimate the total mass of mercury emitted directly to the atmosphere per year from all Bay Area refineries combined, and how much is discharged to the Bay via direct or indirect deposition. Final reports are due in mid-2007. If these reports are not satisfactory, the Executive Officer may issue a revised 13267 requirement for additional analyses. At its discretion, the Water Board could direct the Executive Officer to issue a revised 13267 requirement for additional analyses now or anytime before the final reports are due.

Comment 4: Does it make sense for us to say we will not enforce against individual wastewater dischargers that violate their permit limits?...Doesn't the Clean Water Act require permit limits to be enforceable?...I would like staff to consider making individual permit limits enforceable regardless of whether the group load is violated."

Please see our response to Board member Wolff's third question, above.

III. WRITTEN COMMENTS

Comment Letters Received

1. U.S. Environmental Protection Agency, Alexis Strauss
2. U.S. Environmental Protection Agency, Diane Fleck
3. Baykeeper, National Resources Defense Council, Clean Water Action
4. County of Santa Clara
5. Bay Area Clean Water Agencies
6. East Bay Municipal Utilities District
7. City of San José
8. City of Sunnyvale
9. LeBoeuf, Lamb, Greene & McRae LLP (City of Sunnyvale)
10. Western States Petroleum Association
11. Bay Area Stormwater Management Agencies Association

Comment Letter no. 1: U.S. Environmental Protection Agency, Alexis Strauss; May 24, 2006

U.S. EPA expressed its concurrence with the proposed changes to the mercury TMDL adopted by the Water Board in 2004. We note and greatly appreciate the following supportive statements.

“We fully support the proposal to rescind the numeric Basin Plan objective for mercury in San Francisco Bay and replace it with fish-tissue based objectives. We support your use of the fish consumption information contained in the Technical Report, San Francisco Bay Seafood Consumption Study (SFEI, 2000) to determine human health objectives and compliance requirements. The human health and wildlife objectives, and respective compliance determinations, are appropriate and clearly defined.”

“We support the proposed revision to individual waste load allocations for NPDES dischargers. We also support the application of compliance triggers and the requirement to monitor methylmercury in effluent.”

Comment Letter no. 2: U.S. Environmental Protection Agency, Diane Fleck, P.E., Esq.; June 5, 2006

Comment 2.1: “The Draft Staff Report at page III-10 says that the Board will be seeking approval of the 20 year implementation schedule under 40 CFR part 131.13 for

the wastewater allocations. The report does not mention this for stormwater allocations, which will also require a schedule (pages 15 & 25 of the draft BPA). We suggest you add "and stormwater" to the statement in the Staff Report. In your letter to EPA seeking approval of a schedule for wastewater allocations, please also include a request for approval of a schedule for stormwater allocations. "

We respond to this comment with our response to comment 2.2, below.

Comment 2.2: "In your request to EPA for approval of the implementation schedules under 40 CFR Part 131.13, you will need to include documentation or an explanation of how these implementation schedules are consistent with 40 CFR Part 122.47. Part 122.47 requires compliance with water quality standards as soon as possible."

When the TMDL is transmitted to U.S. EPA for its approval, we will request approval for implementation schedules both for stormwater and wastewater allocations, and we will include documentation or explanation of how the schedules are consistent with 40 CFR Part 122.47. Accordingly, page III-10 of the Staff Report has been revised as follows:

In conjunction with approval of the proposed water quality objectives and the revised Mercury TMDL, the Water Board will also seek U.S. EPA approval of the 20-year final NPDES wastewater and stormwater allocation implementation schedules under 40 C.F.R. § 131.13, which allows U.S. EPA to approve water quality standard implementation policies.

Comment 2.3: "Water Quality Standards Applicable to San Francisco Bay: On page II-3 of the Staff Report, Table 2-1, the explanation of the horizontal lines says that both the Basin Plan objectives and the CTR criteria apply in 'other marine waters.' Our understanding is that the Basin Plan objectives are not (and never were) applicable to South San Francisco Bay below Dumbarton Bridge. If so, we suggest you add 'except for South Bay below Dumbarton Bridge' to this explanation (and remove it from the list following the 'e.g.,')."

We erred in including the Basin Plan objectives for the South Bay in Table 2-1 and on Figure 2-1. See our response to comment 2.4 for corrections to the Staff Report.

Comment 2.4: "Water Quality Standards Applicable to San Francisco Bay: On page II-13 of the Staff Report, Table 2-4, the second category with the diagonal lines in both directions (the cross-hatched lines) indicate that the objective will be 0.051 ug/l. It is our understanding that the objectives will be 0.051 ug/l and the new fish tissue objectives. If so, we suggest adding the fish tissue objectives to the explanation. This would be consistent with the legend of the figure on the following page."

As noted on page II-4 of the Staff Report, the applicability of the Basin Plan objectives (currently defined by salinity) and the California Toxics Rule (CTR) criteria (defined by beneficial use) within the San Francisco Bay Region is a complicated patchwork because the CTR was promulgated around the then-current Basin Plan mercury objectives (previously defined by geographic boundaries). Mercury water quality objectives for all other water bodies in the San Francisco Bay Region will be updated either as part of a statewide action or as TMDLs are developed for mercury-impaired waters (Staff Report page II-1.)

While we erred in including the Basin Plan objectives for the South Bay in Tables 2-1 and 2-4, and on Figures 2-1 and 2-2, we did state correctly in the Regulatory Chronology section of the Staff Report (page II-4):

U.S. EPA approved the 1995 Basin Plan subsequent to the CTR, which changed the applicability of toxic pollutant objectives from a geographic designation to a salinity threshold.... The 1995 Basin Plan numbers applied in addition to the CTR (except for the South Bay below Dumbarton Bridge which is excluded from the 1986 Basin Plan Table III-2A and 1995 Basin Plan Table 3-3).

We have made the following changes in the Staff Report to Figures 2-1 and 2-2, and to Tables 2-1 and 2-4.




Figure 2-1 (page II-2): A different indicator will be used for “SF Bay South of Dumbarton Bridge” which will be described in the legend as CA Toxics Rule (CTR) (0.051 ug/L).

Figure 2-2 (page II-14): The legend text for the hatched area (“SF Bay South of Dumbarton Bridge”) will be changed as follows:
0.2 ppm in large fish (human health)
0.03 ppm in small fish (wildlife)
~~2.1 ug/L 1-hour avg.~~
0.051 ug/L 30-day avg.

Text in Table 2-1 (page II-3) pertaining to marine water quality objectives has been revised as indicated below. No changes are proposed to freshwater objectives (for brevity, these objectives are not included here).

Table 2-1. Existing Total Mercury Numeric Water Quality Objectives	
	<p>Existing Basin Plan Marine Objectives (salinity greater than 10 PPT 95% percent of the time; <u>does not apply to South Bay south of Dumbarton Bridge</u>)</p> <p>Table 3-3 (1986 Table III-2A)</p> <ul style="list-style-type: none"> • 0.025 ug/L 4-day average, and • 2.1 ug/L 1-hour average; Note: for waters in which the salinity is between 1 and 10 PPT this more stringent 1-hour objective applies
	<p><u>The California Toxics Rule (CTR) criterion for human health for consumption of organisms applies to South Bay south of Dumbarton Bridge:</u></p> <p><u>§131.38(b)(1)</u></p> <ul style="list-style-type: none"> • <u>0.051 ug/L 30-day average; this CTR criteria applies to consumption of organisms only</u>
	<p>Both Basin Plan (BP) objectives and California Toxics Rule (CTR) criterion for human health for consumption of organisms only apply in other marine waters <u>outside of San Francisco Bay</u> (e.g. South Bay below Dumbarton Bridge Tomales Bay, Drake and Limantour Esteros, Bolinas Lagoon, etc.):</p> <p>Table 3-3</p> <p>§131.38(b)(1)</p> <ul style="list-style-type: none"> • 0.025 ug/L 4-day average, and • 2.1 ug/L 1-hour average; see note above • 0.051 ug/L 30-day average; this CTR criteria applies to consumption of organisms only

Table 2-4 (page II-13): The first section, water quality objectives in San Francisco Bay, has been revised to clarify the different objectives south of Dumbarton Bridge. The second section, water quality objectives in Other Marine Waters, has been clarified that this does not apply to San Francisco Bay. No other changes are proposed to Table 2-4.

Table 2-4. Proposed Total Mercury Numeric Water Quality Objectives	
SAN FRANCISCO BAY – <u>North of Dumbarton Bridge</u>	
	<p>Basin Plan Table 3-3B</p> <ul style="list-style-type: none"> • 0.2 ppm, average mercury, wet weight, in large fish, • 0.03 ppm, average mercury, wet weight, in small fish, and • 2.1 ug/L 1-hour average
SAN FRANCISCO BAY – <u>South Bay south of Dumbarton Bridge</u>	
	<p><u>Basin Plan</u> <u>Table 3-3B</u></p> <p>California Toxics Rule 40CFR131.38(b)(1)</p> <ul style="list-style-type: none"> • <u>0.2 ppm, average mercury, wet weight, in large fish,</u> • <u>0.03 ppm, average mercury, wet weight, in small fish, and</u> • 0.051 ug/L 30-day average
OTHER MARINE WATERS	
<p>Both Basin Plan (BP) and California Toxics Rule (CTR) apply in other marine waters <u>outside of San Francisco Bay</u> (salinity greater than 10 PPT 95 percent of the time; e.g. Tomales Bay, Drake and Limantour Esteros, Bolinas Lagoon, etc.):</p>	
	<p>Basin Plan Table 3-3B</p> <ul style="list-style-type: none"> • 0.025 ug/L 4-day average, and • 2.1 ug/L 1-hour average; Note: for waters in which the salinity is between 1 and 10 PPT this more stringent 1-hour objective applies
	<p>California Toxics Rule 40CFR131.38(b)(1)</p> <ul style="list-style-type: none"> • 0.051 ug/L 30-day average; this CTR criteria applies to consumption of organisms only

Comment Letter no. 3: Baykeeper, Sejal Choksi, Esq.; Natural Resources Defense Council (NRDC), Michael Wall, Esq.; and Clean Water Action, Andria Ventura; June 5, 2006

Comment 3.1: “We appreciate that Staff’s proposal already makes a number of helpful proposed changes. These include:

- **Requiring all dischargers to monitor for and report levels of methyl mercury in discharges;**
- **Reducing wastewater allocations;**
- **Tightening language on pollution prevention studies including a schedule of actions and effectiveness measures to be included in wastewater permits;**
- **Tightening language on demonstration of good performance for all industrial wastewater dischargers;**
- **Strengthening risk reduction language to include every discharger and including the specific risk reduction language from the remand; and**
- **Referencing the SF Bay Long-Term Management Strategy’s restriction for dredged spoils.”**

Comment 3.2a: “Group allocations for municipal and industrial wastewater dischargers should be eliminated, and individual wasteload allocations should be enforceable....Enforcement actions could be taken against individual dischargers only if the entire category of dischargers violated its group limit. This scheme is akin to not ticketing someone for speeding because everyone else is driving below the speed limit...This scheme violates both the plain direction of the State Board’s remand order and the clear requirements of the Clean Water Act....”

The commenter is conflating two related but distinct concepts: wasteload allocations and water quality-based effluent limits (WQBELs). The distinction is relevant because wasteload allocations are **never** directly enforceable in a permit by themselves. Rather, it is the WQBELs which are developed from wasteload allocations that are enforceable. The TMDL must include wasteload allocations for all individual National Pollutant Discharge Elimination System (NPDES) discharges, and the Water Board must then implement these allocations in NPDES permits.

The TMDL does not violate the State Water Board’s remand order, which directed us to “establish individual wasteload allocations.” The TMDL incorporates wasteload allocations for all individual NPDES dischargers, and the Water Board must then implement these allocations in NPDES permits. These individual wasteload allocations are shown in Tables 4-x through 4-z of the proposed Basin Plan Amendment.

Our proposed approach to implementing the allocations does not violate the Clean Water Act (CWA). The CWA requires that water quality-based effluent limitations must be “consistent with the assumptions and requirements of any available wasteload allocation” (40 C.F.R. § 122.4(d)(1)(vii)). Our approach to implementation of both individual and aggregate wasteload allocations conforms to this requirement.

With the goal of meeting water quality standards for the Bay foremost in mind, Water Board staff first determined what the wasteload allocations in aggregate would need to be in order to meet water quality standards when added to the allocations for all other source categories. In addition, in response to the remand, the aggregate allocation for municipal wastewater dischargers was reduced. The industrial aggregate allocation was also reduced after correcting an error.

Following determination of the allocation for each category of dischargers, the aggregate allocation was distributed among individual facilities. The aggregate mass mercury discharged from all facilities is the relevant mercury mass load to consider when assessing progress toward and eventual achievement of the TMDL and water quality standards. The aggregate mass could have been distributed among individual facilities in any number of ways and still accomplish the overall goal of achieving the TMDL. We used an approach that considered relative effluent volumes and the amount of mercury discharged so as not to penalize very small facilities or those with very small mercury

concentrations (like advanced treatment plants). However, the particular manner of distributing the aggregate mass is not a critical factor in determining whether or not the TMDL will be achieved. Only the aggregate mass is relevant in this regard. Therefore, it is appropriate that numeric water quality-based effluent limitations for NPDES wastewater dischargers include consideration of the magnitude of all contributing wastewater dischargers.

The speed limit is a false analogy. Speed limits protect us all from the threat which individual speeding vehicles pose, and tickets for speed limit violations are appropriate. The corporate average fuel economy (CAFE) is a better analogy. We assigned each of the source categories a mass allocation - analogous to CAFE standards for each car manufacturer. To meet the overall goal of achieving the TMDL, within each source category it does not matter how much an individual source (car model) discharges as long as the total does not exceed the allocation (CAFE standard).

This TMDL sets the aggregate load for all wastewater discharges necessary to account for their contribution to attain water quality standards at 11 kg/yr. This reflects a 30 percent reduction from the aggregate allocation established in 2004, which was already protective. So long as municipal wastewater as an aggregate does not exceed this number, an individual discharger exceeding its allocation (which is not expected because of the concentration trigger) does not harm water quality. Localized effects could be of concern for which a "fix-it ticket" is built into the individual wasteload allocation implementation scheme through requirements to evaluate and implement corrections to any exceedances, in the unlikely event they occur.

There are many advantages to the watershed approach for municipal wastewater treatment plants described in this response to comments document. As a whole (aggregate), wastewater treatment plants have had enormous treatment improvements since the Clean Water Act went into effect in the 1970's. For example, municipal wastewater has reduced discharges of suspended solids to the Bay by 85 percent (untreated, most mercury in wastewater is attached to suspended solids), hence they have decreased their mercury discharges by approximately 85 percent.

If mercury from municipal wastewater treatment plants were more bioavailable than mercury from other sources, then we might expect a decrease in fish mercury concentrations since the 1970's. "(Y)et striped bass mercury concentrations do not appear to have declined at all over the past 35 years" (SFEI 2006 Draft Contaminant Concentrations in Fish from San Francisco Bay, 2003, Contribution No. 432, p.11). Furthermore, the other source categories contribute so much more mercury than wastewater, that the 85 percent reduction in municipal wastewater has not reduced bioaccumulation.

Comment 3.2b: "...The group wasteload approach is bad policy in part because it would allow for higher net mercury discharges and the potential for localized hotspots immune from enforcement action.... The staff report does not analyze or address either of these impacts. The precedent set by this approach would also be extremely dangerous. Will it be generalized to other contexts? How would the Board draw the line?"

Staff disagree that the proposed approach is bad policy. The proposed approach does not "allow for higher net mercury discharges." In fact, it is designed to reduce wastewater mercury discharges by about 33 percent and from all sources by 40 percent over the implementation period. We note that aggregate wastewater loading accounts for about 1.5 percent of the total load to the Bay, and that no individual wastewater discharger could account for more than 0.3 percent of the total load to the Bay. Furthermore, we are aware of no evidence indicating that any individual wastewater discharger could be the cause of a "localized hotspot."

The TMDL directly recognizes and addresses the potential for localized impacts from wastewater or other sources. The proposed water quality-based effluent limitations include both numeric and narrative requirements. Numeric requirements consist of facility-specific limitations on the mass loading consistent with the load allocations and the compliance triggers for effluent mercury concentration and mass. The narrative requirements include: continued strong pollution prevention programs, monitoring effluent for methylmercury, and the obligation to study potential localized effects at the point of discharge. One of the trigger conditions is that a facility that exceeds its individual wasteload allocation as a 12-month rolling average would be required to evaluate the cause of the exceedance and implement appropriate enhancements both to treatment and pollution prevent programs. Staff assert that this is a more appropriate, effective, and timely way to ensure individual accountability. These trigger conditions will be reviewed monthly; if exceeded, they will result in requirements to investigate the cause and remedies to the problem.

Additionally, in response to this comment, staff has clarified and strengthened the consequences of concentration and mass trigger exceedances. The following additions were made to passages on page A-19:

The watershed NPDES permit shall also specify conditions that apply to each individual facility. These conditions are intended to minimize the potential for adverse effects in the immediate vicinity of discharges and to ensure that municipal wastewater facilities maintain proper operation, maintenance, and performance. If a facility exceeds its individual mercury load allocation as a 12-month rolling average ~~and-or~~ an effluent mercury trigger concentration, it shall be required to report the exceedance in its individual Self-Monitoring Report, implement a corrective action plan, and ~~to~~ submit a report within 60 days that:

- Evaluates the cause of the trigger or mass exceedances;
- Evaluates the effectiveness of existing pollution prevention or pretreatment programs and methods for preventing future exceedances;
- Evaluates the feasibility and effectiveness of technology enhancements to improve plant performance;-
- Evaluates other measures for preventing future exceedances, depending on the cause of an exceedance; and
- Includes an action plan and time schedule to correct and prevent trigger exceedances.

Effluent mercury trigger concentrations for secondary treatment facilities are a daily maximum of 0.065 µg/l total mercury and monthly average of 0.041 µg/l total mercury. For advanced treatment facilities, effluent mercury trigger concentrations are a daily maximum of 0.021 µg/l total mercury and a monthly average of 0.011 µg/l total mercury.

The Water Board will pursue enforcement action against dischargers that do not respond to exceedances of triggers or do not implement reasonable actions to correct and prevent trigger exceedances. Determination of reasonable actions will be based on an updated assessment of source control measures and wastewater treatment technologies applicable for the term of each issued or reissued permit.

The following passage was added to the end of section 5 on page III-12 of the Staff Report in order to explain the aforementioned changes to the municipal wastewater implementation section of the proposed Basin Plan amendment.

A clarification was added that the mass trigger would be based on a 12-month rolling average. Also, the passage of the proposed Basin Plan amendment describing the trigger program for municipal wastewater treatment dischargers was strengthened in a number of ways. First, it was explicitly stated that a corrective action plan must be implemented and that a report (following a trigger exceedance) must be submitted within 60 days. Second, two additional requirements for the submitted report were added:

- Evaluates other measures for preventing future exceedances, depending on the cause of an exceedance; and
- Includes an action plan and time schedule to correct and prevent trigger exceedances.

Last, a passage was added to this portion of the proposed Basin Plan amendment that stated that Water Board's intention to pursue enforcement action against dischargers that do not respond to exceedances of triggers or do not implement reasonable actions to correct and prevent trigger exceedances.

Similar additions were made to passages concerning industrial wastewater on page A-20:

“The NPDES permits for industrial facilities shall also specify conditions that apply to each individual facility. These conditions are intended to minimize the potential for adverse effects in the immediate vicinity of discharges and to ensure that industrial wastewater facilities maintain proper operation, maintenance, and performance. If a facility exceeds its individual mercury load allocation as a 12-month rolling average ~~and/or~~ an effluent mercury trigger concentration, it shall be required to report the exceedance in its individual Self-Monitoring Report, implement a corrective action plan, and ~~to~~ submit a report within 60 days that:

- Evaluates the cause of the trigger or mass exceedances;
- Evaluates the effectiveness of existing pollution prevention or pretreatment programs and methods for preventing future exceedances;
- Evaluates the feasibility and effectiveness of technology enhancements to improve plant performance;
- Evaluates other measures for preventing future exceedances, depending on the cause of an exceedance; and
- Includes an action plan and time schedule to correct and prevent trigger exceedances.

Effluent mercury trigger concentrations are a daily maximum of 0.062 µg/l total mercury and monthly average of 0.037 µg/l total mercury.

The Water Board will pursue enforcement action against dischargers that do not respond to exceedances of triggers or do not implement reasonable actions to correct and prevent trigger exceedances. Determination of reasonable actions will be based on an updated assessment of source control measures and wastewater treatment technologies applicable for the term of each issued or reissued permit.

The following passage was added to the end of section 6 on page III-13 of the Staff Report in order to explain the aforementioned changes to the industrial wastewater implementation section of the proposed Basin Plan amendment.

Additionally, changes identical to those made in the municipal wastewater section were also made in the section of the proposed Basin Plan amendment describing the trigger program for industrial wastewater dischargers. These changes state: the averaging period of the mass trigger; the obligation to implement a corrective action plan; the time frame of report submittal; the additional report requirements; and the Water Board’s intent concerning enforcement.

This multi-faceted approach is an appropriate, protective, and reasonable implementation strategy in view of both the relative contribution of this discharge

category to the Bay and the state of scientific knowledge regarding its relevance to the overall mercury problem.

Staff cannot speak for the Water Board concerning how it might choose to approach implementation for other pollutants in the future. However, this particular strategy should be viewed as unique to mercury and the particular circumstances and conditions under consideration. Staff does not intend to propose this approach for other pollutants. The applicability and merit of any TMDL implementation plan must be considered and justified on a pollutant by pollutant basis.

Comment 3.2c: “In Resolved 3, the State Board rejected the use of group wasteload allocations as the mechanism for implementing this TMDL. Specifically, the State Board ‘direct[ed]’ that the TMDL be revised ‘to establish individual wasteload allocations.... We respectfully submit that if the State Board had intended individual allocations to be unenforceable, it would not have required them.

“As you know, the Clean Water Act generally requires individual permit limits. See, e.g., 33 U.S.C. § 1311(e) (requiring that effluent limitations ‘shall be applied to all point sources of discharge of pollutants’).... The present proposal to make individual wasteload allocations unenforceable is thus not only bad policy, it is contrary to the direction of the State Board and would violate the law.”

Resolved 3 states, in part, “The San Francisco Bay Water Board shall revise the TMDL to establish individual wasteload allocations, after reconsidering the appropriateness of the policy assumptions used by the Regional Water Board to derive the original wasteload allocations.” This is different from “reject[ing] the use of aggregate wasteload allocations as the mechanism for implementing this TMDL.” In fact, State Water Board envisions a aggregate approach to the overall TMDL, as it calls for, in Resolved 8, the development of a policy that “shall allow dischargers...seeking to increase their mercury load...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.”

The individual wasteload allocations are not, as the commenter suggests, “unenforceable.” As explained above, the proposed approach to implementing the individual wasteload allocations as numeric water quality-based effluent limitations for every NPDES wastewater discharger conforms to applicable CWA requirements. Thus, the proposed approach is neither contrary to the stated direction of the State Water Board nor does it violate the law. Finally, U.S. EPA signaled its acceptance of this “two-tiered” approach using both individual allocations and the aggregate mass in permits in their comments on the September 2004 version of the TMDL.

“In terms of enforcement, EPA would not object to a two-tier WQBEL enforcement provision under which individual dischargers were deemed to be in compliance with their permit as long as the group limit was met –

provided that individual limits are in fact enforceable when the group limit is, if ever, exceeded”

Further, the mass and concentration trigger program is another enforceable component of the WQBELs for wastewater discharges designed to ensure good ongoing performance of these sources. See response to comment 3.2b.

Comment 3.3: “Refineries should be required to provide more information on crude oil [in] mercury.”

This comment is beyond the scope of the remand (see Introduction). The remand resolution does not direct staff to make any changes with respect to our approach to the information being collected from petroleum refineries. In fact, finding 8 explicitly **supports** the exact wording already appearing in the TMDL regarding the mercury in crude oil processed by petroleum refineries. Because the State Water Board explicitly supports the language already used in the TMDL, the information request for petroleum refineries is not an issue identified for revision by the remand order, so it is not necessary to modify the Staff Report or Basin Plan Amendment passages dealing with this issue. The proposed Basin Plan amendment already states the desired outcome of this information need. The precise mechanism of gathering the information and details of the gathered information need not be specified in the proposed Basin Plan amendment.

We are already making progress in this arena. In February of 2005, the Water Board issued a 13267 letter to the refineries to investigate the magnitude of mercury releases to the atmosphere and the fate of such mercury. The final report required by this letter is due in May 2007. Separately, the petroleum refineries have agreed to provide information on mercury exiting their facilities from pathways other than wastewater, petroleum products, and to the atmosphere. This information will be submitted in the fall of 2006. Based on these submittals, we will consider the need to issue further 13267 letters requiring additional information on mercury in crude oil.

Comment 3.4: “Stormwater shield should be removed – dischargers cannot be “deemed in compliance” with water quality standards if water quality standards have not actually been achieved.”

As explained in the Introduction, the “deemed in compliance” language has been removed in response to the Board’s request.

Comment 3.5: “The BPA sections on mines and toxic Bay sediment should be amended to respond to the Remand Order.”

“We suggest adding language about the specific activities Staff is taking or intends to take to address the remand order and the time schedule for that action. We envision this change to take the form of a few sentences, which could be added to page 22 of the BPA in the mines and Bay margin sections, OR the language could be added to page 24 of the BPA in the adaptive implementation section of what Water Board Staff intends to do. These three sentences should address the following:

“We recommend that Staff add specific language codifying their current efforts to investigate sites and take water quality and sediment samples, thereby creating a comprehensive inventory by which to prioritize clean up based on potential for pollution reduction, estimates of costs, and/or the amount of effort required.

“We encourage Staff to include language stating they will estimate what it will take to clean up specific sites and identify potential funding sources for clean up....

“...We believe there should be specific language and periodic deadlines for updates as to how the Board plans to work with Region 5 on the mines and hot spots in the rest of the watershed – including any cooperative funding initiatives.”

A number of these comments and suggestions are already covered either in the Basin Plan or portions of the Bay mercury TMDL adopted in 2004. The remand directs the Bay and Central Valley Water Boards to undertake certain actions pertaining to legacy mercury, but does not direct these actions be memorialized in the TMDL (i.e., Basin Plan). Because “the Basin Plan is the master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulations” (Section 1 of the Basin Plan), it is not appropriate to include the level of detail requested in this comment in the Basin Plan (“**add specific language codifying their current efforts to investigate sites and take water quality and sediment samples, thereby creating a comprehensive inventory by which to prioritize clean up**”).

We do agree that it would be valuable to articulate in the proposed Basin Plan amendment adaptive implementation section our commitment to periodically review the status of mercury mine and Bay margin contaminated site cleanups, evaluate whether additional actions are needed, and further coordinate with Region 5 staff. We added a sixth question to the list of adaptive implementation focusing questions presented on page A-24 of the Basin Plan amendment and page III-14 of the Staff Report that states the following:

6. Are mercury mine and Bay margin contaminated site cleanups proceeding as expected? Are any additional actions needed to protect water quality?

Comment 3.6a: “Offsets language as currently written provides an out to wastewater dischargers....We ask Staff to remove the reliance on pollutant offsets including the sentence on page 25 of the BPA that the Water Board will consider modifying allocations and schedule if no offset program adopted within twenty years....This sentence effectively eliminates any incentive for dischargers to help create a meaningful off-site credits policy because the Board would be committed to raising the allocations if a policy is not created....

The text on page A-25 of the proposed Basin Plan amendment serves a number of purposes. It explains the rationale for the implementation timeline for the allocations, describes the actions that are expected to result in achievement of the interim and final allocations, and encourages the Water Board to revisit the load allocations and associated achievement schedule if the offset policy is not developed. The Water Board assumes that an offset policy will be developed and will be instrumental in facilitating achievement of the TMDL. If the policy is not developed by the State Water Board, then this assumption will not be valid.

The commenters’ paraphrase misrepresents the express intent of the proposed Basin Plan Amendment when they say that “the Board *would be committed* to raising the allocations if a policy is not created.” In fact the text states only that “the Water Board *will consider modifying* allocations and schedule if the State Water Board has not established a pollutant offset program that can be implemented within the 20 years required to achieve final wasteload allocations.” With no implied guarantee that allocations will be modified by the Water Board in the future, it does not logically follow that an incentive has been removed by inclusion of this language. Furthermore, since dischargers are not tasked with helping to develop the policy envisioned by the State Water Board, it is not meaningful to discuss an incentive for their participation.

To clarify that the text was not intended to serve as a disincentive for dischargers to undertake all reasonable and feasible actions to reduce their mercury loads, we added the following text to the referenced paragraph on page A-25:

Achievement of the wasteload allocations for municipal wastewater dischargers is required within 20 years, and interim allocations within 10 years. The interim allocations are expected to be attained through aggressive pollution prevention and other cost-effective mercury reduction methods. The final wasteload allocations are expected to be attained through wastewater treatment system improvements and/or implementation of a pollutant offset program. Approximately 10 years after the effective date of the TMDL or any time thereafter, the Water Board will consider modifying the schedule for achievement of the wasteload allocations or revisions to wasteload allocations if:

- ‡The State Board has not established a pollutant offset program that can be implemented within the 20 years required to achieve final wasteload allocations;‡
- It can be demonstrated that all reasonable and feasible efforts have been taken to reduce mercury loads; and
- It can be demonstrated that no adverse local effects will result.

Comment 3.6b: “We oppose a ‘pollutant trading’ policy that allows the creation of bioaccumulative toxic hotspots through a potentially meaningless program of paper trading and fuzzy math that is neither transparent nor publicly accountable nor addresses environmental justice concerns of disparate impacts....Also, in an effort to be very clear about what the environmental community could or could not accept, we would urge Staff to consider renaming this policy the “off-site credits” policy.”

The Regional Water Board has not been assigned responsibility for developing the policy in question, nor have we been assigned the responsibility for choosing the name of the policy. Because of the remand, the Water Board is not in a position to develop a pilot mass offset program, but the following passage already in the Basin Plan Amendment makes it clear that the Water Board intends to implement a mass offset program in an environmentally responsible manner.

In addition, the Water Board will encourage and consider a pilot mercury mass offset program if it is demonstrated that such a program is a more cost effective and efficient means of achieving water quality standards, and the relative potential for mercury from different sources to enter the food web and the potential for adverse local impacts have been evaluated.

Water Board staff encourage the commenters to direct their concerns about the degree to which the “trading” or “offset” policy protects against “bioaccumulative toxic hotspots” and their request as to the name of the policy to the State Water Board during the public comment opportunities for that policy.

Comment 3.7: “The TMDL does not adequately seek information on air sources, which could be contributing to stormwater agencies’ loads ... ADD: “Aggressively identify and regulate through permits and the TMDL fixed sources within their watershed of airborne mercury-laden particles and dust which may enter runoff.”

This comment is beyond the scope of the remand. However, the 2004 TMDL already considered and accounted for local air sources that could be depositing directly to the surface of the Bay or reaching the Bay via deposition to the watershed and subsequent runoff.

Comment 3.8: “Adaptive Implementation section should be clarified....We recommend that the Regional Board Staff clarify the adaptive implementation language by adding a phrase which would commit the Board to reevaluating the TMDL and revising it as necessary in a public forum every 5 years, and providing justification for why specific changes are or are not being made. A bullet point should also be added to each section (each of the individual sections describing requirements for industrial wastewater, municipal wastewater, and municipal stormwater dischargers) requiring participation in the adaptive management process described on page 24. ADD: “Participate in and assist in review and continuous improvement of TMDL implementation to achieve more strategic, efficient, and cost effective achievement of water quality standards.”

While this comment is beyond the scope of the remand, the Basin Plan Amendment adopted by the Water Board in 2004 already contains, in Chapter 4, Continuing Planning, the following:

TOTAL MAXIMUM DAILY LOAD	
Review the San Francisco Bay Mercury TMDL and evaluate new and relevant information from monitoring, special studies, and scientific literature. Determine if modifications to the targets, allocations, or implementation plan are necessary.	Every 5 years

There is no need for a bullet in each source section of the proposed Basin Plan amendment since these sections already contain the requirement to “conduct or cause to be conducted” studies that should lead to improvements in the TMDL. We will consider the results of these studies during the five-year reviews.

Comment 3.9: “Risk reduction language should be incorporated for each discharger.... Concern. The bullet points describing risk reduction activities for each discharger do not reflect the language in the State Board resolution, so that the dischargers are currently not necessarily required to participate in the full range of activities the Water Board has assigned to itself on page 24. Necessary Revision. The risk reduction bullet points in each section for every discharger should read: ADD: ‘Develop and implement effective programs to address public health impacts of mercury in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in San Francisco Bay caught fish, such as subsistence fishers and their families’.”

The remand resolution does not direct staff to incorporate risk reduction language for each discharger. Rather, it “(d)irects the San Francisco Bay and Central Valley Water Boards to investigate ways, consistent with their regulatory authority, to address public health impacts of mercury in San Francisco Bay/Delta fish...” In response to the remand, we have added the following to the list of actions in the Risk Management portion of the Mercury TMDL Implementation Plan (pages A-23 and A-24):

...the (San Francisco Bay) Water Board will work with the California Office of Environmental Health Hazard Assessment, the California Department of Health Services, and dischargers that pursue risk management as part of their mercury-related programs. The risk management activities will include the following:

- Providing multilingual fish-consumption advice to the public to help reduce methylmercury exposure through community outreach, broadcast and print media, and signs posted at popular fishing locations;
- Regularly informing the public about monitoring data and findings regarding hazards of eating mercury-contaminated fish; and
- Performing special studies needed to support health risk assessment and risk communication.
- Investigate ways to address public health impacts of mercury in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in San Francisco Bay caught fish, such as subsistence fishers and their families.

One sign that our watershed approach is already working – in advance of the TMDL’s effective date – is that the major dischargers have already funded (via the Clean Estuary Partnership) the development of a Risk Management Action Plan. We also note that several commenters from the discharger community have expressed concern with the scope of risk reduction (e.g., comment 5.9). Recall that in Remand Finding 13, “the State Water Board finds that neither the CWA nor the CWC should be used as a means to 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 aggregate municipal wastewater wasteload allocation (11 kg/yr) is less than 2 percent of the current mercury loading (about 1,200 kg/yr). The industrial aggregate wasteload allocation combined is 1.3 kg/yr, or less than 0.2 percent of the current mercury loading. The fair share concept is applicable to both total mercury wasteload allocations and the potential for local effects from methylmercury in discharges. The latter will be addressed by the TMDL requirement for municipal and industrial wastewater dischargers to, “(c)onduct or cause to be conducted studies to evaluate the presence or potential for local effects on fish, wildlife, and rare and endangered species in the vicinity of wastewater discharges.”

Comment Letter no. 4: County of Santa Clara, Parks and Recreation Department, Lisa Killough; June 5, 2006

Comment 4.1a: "...the proposed water quality objective for protection of aquatic species and wildlife. The proposed objective addresses fish tissue concentrations, not water quality directly, and is set at a level of 0.03 mg/kg for fish 3-5 cm in length. The basis for that target is an analysis by personnel at the U.S. Fish and Wildlife Service (FWS) carried out in 2003. That analysis is not based on site-specific, or species-specific field work, but rather on a series of assumptions applied to a limited amount of information largely derived from laboratory studies of a single avian species. Reliance on laboratory studies of a single species to address a bay-wide issue is questionable because, a) the results are not based on actual field research; and b) a single species does not account for the tremendous variation in sensitivity and exposure among avian species around the Bay. The April 2006 report, at pages 10 and 11, also notes that the proposed human health standard of 0.2 mg/kg in fish tissue should itself protect most species of wildlife. And yet, this lower proposed standard to protect wildlife – in particular, to protect the least tern – has been presented with little scientific evidence to support the threshold argument."

Staff disagree that the proposed water quality objectives are not technically sound. The proposed objective to protect wildlife is based on best available scientific data. It is aimed at protecting the California least tern, which at present is considered to be the most sensitive consumer of Bay fish. As part of the adaptive implementation program and Basin Planning process in general, if in the future scientific findings suggest that another species should be evaluated, or the reference dose has been revised due to studies on Bay resident species, or for other reasons, the Basin Plan and the TMDL will be revised as warranted.

The U.S. FWS document referenced is the *Evaluation of the Clean Water Act Section 304(a) Human Health Criterion for Methylmercury: Protectiveness for Threatened and Endangered Wildlife in California* (USFWS 2003; footnoted in the comment letter). The reference to the laboratory studies of a single avian species appears to be the U.S. FWS' reliance on studies on the mallard duck, which it cites as Heinz (1979). The U.S. FWS undertook an extensive literature review from which it concluded (p. 15), "the Heinz (1979) work remains the most robust benchmark for evaluating impacts to birds from methylmercury in the diet (USFWS 2003)."

Various different studies are described in the April 2004 staff report (Looker & Johnson 2004b) including Heinz (1979). As noted in Section IV.2, Mercury Water Quality Objective to Protect Wildlife (April 2006 Staff Report pages IV-11 – IV-12), "(t)he scientific basis for this water quality objective is an approach developed by the U.S. FWS that was peer reviewed in connection with the Cache Creek, Bear Creek, Sulphur Creek,

and Harley Gulch mercury TMDL. The Cache Creek mercury TMDL stated, “(s)tudies of mallard growth and reproduction following methylmercury exposure were used to determine an avian reference dose” (Cooke et al. 2004). Peer review is the mechanism employed by Water Boards to assure that our regulations have a sufficient scientific basis, and both the San Francisco Bay and Cache Creek mercury TMDL reports have met this standard through the peer review process. In conclusion, sufficient evidence exists to support the proposed water quality objective of 0.03 mg/kg mercury in fish to protect the endangered California least tern.

Comment 4.1b: “It is important to note that scientific research continues in an attempt to answer the many unresolved questions posed regarding the initial research for the TMDL targets. Of particular interest is an on-going study... Because analysis of these data could be important to the successful implementation of the San Francisco Bay mercury TMDL, the County respectfully requests that the Regional Board delay adoption of a fish tissue based water quality standard for protection of aquatic species and bird life until the completion of the studies outlined in the 2005 report.”

Delay until the completion of the cited study – or others – is neither needed nor justified. The evidence supports immediate action to address human health risks, which will also address threats to wildlife. See also responses to comments 4.1a and 4.1b.

Comment 4.2: “The expected response to the above concern (comment 4.1) is that the 2003 FWS analysis represents the best available evidence, and that if the target adopted proves impractical or unnecessary, it can be adjusted during the subsequent decades of adaptive management. However, that perspective fails to take into account the difficulty of revising such targets once adopted, and the costs associated with attempting to meet such targets. Although the development of the mercury TMDL for the San Francisco Bay has progressed gradually, its success will be measured by its effectiveness over decades of implementation, and not by the speed of the plan development. ”

Costs related to implementation of the TMDL and proposed water quality objectives are estimated based on the cost of attaining the human health target, because greater mercury reductions are needed to protect human health than to protect wildlife. The overall reduction in sediment mercury concentrations used to establish the wasteload allocations is 40 percent, based on the reduction needed for mercury concentrations in striped bass to attain the human health target of 0.2 ppm (p. 36 of 2004 Staff Report). There is a robust and long-term data set of striped bass mercury concentrations; see Figure 8, Mercury concentrations in striped bass in the 1970s and 1990s in the San Francisco Estuary Institute’s study, *Contaminant Concentrations in Fish from San Francisco Bay, 2000* (SFEI 2003). The reduction in fish tissue mercury concentrations to attain the wildlife target is estimated to be 25 percent (p. 39 of 2004 Staff Report). Through adaptive implementation we may find that a reduction different from 25 percent is needed to attain the wildlife target, but we doubt that it will exceed 40 percent, because

the wildlife target is based on average trophic level 2 & 3 fish mercury concentration, whereas the human health target is based on a single trophic level 4 species (striped bass) with relatively high levels of mercury. We recognize that the revision of targets may be difficult. However, the process laid out in the Adaptive Implementation section reflects the Water Board's commitment to review new information and make revisions.

**Comment Letter no. 5: Bay Area Clean Water Agencies, Michele Pla;
June 5, 2006**

Comment 5.1: "BACWA has compared the environmental checklists prepared for the revised TMDL and the 2004 version of the TMDL. The San Francisco Water Board has stated that the current version of the TMDL is anticipated to have lesser or no impact than the previous version of the TMDL. Given that the requirements are in many cases more stringent, BACWA questions the adequacy and scope of the environmental analysis, particularly in light of the new standard set forth in the case of *City of Arcadia v. State Water Resources Control Board*, 135 Cal.App.4th 1392, 1420 (2006)."

The Staff Report, including the Appendices, did not state that the proposed revisions to the TMDL will have lesser impacts than the previous version of the TMDL. What it does say is that the proposed revisions to the 2004 mercury TMDL and the new water quality objectives will not have any new significant adverse impacts on the environment beyond what was evaluated in connection with the 2004 mercury TMDL. To make this point clearer and further explain the basis for this conclusion, the Staff Report's Environmental Checklist, p. B-14, has been revised as follows:

An environmental analysis of the Mercury TMDL was prepared and adopted by the Board in September 2004 on a programmatic Tier 1 level. The proposed Project consists of the above-referenced amendments to the 2004 Mercury TMDL and two new mercury water quality objectives. This environmental analysis only considers the environmental impacts of the proposed revisions and new water quality objectives. Like the 2004 Mercury TMDL, the Project does not define the specific actions local agencies must take to comply with requirements and the environmental analysis set forth herein is also on a Tier 1 programmatic level. Project-specific environmental impacts will be evaluated as necessary when the projects are known. As discussed in the Environmental Checklist for the Mercury TMDL Amendment (Looker & Johnson 2004a), physical changes resulting from the mercury TMDL are foreseeable, but the attributes of specific implementation actions (e.g., location, extent, etc.) are unknown, pending local agencies proposing actions to comply with requirements. Any changes to the TMDL implementation actions that would result from the Project are expected to be minor and would involve activity similar in nature and scope to those analyses in the earlier Environmental Checklist (Looker & Johnson 2004a). This CEQA analysis only considers adverse environmental impacts that would result from the proposed revisions as

~~outlined in the Project description above and the new proposed water quality objectives.~~

The proposed Project will not have significant adverse impacts on the environment. Impacts of each of the above-referenced amendments and the new water quality objectives are discussed below and evaluated in the checklist.

New Water Quality Objectives

The proposed new water quality objectives are the same as the targets adopted or referred to in the Mercury TMDL Amendment adopted by the Water Board in 2004 and implementation of the new water quality objectives is to be achieved through implementation of the ~~new~~ Mercury TMDL, as proposed to be revised through the Project. In other words, any physical environmental impacts associated with the proposed new water quality objectives stem from implementation of the ~~new~~ Mercury TMDL, as revised. The new water quality objectives themselves are protective of human health, aquatic organisms and wildlife and are environmentally beneficial. With respect to impacts associated with implementation of these new objectives through the Mercury TMDL, the 2004 environmental analysis concluded there would be no significant environmental impacts. The current proposed revisions to the Mercury TMDL do not implicate new significant impacts, as set forth in more detail below.

Vacating the Existing 4-day Average Mercury Water Quality Objective

Vacating the existing 4-day average marine water quality objective for San Francisco Bay will not result in any significant impacts because the two new proposed water quality objectives for mercury in fish tissue are more stringent than the existing Basin Plan objective of 0.025 µg/l.

Clarifying the Mercury TMDL Targets

The human health target of 0.2 mg mercury per kg fish is not being revised; however, text is being added on the method to track progress toward attainment of the target using striped bass 60 cm long. The wildlife target is being re-expressed from a bird egg target (0.5 mg per kg wet weight) to the fish tissue target referenced in the 2004 Mercury TMDL (0.03 mg per kg fish tissue). These two targets reflect the same mercury concentration, with the differing numeric values attributable to how the same concentration of mercury manifests in fish tissue and bird eggs. These clarifications of the 2004 Mercury TMDL do not implicate any new impacts to the environment.

Revisions to Wasteload Allocations for Municipal Wastewater

The final total wasteload allocation for municipal wastewater is being revised from 17 kg/yr to 11 kg/yr—in effect, a 6 kg/yr total reduction to be achieved in 20 years (for context, Staff notes that the final TMDL for all sources is 700 kg/yr). This reduction entails the following reductions in

individual wasteload allocations: (1) municipalities without advanced treatment: 40 percent reduction in the final wasteload allocation, with an interim reduction of 20 percent; (2) municipalities with advanced treatment: 20 percent interim and final reduction; (3) facilities whose allocation is 0.1 kg/yr or less or small municipal dischargers: no reduction. Interim reductions must be met in 10 years; final reductions must be met in 20 years.

The potential environmental impacts relate to the reasonably foreseeable methods of compliance with the reduced total wasteload allocation, although the required final reduction is only 6 kg/yr.

Municipalities will comply with the 20 percent reduction by intensifying their existing pollution prevention efforts. As set forth in the 2004 Mercury TMDL Environmental Checklist, physical environmental changes associated with these efforts relate to waste generation, handling and disposal. Pollution prevention activities would encourage proper disposal of mercury-containing wastes, which could slightly increase hazardous waste generation in the Bay Area. The 2004 Environmental Checklist concluded impacts of such slight increase would not be significant, and that to the extent such efforts divert mercury-containing wastes from inappropriate waste streams, it would be a benefit to the environment. The intensified pollution prevention efforts necessary to meet the 20 percent reduction would not significantly add to the generation of hazardous waste, either individually or cumulatively. Increased pollution prevention efforts such mercury amalgam collection from dental offices and mercury thermometer collection programs would add to the generation of mercury, but it would not be substantial and such mercury would be properly handled and disposed of instead of improperly ending up in sewers and non-hazardous waste landfills.

The 40 percent reduction is expected through a combination of aggressive pollution prevention and other mercury reduction methods, water re-use, pollutant trading, offsets and/or system improvements. The conceivable combinations municipalities could invoke to prevent 6 kg/yr of entering San Francisco Bay within the 20-year timeframe require speculation and cannot be evaluated at this point since the specific attributes of such projects and implementation actions are unknown. The Water Board is not dictating any particular method or combination of methods to comply with the 40 percent reduction. Rather, municipalities subject to the 40 percent reduction will be responsible for formulating their own project-specific strategies and they will undertake a Tier 2 project-specific environmental analysis to the extent required when the specific projects are proposed.

With respect to treatment plant upgrades as a method to comply with the 40 percent reduction, based on the public comments by municipal wastewater, treatment plant upgrades to advanced waste treatment/filtration, which has the potential for construction impacts, are not expected. Municipal wastewater sources have indicated through BACWA that upgrading to advanced waste treatment to comply with the

40 percent reduction is not reasonable and is cost-prohibitive, and that they will investigate more reasonable and feasible methods to comply. Their conclusion that upgrading is not reasonable appears to represent the rational calculus on the tens of millions of dollars it would take to chase a small amount of mercury. Thus, advanced waste treatment does not appear to be a reasonably foreseeable method of compliance with the 40 percent reduction requirement. In contrast, municipalities have expressed the need for the mercury offset policy that State Water Board staff is tasked to develop under the Remand Resolution to comply with the final wasteload allocation. The environmental impacts of the yet-to-be-formulated offset policy is similarly difficult to forecast, much less analyze. When it is formulated, the State Water Board will undertake the appropriate CEQA review.

Revisions to Wasteload Allocation for Industrial Wastewater

The wasteload allocation for industrial wastewater is being revised to correct a calculation error. Specifically, the total load is being changed from 3 kg/yr to 1.3 kg/yr. The proposed load reflects current performance, and thus there is no change from the existing baseline condition, and thus no impacts.

Revisions to Implementation Plan

The Implementation Plan of the 2004 Mercury TMDL is proposed to be revised to 1) require methylmercury monitoring; 2) clarify requirements to better track the effectiveness of programs to control mercury sources and loadings; 3) require more risk management activities; 4) lower the bar for municipal and industrial wastewater to evaluate and correct exceedances of either the individual wasteload allocations or the mercury concentration triggers; and 5) include clarifying language that dredging comply with the existing Long Term Management Strategy. Revisions 2 and 5 do not involve physical changes to the environment. Methylmercury monitoring activities would not be continuous, occurring most frequently on a quarterly basis and would be conducted in an environmentally sensitive manner. The impacts, if any, would be less than significant. The specific increased risk management activities that will take place are unknown and therefore speculative to evaluate. Lowering the bar for municipalities and industrial wastewater to investigate and correct any exceedances would not have a significant adverse impact on the environment.

Additionally the Staff Report's Environmental Checklist, p. B-19, is revised as follows:

- f-g) The project would not generate substantial additional hazardous waste beyond what was analyzed in the 2004 Environmental Checklist.

Comment 5.2a: "The mercury TMDL proposes to establish two numeric fish tissue standards (water quality objectives) for all segments of the San Francisco Bay that appear to go far beyond the draft (sic) national US EPA fish tissue guidance criteria.

“...The San Francisco Water Board staff has inserted an unnecessary level of conservatism in the development of these proposed standards. For example, the large fish tissue standard of 0.2 ppm mercury is derived by utilizing a conservative assumption that the fish consumption rate applicable to San Francisco Bay fish is twice EPA’s recommended default consumption value...”

The proposed fish tissue water quality objectives were developed with input from U.S. EPA staff and are consistent with federal guidance for setting water quality objectives. The U.S. EPA equation for calculating the methylmercury fish tissue residue criterion is (see Staff Report pages II-4 to II-7):

$$\text{Criterion} = \frac{\text{Body Weight} \times (\text{Reference Dose} - \text{Relative Source Contribution})}{\text{Fish Intake at Trophic Level}}$$

Staff disagree that the proposed objective is overly or unnecessarily conservative. The U.S. EPA methodology does not have a “recommended default consumption value,” but rather, its four-preference hierarchy for “Fish Intake at Trophic Level” is: (1) use of local data; (2) use of data reflecting similar geography/population groups; (3) use of data from national surveys; and (4) use of U.S. EPA’s default intake rates” (USEPA 2000). We are fortunate to have a fish consumption survey report for San Francisco Bay (CDHS & SFEI 2000), from which we selected a consumption value in accordance with the U.S. EPA methodology.

Comment 5.2b: “The technical derivation of the small fish tissue (3-5 cm) objective is unclear. There is a lack of calculations or other derivation data supporting this proposed objective are (sic) presented in the Staff Report. In addition, the inclusion of the proposed wildlife standard appears to go beyond the basis used to support the 303(d) listing (see footnote 1)...

Footnote 1: The 303(d) listing states: “Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark.” Consumption of fish and wildlife by humans are the only uses that form the basis of the current 303(d) listing. Thus, the meaning attributed to “wildlife consumption” contained in the TMDL goes beyond the basis for listing. While protecting wildlife species and habitat may ultimately be desirable, these are not uses for which the Regional Board has demonstrated that CWA technology-based limits are unable to achieve water quality standards/objectives. 33 U.S.C. §1313(d)(1)(A).

The equation for the calculation of the aquatic organisms and wildlife water quality objective is analogous to that for the human health objective:

$$\text{Wildlife Value} = \frac{\text{Reference Dose} \times \text{Body Weight}}{\text{Fish Intake at Trophic Level}}$$

Fish Intake at Trophic Level

The calculations used to derive the wildlife objective, while not presented in our 2006 Staff Report, are contained in the reference document (USFWS 2003), which is readily available at the website noted in the reference section. Instead of criterion, the U.S. FWS calls it a wildlife value (WV), which represents the overall dietary concentration of methylmercury necessary to keep the daily ingested amount at or below a level at which no adverse effects are expected. For each species, the U.S. FWS calculated a WV using body weight, total daily food ingestion rate, and a protective reference dose. The data and calculations for the California least tern are presented in sections IV.B and VIII.B of USFWS 2003. The U.S. FWS concluded, "(d)ue to the tern's relatively small body size and its exclusively piscivorous diet, the WV (0.030 mg/kg) would be significantly exceeded by the DC (dietary concentrations) values generated from the trophic level (TL) concentrations under each TL approach." In other words, the least tern WV is 0.030 mg/kg (in its prey fish, which are less than 5 cm in length), and the U.S. EPA methylmercury criterion, evaluated several different ways, is not protective of the least tern.

The comment regarding going beyond the basis of the listing is similar to 2004 comment I.B from Morrison and Foerster (for Santa Clara Valley Urban Runoff Pollution Prevention Program), Robert Falk: "TMDL-derived numeric targets must address the particular impairments identified for water segments listed under CWA §303(d), and South San Francisco Bay was not listed on the basis of harm to bird eggs or protection of wildlife. Furthermore, a TMDL may only address impairments for which a water body was identified and listed under CWA §303(d). Here, the 303(d) listing was based only on fish consumption, and therefore targets to protect wildlife (e.g., bird egg targets) as opposed to human fish consumption are inappropriate."

Staff finds the 2004 response to still be a valid and complete response to the 2006 comment; it is presented in the two following paragraphs.

CWA §303(d)(1)(C) requires that a TMDL be submitted to U.S. EPA for all §303(d)(1)(A) listed waters. The comment claims that the Water Board may proceed with a TMDL only for those impairments identified on the §303(d)(1)(A) list. However, if the criteria for listing a water body for a particular pollutant are satisfied, it would be inconsistent with the purposes set forth in CWA §101 (e.g., to restore and maintain the chemical, physical and biological integrity of the Nation's waters; to prohibit the discharge of toxic pollutants in toxic amounts) to wait until the next 303(d) listing cycle to list the water body prior to the Water Board's adoption of a TMDL. In addition, while CWA §303(d)(1)(C) requires a TMDL to be submitted to U.S. EPA for listed waters, §303(d)(3) requires states to establish TMDLs for all other waters not listed on the §303(d)(1)(A) list. Thus, listing under §303(d)(1)(A) is not a prerequisite for TMDL development.

Furthermore, federal law reserves California's authority to regulate water quality (see CWA §101[b] and §510). Under Water Code §13242, the Water Board may adopt TMDLs as a program of implementation to achieve water quality objectives whether or not a water body is listed.

As explained [in the 2004] Staff Report on page 8, bird eggs representing species that consume San Francisco Bay fish and other aquatic organisms have higher mercury concentrations than eggs from the same species in other regions of the country. Their mercury concentrations are above those shown to cause reproductive harm in laboratory tests and may account for unusually high numbers of eggs failing to hatch. In the Bay Area, birds feeding on fish and other aquatic organisms are among the most sensitive wildlife mercury receptors; therefore, a target that protects birds would also be expected to protect other wildlife as well. The wildlife target ensures that the proposed TMDL targets, when taken together, are consistent with water quality standards. The Water Board has responsibility to establish water quality objectives to protect beneficial uses regardless of the basis of the 303(d) listing.

Comment 5.2c: "Previous technical information submitted to the Board staff as part of the public review process highlights the uncertainty as to whether mercury concentrations in white sturgeon, leopard shark, and striped bass are "truly elevated." As noted in comments by Exponent, white sturgeon and leopard shark are relatively long-lived species that naturally exhibit higher levels of mercury bioaccumulation and that mercury data for mercury in shark in San Francisco Bay are not significantly different from concentrations in shark measured by the USFDA in representative uncontaminated areas. (See Exponent comments to San Francisco Water Board dated June 8, 2004, which are hereby incorporated by reference).

Staff reaffirms our 2004 response, particularly the third paragraph (see below).

Exponent (for Santa Clara Valley Water District), Gary Bigham
Mercury Concentrations in Leopard Shark are Probably Not Related to
Mercury in San Francisco Bay Sediment
2004 Comment Letter pages 2-3

The comment suggests that mercury concentrations in San Francisco Bay fish may not be elevated compared to those in fish from other areas. In particular, San Francisco Bay leopard shark mercury concentrations are similar to those of sharks caught elsewhere. The concern is that efforts to control mercury concentrations in San Francisco Bay fish and wildlife may be unwarranted if San Francisco Bay mercury sources are not responsible for elevating these concentrations.

The comment does not fully support its contention. Although it compares San Francisco Bay leopard shark mercury concentrations with those of other sharks,

the other sharks do (sic) may not be comparable because of their size and feeding habits. A valid comparison would need to account for shark age, size, and feeding habits. Although the study the comment cites does not discuss sizes, the comparison species are generally bigger than San Francisco Bay's leopard sharks; therefore, they likely have accumulated more mercury. In addition, while leopard shark eat bottom-dwelling organisms lower in the food web, the comparison sharks named in the study may eat larger fish and other animals higher in the food web, thereby ingesting relatively more mercury.

For purposes of this TMDL, we are not concerned with how San Francisco Bay fish compare to those caught elsewhere. We are concerned with how mercury concentrations in San Francisco Bay fish compare with concentrations deemed protective of human health and wildlife. The purpose of this TMDL is to protect San Francisco Bay beneficial uses, which is not to say that similarly high mercury concentrations do not exist in fish and wildlife elsewhere.

Comment 5.2d: "...BACWA has concern over the completeness of the Water Code section 13241 and the CEQA analysis included in the Staff Report. BACWA recommends that the scope of the environmental analysis be consistent with past analyses, particularly in light of the new standard set forth in the case of City of Arcadia v. State Water Resources Control Board, 135 Cal.App.4th 1392, 1420 (2006). BACWA also recommends that the requirements of the Water Code section 13241 be reviewed and applied to the two new fish tissue standards."

The analysis required by Water Code Section 13241 in connection with establishing new water quality objectives is set forth in the Staff Report, and it is unclear what portions of the analysis the commenter is saying is incomplete. In any case, the analysis is sufficient.

With respect to the CEQA comment, it is unclear to what inconsistency the commenter is referring. The environmental analysis for the proposed revisions to the mercury TMDL and the new water quality objectives satisfies the requirements of the Water Board's certified regulatory program. Additionally, to the extent the basis for the conclusions in the Environmental Checklist about no significant impacts was unclear, it has been revised. See response to comment 5.1. Finally, the cited case did not establish any new standard; rather, it held that the environmental analysis prepared by the Los Angeles Water Board was insufficient because it did not evaluate the environmental impacts of known methods of compliance.

Comment 5.3: "BACWA recommends that the San Francisco Water Board incorporate into the TMDL the concept that if greater load reductions are achieved from other non-municipal sources than expected, then the municipal agencies' allocations can be increased in accordance with the definition of TMDL in 40 C.F.R. § 130.2(i) (Stating that if BMPs or other nonpoint source pollution controls make more stringent load

allocations practicable, then wasteload allocations [on point sources] can be made less stringent.)”

The proposed Basin Plan amendment (BPA) speaks to the issue raised by the commenter when it sets forth the conditions and schedule for review and revision of the TMDL.

At approximately 20 years after the start of implementation and after taking the steps regarding schedule modification listed above, if a source category or individual discharger cannot demonstrate achievement of its allocation, despite implementation of all technically and economically feasible and cost effective control measures recognized by the Water Board as applicable for that source category or discharger, the Water Board will consider revising the allocation scheme provided that any resulting revisions ensure water quality standards are attained.

The review and revision mentioned in this passage may include consideration of changing allocations in accordance with 40 C.F.R. § 130.2(i). Also note that the BPA already contains a commitment to review the TMDL at five year intervals. At such times, allocations may be reconsidered in light of new, relevant information.

Comment 5.4: “Vacate the water column four-day average mercury water quality objective... BACWA supports withdrawal of this outdated standard through the Basin Planning process.”

Comment noted.

Comment 5.5: “BACWA recommends that the 40% reduction be contingent on the development of a statewide offsets program, because without an offset program, BACWA members may not be able to comply with the TMDL allocations.”

We very much sympathize with the sentiment expressed in this comment. The wastewater community as a whole has accepted the responsibility to make substantial reductions in mercury discharged to the Bay, and development of an offset program has been identified as an important part of the strategy that would allow them to efficiently do so. However, there is no need to make the full 40 percent reduction for wastewater facilities providing secondary treatment contingent upon development of the offset program. We have adequately addressed the concern expressed in the comment in the following passage on page A-25 of the proposed Basin Plan amendment.

Approximately 10 years after the effective date of the TMDL or any time thereafter, the Water Board will consider modifying the schedule for achievement of the wasteload allocations or revisions to wasteload allocations if the State Board has not established a pollutant offset program that can be implemented within the 20 years required to achieve final wasteload allocations.

Comment 5.6: “BACWA requests that the TMDL, the implementing permits and any offset policy include provisions recognizing the circumstances surrounding water recycling and authorize transfers between individual municipal and/or industrial wasteload allocations where needed to accommodate and promote water recycling.”

We certainly applaud the wastewater community’s water recycling efforts and wish to promote them. First, we note that water recycling is not an issue identified by the State Water Board as one that the Water Board should address through the remand. so it is outside the scope of our current project. Moreover, this issue is sufficiently important and complex that it is not appropriate to attempt to craft the requested provisions in the TMDL at this time. We also note that it is not necessary at this time to state such provisions, because we do not anticipate that the current scale of planned or anticipated water recycling efforts in the near future will be impeded by the TMDL as currently written.

Comment 5.7a “Carefully apply mass limits and more stringent application of triggers.”

Comment noted.

Comment 5.7b “It is also BACWA’s expectation that the annual group wasteload allocation will be measured as a running 12-month average, which is reported as a group allocation on a calendar year basis.”

The allocation was computed as a simple yearly average so the implementation as a WQBEL must be consistent with this computation. Thus, the annual aggregate wasteload allocation will be measured as a simple yearly total, not a 12-month running average. We intend to implement the individual facility mass triggers as running 12 month averages (see response to comment 3.2b).

Comment 5.8: “BACWA has committed to conduct methylmercury monitoring... BACWA member agencies have already begun developing protocols for effluent methylmercury monitoring, which is expected to begin in late 2006.”

We note and appreciate this comment, which indicates that the watershed approach to wastewater appears to be paying dividends.

Comment 5.9: “Investigate risk Reduction Management Activities... Although the State Board Resolution No. 2005-0060 states that “mitigation of health impacts” should be part of a risk reduction program, we firmly believe that the State Board cannot mandate clean water agencies to develop, deliver or finance health care programs, nor was such the intent of the language in the Resolution. Rather, the State

Water Board directed "...the San Francisco Bay and Central Valley Water Boards to investigate ways, *consistent with their regulatory authority*, to address public health impacts..." (Emphasis supplied). This directive does not go so far as to allow the Regional Water Board to mandate that municipal clean water agencies develop, deliver or finance health care programs for discrete communities or individuals.

BACWA requests that the new last bullet under Risk Management (Appendix A, Proposed Basin Plan Amendment, page A-24) be revised to read:

The Water Board, California Office of Environmental Health Hazard Assessment, and California Department of Health Services, investigating ways, consistent with their regulatory authority, to address public health impacts of mercury in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in San Francisco Bay/Delta caught fish, such as subsistence fishers and their families.

State Water Board staff stated, "the State and Regional Water Boards do not have the authority to require dischargers to remediate or otherwise address health impacts from mercury" (September 7, 2005, State Water Board Workshop, Item 1, p. 3). San Francisco Bay Water Board staff share the same opinion, that neither the State nor Regional Water Boards have the authority to mandate anyone to develop, deliver or finance health care programs.

The suggested change to the proposed Basin Plan amendment would restrict the investigators to State agencies. This would preclude other participants – who are already involved – from continuing with the Clean Estuary Partnership work to develop a Risk Management Action Plan. Furthermore, the proposed text regarding the agencies' authority is not needed. If any of the agencies are to require implementation of actions to address public health impacts, these requirements will need to be consistent with their authorities. The language as proposed does not expand or limit any agencies' responsibilities.

Comment 5.10: "Use adaptive management (sic) to apply improved knowledge about mercury sources and control programs and about fate and transport in San Francisco Bay to improve water quality management."

Comment noted.

Comment Letter no. 6: East Bay Municipal Utility District, David R. Williams; June 5, 2006

Comment 6.1 "EBMUD requests that the TMDL, the implementing permits, and any offset policy include provisions recognizing this circumstance and authorizing (sic) that recycled water credits be transferred between individual municipal and/or industrial wasteload allocations where needed to accommodate and promote water recycling."

See response to comment 5.6 from BACWA.

Comment Letter no. 7: City of San Jose, Environmental Services Department, John Stufflebean; June 5, 2006

We note and greatly appreciate the following supportive comments:

Comment 7.1: "The City of San Jose offers its strong support for the following:

- Removal of the 4-day average mercury water column objective...
- Methyl mercury monitoring and research...
- Revised Implementation Plan for Municipal Dischargers...
- Establishment of a watershed-based allocation program..."

Comment 7.2: "Establishment of two numeric fish tissue standards for the San Francisco Bay. The City understands the necessity to develop appropriate fish tissue standards for all waters of the State, however the City questions the breadth of the regulatory approach taken by the Regional Water Board staff in their development of site-specific standards for San Francisco Bay. The development of these standards is predicated upon scientific uncertainty and conservative assumptions, limited technical information and our weak understanding of mercury dynamics in the Bay. The City believes the derivation and justification of these two new fish tissue standards warrant a more comprehensive Water code Section 13241 and CEQA analysis."

Staff disagree that the proposed water quality objectives are not technically sound. See response to comment 4.1a and 9.8b. With respect to Water Code Section 13241 and CEQA analysis, see response to comments 5.1 and 5.2d.

Comment 7.3: "Table 2.1. Existing Total Mercury Numeric Water Quality Objectives. ...Please clarify Table 2-1."

Table 2-1 (and other sections of the report) will be corrected and revised as described in response to comment 2.4.

Comment 7.4: "The City has concerns about how growth in water recycling (R.O. brine) will affect our continued ability to maintain these low loading levels. An off set program must become a priority to help all municipal dischargers in the near future."

Water Board staff applauds your commitment to expand your water recycling efforts. We encourage you to share these concerns with the State Water Board as they develop the offset program for mercury. See also the responses to comments 5.5 and 5.6.

Comment Letter no. 8:City of Sunnyvale, Marvin Rose; June 5, 2006

Comment 8.1: “Sunnyvale’s high performance and small allocation should qualify it for the same treatment that the Regional Board is giving other small dischargers: it would be consistent with the policies laid out in the staff report and the State Boards (sic) resolution to include Sunnyvale in the category not required to make further mercury reductions. We strongly urge that the revised WLA be amended to state that, in addition excluding plants with < 0.1 kg/yr allocations, the TMDL should exclude all advanced treatment plants with <0.15 kg/yr as well. If the Regional Board does not agree with this request, the City requests that the Regional Board explain how advanced highly performing treatment plants such as the City are to meet the lower WLA.”

We appreciate that Sunnyvale operates a very good municipal treatment plant that discharges very little mercury to the Bay, but we see no need to change the allocation scheme. In fact, because of this plant’s excellent performance, it is very unlikely that load reductions would be needed to be able to meet the final individual wasteload allocation (WLA) for this facility if current performance can be reliably maintained. See response to comment 8.3 below for more information.

Comment 8.2: “The State Board Resolution 2005-0060 requires that Sunnyvale’s high performance be recognized with no further reduction. Including Sunnyvale in the 20% reduction category is fundamentally inconsistent with the express terms of Resolved 3 of the State Board’s September 7, 2005 remand order. The State Board clearly ordered the Regional Board to leave dischargers such as Sunnyvale with no further reduction, let alone one as drastic as the one being proposed.”

The Resolution does not, as the comment suggests, require that no load reductions be assigned to plants with high performance. Instead, the State Water Board merely requires that the Water Board include provisions that acknowledge good performance. If the State Water Board wished to insist that no changes be made to the allocations for certain types of facilities, the resolution would have explicitly said so. This passage merely suggests that well-performing plants should not be required to achieve the same extent of reductions as lesser-performing plants. The Water Board, in revising the TMDL, has done just that by recognizing that advanced treatment plants are already outperforming secondary treatment plants. Accordingly, the Water Board proposes to reduce the allocations for secondary treatment facilities by 40 percent but only reduce by

20 percent those for advanced facilities such as Sunnyvale. Moreover, the Water Board is obligated to respond to every element of the resolution. Resolved 2:

“...require(s) all dischargers to aggressively implement appropriate pollution avoidance practices that are most effective at eliminating or reducing mercury concentrations in their effluent.”

Notice that the State Water Board did not exempt any discharger from the requirement of Resolved 2, including those that may already be performing well. Taking the two passages from the resolution (Resolved 2 and 3) together supports the Water Board’s approach. Namely, some reductions in allocations are prescribed for all dischargers in order to help insure that all dischargers are aggressively implementing appropriate pollution avoidance practices as required by Resolved 2, but less reduction in the allocations for treatment plants, such as Sunnyvale’s, that are already performing well (in accordance with Resolved 3).

Comment 8.3: “It is not possible for Sunnyvale to achieve reductions from either better pretreatment or other cost-effective mercury reduction methods. The Regional Board should re-examine Sunnyvale’s case. In this regard, we request that the City be given credit for the reduction in mercury loads to the Bay attributable to the City’s water recycling program and the treatment of incident[al] rainfall that amounts to approximately 0.007 kg/yr.”

The current total load for all municipal wastewater facilities shown in Table 4-x of the proposed Basin Plan amendment was computed in using a statistical approach to take into account the interannual variability of the loading from 2000-2003. This resulted in a total municipal category WLA of 17 kg/yr. Municipal wastewater WLAs for individual facilities were computed by allocating the total category WLA of 17 kg by an allocation factor that takes into account both the facility fraction of mean mercury loading from 2000 through 2003 and the facility fraction of total POTW effluent volume over the same period. For the Sunnyvale facility, this methodology results in an estimate of current loading of 0.15 kg/yr. Applying a 20 percent reduction results in a final individual allocation of 0.12 kg/yr.

The actual loading at this facility during the period 2000-2003 ranged from 0.05 to 0.08 kg/yr with a mean of 0.07 kg/yr. Therefore, the facility did not exceed its final allocation during this period, and the average loading was **41 percent lower** than the final allocation about which the commenter objects.

The City is to be congratulated for the excellent performance of its treatment plant. In fact, Sunnyvale appears to be achieving its final allocation already without further reductions as long as it maintains its current effective efforts at pollution prevention, pre-treatment, and wastewater treatment. Therefore, it is not necessary or appropriate

for the Water Board to give special credit for water recycling or for the treatment of rainfall as suggested in the comment.

Comment 8.4: “The revised wasteload allocation reduces Sunnyvale’s permitted plant capacity by approximately 30%, thereby taking away a very valuable asset needed for the future. The Regional Board should take this into consideration and not ask Sunnyvale to sacrifice such a high amount of potentially needed and valuable capacity.”

As explained in the response to comment 8.3, current average performance (mercury loading) at the Sunnyvale facility is **41 percent lower than the final allocation**. Thus, no reductions from current performance appear to be necessary for this facility to achieve its final allocation.

Further, the original determination of the Sunnyvale facility’s WLA, as described in the response to comment 8.3, was not based on the Sunnyvale facility’s permitted plant capacity. As such, the revised WLA does not reduce permitted plant capacity by 30 percent. Thus the commenter’s statement that the revised allocation reduces Sunnyvale’s permitted plant capacity is incorrect.

Comment 8.5: “It is too risky and thus inappropriate to make Sunnyvale dependent for any future growth on the availability of offset and other programs that may not be available in time to provide relief. At the very minimum, the TMDL should expressly provide that the proposed reductions are contingent upon such an offset policy being in place, and with reasonable cost.”

As explained in the response to comment 8.3, current average performance (mercury loading) at the Sunnyvale facility is **41 percent lower than its final allocation**. Thus, no reductions from current performance appear to be necessary in order for this facility to achieve its final individual allocation. Thus, the commenter is incorrect in asserting that Sunnyvale must depend on an offset program to provide relief. See also the response to comment 5.5 regarding the request to make reductions contingent upon development of an offset program.

The Water Board is not responsible for developing the offset policy and cannot, therefore, speculate as to the details of that policy to be developed by the State Water Board. However, it can be pointed out that all but approximately 20 kilograms of the more than 1200 kilograms of mercury entering the Bay per year are currently coming from sources other than wastewater. This suggests that there are likely reasonably cost effective opportunities to effect load reductions from other sources to offset loadings from wastewater, and this may include some offset credit for recycled water transfers and treatment of incidental rainfall as well.

Comment 8.6: “What other reasonable and practicable control options does the Regional Board staff believe are available to the City to rectify the loss in plant capacity?”

As discussed in response to comment 8.3, current performance at the Sunnyvale facility is well below its final allocation. If the City maintains current treatment and pollution prevention efforts, it appears that it will not have to restrict the volume of water discharged. Thus, the mercury TMDL does not deny Sunnyvale use of its permitted plant capacity. Furthermore, the Water Board is responsible for ensuring that beneficial uses are protected in the Bay. We are not responsible for ensuring that wastewater facilities may use the entire capacity of their facility. To the extent that Sunnyvale can maintain its mercury loading below its final allocation and comply with all other current and future permit requirements, it may discharge whatever volume of wastewater is consistent with its permit requirements.

Comment 8.7: “How does the Regional Board intend to provide credit for current and ongoing mass reductions such as water recycling and treating incident rainfall?”

The Water Board has no immediate plans to provide credit for the treatment of incident rainfall. Every wastewater facility receives mercury in its influent that does not originate at the wastewater treatment plant, but rather from its service area and watershed. It is simply a fact that each facility is responsible for treating whatever enters the facility in influent in order to comply with its NPDES permit requirements. Finally, as discussed in response to comment 8.3, Sunnyvale’s wastewater treatment facility already discharges less mercury on average than required by its final allocation, so no such credit for treating rainfall is necessary for it to comply with the WQBELs derived from its interim or final allocation.

The Water Board does wish to promote water recycling efforts in the Bay Area. However, we must note that this issue is outside the scope of our current project because it was not identified by the State Water Board in its remand resolution. Moreover, this issue is sufficiently important and complex that is not appropriate to attempt to craft the requested provisions in the TMDL at this time. We suggest that the State Water Board’s offset policy is the appropriate policy vehicle to resolve how water recycling will be treated with respect to achievement of allocations and compliance with WQBELs.

Comment Letter no. 9: LeBoeuf, Lamb, Greene & McRae LLP (City of Sunnyvale), Robert Thompson, Esq.; June 5, 2006

Comment 9.1a “Is it contrary to the State Board’s Order 2005-0060 for the TMDL to require Sunnyvale’s AWT plant to reduce its current mercury discharge?”

No, see response to the nearly identical comment 8.2 .

Comment 9.1b “Has Sunnyvale’s outstanding performance record been overlooked by the Regional Board staff?”

No, see responses to comments 8.2 and 8.3.

Comment 9.1c “Wouldn’t it be consistent with State Board Order No. 2005-0060 to exclude Sunnyvale from the list of “other dischargers” subject to reduced individual WLA?”

The approach the Water Board has proposed is more consistent with the entirety of the Remand Order. See response to comment 8.2.

Comment 9.2a: “Sunnyvale has to ask whether the Staff’s approach to accommodating both near- and long-term growth s reasonable. The population of the Bay Area will undoubtedly grow substantially over the next 120 to 200 years, along with business activity. Population growth will undoubtedly increase the mercury loading at the POTWs by a substantial, if not precisely quantifiable, amount during that time.”

The Water Board is not obligated to accommodate growth when developing TMDLs. The approach taken by the TMDL is to address the threat to beneficial uses posed by mercury as conditions exist today, and not as they might exist in some speculative future condition about which we have no definitive information. It is simply not possible to know now how the TMDL may need to be modified in 20, 50, or 100 years; and to attempt to alleviate the future consequences envisioned by the commenter at this time is simply not a sensible policy endeavor. The Water Board has stated its commitment to continually adapt the TMDL to changing circumstances and more complete information as it is developed. Moreover, the commenter presents no evidence to support his claim that “population growth will undoubtedly increase the mercury loading at the municipal wastewater treatment plants (POTWs) by a substantial, if not precisely quantifiable, amount during that time.” He raises “what if” possibilities in footnotes to his comments but provides no data or substantive information on which to base such possibilities. Therefore, his statement about growth is conjecture, and the Water Board cannot set load allocations to accommodate growth based on mere conjecture.

Further, this conjecture is not supported by available evidence. This comment is largely based on an unsubstantiated 1:1 relationship between population growth and changes in mercury loads (i.e., if population increases by 10 percent, mercury loads will increase by 10 percent). This unsubstantiated relationship is based, in turn, on an assumed 1:1 relationship between Bay Area population and municipal wastewater effluent volume. In fact, there is no 1:1 relationship: From 1985 to the present (as of 2000-2003), the Bay Area’s population increased 25 percent (SFBCDC 1992, CDF 2003[1], ABAG 2004), but

during the same period municipal wastewater effluent discharged to the Bay increased by less than 4 percent (LWA 2004, SFBCDC 1992). Furthermore, from the year 1997-98 to the present (as of 2000-2003), the Bay Area population increased by 6 percent (CDF 2003[1],[2]), yet POTW effluent discharge to the Bay decreased by almost 10 percent (San Jose 2004, LWA 2004).

These data illustrate that municipal wastewater effluent volume and Bay Area population are not related by a simple 1:1 correspondence. The effluent volume reduction in recent years probably reflects economic conditions as well as gains in water use efficiency. One expects further gains from water use efficiency efforts as the Bay Area is increasingly forced to manage a finite resource in the most intelligent fashion. Based on this information, there appears to be no unambiguous relationship between municipal wastewater effluent volume and population.

There is likewise no clear relationship between Bay Area population and mercury loads. Improvements in pollution prevention and treatment methods can result in reduced effluent concentrations despite population growth. Therefore, it does not follow that mercury loads will increase in proportion to Bay Area population increases. Further, Association of Bay Area Governments' growth projections predict that the Bay Area population will increase by less than 14 percent for the 20-year period between 2005 and 2025 (ABAG 2004). This is much less population growth than occurred between 1985 and the present, when effluent volume increased by less than 4 percent. (We have no projected population estimates beyond 2025, so any attempt to account for population growth beyond 2025 would be speculative.) Based on these data, we conclude that the approach our TMDL has taken with respect to addressing the impairment is reasonable with respect to growth.

Comment 9.2b: "The TMDL no longer has the slack in the calculation to rely on to meet growth. The Staff assumes that the required reduction can be achieved by "reasonably foreseeable measures and improvements in treatment technology," or "aggressive pollution prevention and other cost-effective mercury reduction methods, wastewater treatment system improvements, and the implementation of a State-developed offset program."

Comments 9.2b, 9.2c & 9.2d are answered under 9.2d below.

Comment 9.2c: "Growth is presumably to be accommodated through these same measures, subject to the future use of adaptive implementation to change the WLA's (sic) if these measures are insufficient. "

Comments 9.2b, 9.2c & 9.2d are answered under 9.2d below.

Comment 9.2d: “Aggressive pollution prevention measures may not be nearly as effective in reducing effluent mercury as the Staff seems to believe, since most POTWs in the Bay Area have already implemented such programs. As Sunnyvale has pointed out at every opportunity, the Regional Board can’t reasonably expect Sunnyvale itself to achieve any further mercury reductions by implementing any of the other measures the Staff is recommending.”

The commenter (comment 9.2b) is correct in that the load allocations for wastewater are not designed to accommodate growth, and the revised allocations call for reductions from estimated current loading. Contrary to the commenter’s presumption (in comment 9.2c), the Water Board does not claim that growth is to be accommodated through the stated measures by which wastewater sources will strive to achieve their allocations.

It is not just a staff assumption that the required reductions can be achieved by the methods stated in the comment. The Bay Area Clean Water Agencies (BACWA), in their comment letter to the Water Board on the revised TMDL, recognize that it will be challenging to implement the TMDL. BACWA members of course do not agree with everything in the TMDL, but—and this is significant, in a spirit of stewardship—BACWA member agencies support moving forward on solutions. Two passages from the BACWA comment letter clearly illustrate this sense of stewardship:

“BACWA takes its stewardship role for San Francisco Bay seriously; this role is the life’s work of our member agencies and their dedicated professional staff. BACWA members have worked hard and will continue to do so to protect the water quality and the beneficial uses of San Francisco Bay. BACWA will also continue to work with the San Francisco Water Board and its staff to ensure that the future TMDLs will be focused on providing effective and efficient solutions for our San Francisco Bay.”

“Whether this TMDL is adopted or not, BACWA’s members will continue focusing their efforts every day on excellent plant operation, continuing their award winning industrial pretreatment and pollution prevention programs, and working with all stakeholders on the implementation and adaptive management of programs aimed at reducing mercury efficiently in the Bay.”

It is this explicit sense of stewardship in BACWA’s comment letters that gives Water Board staff hope that we will be able to work together toward effective and efficient solutions for the Bay and use adaptive management wisely to do this. To the contrary, Sunnyvale continues to question Board staff’s “assumptions” about the efficacy of control measures and treatment improvements, and continues to criticize the Water Board about not accommodating growth when the rest of the Bay Area’s municipal wastewater community noticeably does not make such criticisms. This is even

more surprising given the fact that Sunnyvale's current performance is better than required by its final individual load allocation.

Comment 9.2e: "Can a future bad result be avoided through the use of "adaptive implementation? The Staff Report section on "adaptive implementation" suggests that the Regional Board will study how reductions in risk might be used to offset mercury in the effluent, presumably allowing increased WLAs. Has the Staff thoroughly examined precisely how this would be accommodated by the federal Clean Water Act's anti-backsliding provisions"

The commenter makes a presumption about what the Water Board will do in the future based on speculation regarding the outcome of scientific studies, and then asks if Board staff have thoroughly examined how the Board might respond to such information in the future. We have made or implied no promises about what might happen in the future so, we do not intend to undertake the examination suggested in the comment. With respect to anti-backsliding concerns, the Water Board will consider such concerns as necessary and comply with the requirements of Clean Water Act Section 402(o). Staff notes that Section 402(o) allows the relaxation of water-quality based effluent limitations where the requirements at Section 303(d)(4) pertaining to TMDLs are met. Specifically, Section 303(d)(4) provides that for nonattainment waters, relaxation is permitted where the existing effluent limit is based on a TMDL or other wasteload allocation and the cumulative effect of such revision assures attainment of the water quality standard.

Comment 9.2f: "But what happens if the Regional Board goes to the U.S.E.P.A. with a "revised" TMDL that allows POTWs to discharge more mercury? One likely response is: You have to show us, scientifically (as opposed to the assumptions, guesses and hypotheses underlying the original TMDL), that the new TMDL will attain the objective within the original attainment period and that the decreased WLAs that offset the increased WLAs are based on realistic scientific data. Until then, no changes in the WLAs are allowed.such a response is perfectly plausible? Isn't this an unreasonable risk to take? Wouldn't it be more reasonable to account for growth in the original TMDL and avoid the horrendous consequences of a future bureaucratic glitch at EPA?"

The comment presents a hypothetical future circumstance and a hypothetical U.S. EPA response to that circumstance, and then concludes that the Water Board should account for growth in order to avoid a presumed negative outcome to this set of circumstances. As Board staff have explained in response to comment 9.2a, our approach to the TMDL is more reasonable than trying to make changes now that may or may not account for the speculative effect population growth will have on wastewater performance and mercury loading.

Comment 9.3a: "Sunnyvale is concerned that the proposed objective may be being adopted without legally sufficient consideration of economic considerations as

mandated by Water Code Section 13241 . The “Regulatory Analysis” section in Staff Report assigns an annual cost of only \$80 million to the potential cost of constructing AWT upgrades to the secondary POTWs, citing “LWA 2003 (sic 2002).” The Staff Report concludes that this additional expense would have minimal impacts on sewage rates and the need for additional housing. Is there justification for using only the \$80 million figure? Grovhaug (of LWA) and others prepared a draft report in 2003 that placed a figure of from \$80 to \$300 million per year as the cost of putting filtration on the Bay’s POTWs with secondary treatment. If the true cost is as much as \$300 million per year, does that change the other conclusions that the Regional Board has reached?

Water Board staff reviewed the LWA report containing the cost information and can find no mention of a cost figure of \$300 million associated with adding filtration to those municipal facilities that do not currently employ filtration. Thus, Board staff stand by the conclusion in the 2004 Staff Report, as stated on page 6:

Addition of filtration to Bay area municipal facilities which do not currently have filtration is estimated to cost an additional \$79.9 million per year to address projected 2025 flows (723 mgd). The addition of filtration would drop the projected annual mercury loading from 14 to 6.3 kilograms per year for municipal effluent.

Comment 9.3b: “Also, the Staff may wish to re-examine the figures used for potential costs of reducing mercury loadings from urban stormwater runoff. My understanding is that the EOA 2000b report has been mischaracterized, and in any event, has been superseded by figures submitted by the stormwater managers in their comments submitted before the June 2004 hearing.

Staff was careful to characterize the cost information provided by the Santa Clara Valley Urban Runoff Pollution Prevention staff (cited as EOA 2003b in the Staff Report) as rough estimates. The information was not characterized as anything other than a rough estimate. See response to comment 11.1b for more information about TMDL-related cost estimates for urban stormwater runoff.

Comment 9.3c “Also, why doesn’t the economic analysis at least mention the potential costs of projects that might ultimately produce mercury reductions to be considered for offset and trading purposes?”

While the TMDL mentions that an offset or trading policy is going to be developed by the State Water Board, the Water Board is not responsible for the development of this policy. Thus, the details of the offset or trading program are unknown, and it would be of little to no value for Water Board staff to guess as to the details of the policy for the purpose of providing a highly speculative consideration of economics or potential

adverse impacts. Certainly, the State Water Board will be obligated to consider economics and possible environmental impacts when developing this policy.

Comment 9.4: “The failure to made (sic) adequate provision for accommodating growth or even to provide a plausible description of how growth will be allowed, makes the implementation plan inadequate for the purposes of meeting the requirements of Water Code Section 13242.”

The commenter is incorrect as Water Code Section 13242, which pertains to implementation plans to achieve water quality objectives, does not require accommodations for growth—in fact, it does not make any reference to growth.

Comment 9.5a: “The environmental checklist appended to the new Staff Report indicates “no impact” in a variety of categories, including: “Air Quality,” Hazard and Hazardous Materials,” “Public Services,” “Transportation/Traffic,” and “Utilities and Service Systems.” This seems odd, in light of the Staff Report’s acknowledgement that the construction of new wastewater treatment facilities (sic) one of the principal means whereby POTWs with secondary treatment are expected to meet the 40% reduction requirement. There a numerous adverse environmental consequences associated with the construction of major wastewater treatment facilities, including construction impacts (traffic, noise), air quality impacts (traffic during construction); wetlands impacts for any construction taking place on or near wetland areas (many POTWs are situated in or near such areas); and hazardous waste generation from such facilities, including additional amounts of toxic sludges, including mercury-laden sludges. “

Nowhere does the Staff Report say that construction of new wastewater treatment facilities is one of the principal means for municipal wastewater treatment plants to meet the 40 percent reduction. Rather, on page IV-8 the Staff Report states, “[c]ompliance is expected through a combination of aggressive pollution prevention and other mercury reduction methods, water re-use, pollutant trading, offsets, and/or system improvements and upgrades” and that upgrading to advanced treatment (filtration) is more of a theoretic possibility. It further states that upgrades, *if* they occur, would likely to be in response to other regulatory drivers. Since publication of the Staff Report, BACWA, representing Municipal wastewater treatment plants, has stated in its June 5, 2006, comment letter, “[i]t is **not** the expectation that the reductions from 14 kg/yr to 11 kg/yr of mercury would require the investment of tens of millions of dollars per year to build and operate advance wastewater treatment where it does not exists. Although the technology exists to reduce the effluent loading, the cost of such technologies is not at all reasonable. BACWA is committed to a periodic review of treatment technologies and enhancements to determine if new reasonable and feasible approaches to reducing the mercury in effluent are developed.” (emphasis added.)

Thus, unlike the City of Sunnyvale whose current facility performance is 41 percent lower than its final wasteload allocation, those agencies that have the actual and real challenge of meeting the final 40 percent reduction are on record as saying that upgrading to advanced treatment is not reasonable to undertake. The upgrade option, therefore, does not appear to be a reasonably foreseeable method of compliance under CEQA to comply with the TMDL. Assuming for the sake of argument only that treatment plant upgrades due to the Mercury TMDL will occur (which the evidence in the record suggests are not reasonably foreseeable) and thus required to be analyzed under CEQA, Board staff notes that any such analysis would be completely speculative as it is unknown where or to what extent upgrades would occur. The environmental analysis presented in the Staff Report is akin to a Tier 1 programmatic environmental review—if on the remote chance these upgrades occur due to the TMDL, and there is construction associated with those upgrades, they will be subject to the appropriate Tier 2 project-level environmental review.

To make the above points clear, see the changes to the Staff Report in response to comment 5.1. Additionally, to reflect that upgrading is not a reasonably foreseeable method of compliance, Staff Report, p. IV-8, relating to economics will be amended as follows:

With respect to wastewater's allocation, the TMDL revisions propose a final allocation of 11 kg, as opposed to 17 kg which was adopted by the Water Board in the 2004 TMDL. As set forth the in the 2004 Mercury TMDL Amendment Staff Report, efforts necessary to comply with the 17 kg allocation were projected to be limited to implementing additional pollution prevention measures, and that the cost of implementing these and additional programs had been generously estimated to be greater than \$8 million (citing LWA 2002). On top of these efforts, compliance with the proposed revised 11 kg allocation is expected through a combination of aggressive pollution prevention and other mercury reduction methods, water re-use, pollutant trading, offsets, and/or system improvements and upgrades. The costs of compliance are difficult to estimate with any certainty because it is unknown exactly how the wastewater community will choose from its menu of options. It is likely that the wastewater community will seek and employ the most efficient and cost-effective strategies to comply with the more stringent wasteload allocations. Arguably the most expensive manner of compliance would be for all Bay Area municipal treatment facilities not already providing advanced treatment (filtration) to upgrade to that level of treatment; however, the municipal wastewater treatment plants without advanced treatment facilities have indicated through BACWA that "[i]t is not the expectation that the reductions from 14 kg/yr to 11 kg/yr of mercury would require the investment of tens of millions of dollars per year to build and operate advance wastewater treatment where it does not exists. Although the technology exists to reduce the effluent loading, the cost of such technologies is not at all reasonable. BACWA is committed to a periodic review of treatment technologies and enhancements to

determine if new reasonable and feasible approaches to reducing the mercury in effluent are developed.” In any case, tThe additional yearly cost associated with this upgrade (even though it is not a reasonably foreseeable method of compliance) has been estimated at approximately \$80 million (LWA 2002). This scenario is more of a theoretic possibility and the cost is the upper bound on the cost of compliance with the load reductions for municipal wastewater discharges. Furthermore, the upgrades, if they were to occur, would likely be in response to other regulatory drivers, such as stricter air quality regulations for mercury or water quality concerns from emerging contaminants which may result in reduced mercury loads from wastewater facilities.

Comment 9.5b: “The recent decision in *City of Arcadia v. State Water Resources Control Board*, 135 Cal.App.4th 1392, 1420 (2006) reaffirms the long-standing CEQA requirement that a document equivalent to an Environmental Impact Report be produced if a “fair argument” can be made that the project in question will have a significant impact on the environment. Given the need to achieve the 40% reduction, and in the further absence of any provision for inevitable growth, the POTWs will, sooner or later (probably sooner) have to look at construction of AWT facilities in order to reduce their mercury discharges. This is not mere speculation. It is the proffered “offset and trading program” that the Staff Report holds out as the alternative to AWT construction that can be seen as “speculative.” Absent any reasonable likelihood that such a program will be developed, there is a “fair argument” that AWT plants may be the only way for POTW’s to avoid long-term noncompliance with the new stringent WLAs.

The Water Board’s Basin Planning program has been certified by the state’s Secretary for Resources as exempt from the requirements for preparing EIRs or negative declarations. The Water Board is nevertheless subject to other provisions of CEQA for identifying and avoiding significant adverse effects to the environment where feasible, and must prepare a document used as a substitute for an EIR or negative declaration that describes the proposed activity and either alternatives and mitigation measures to avoid significant impacts or a statement that the project would not have significant impacts. Public Resources Code Section 21080.5 and 14 Cal. Code of Regs. Sections 15250-15252. *City of Arcadia v. State Water Resources Control Board*, 135 Cal.App.4th 1392 (2006), did not invalidate this statutory and regulatory scheme and the Water Board, through its Staff Report and appendices, has complied with it.

The claim that a “fair argument” can be made that the TMDL will have a significant impact on the environment because Municipal wastewater treatment plants will have to upgrade to advanced treatment, fails. Furthermore, it is directly contradicted by the very agencies who must decide how to comply with the 40 percent reduction. Specifically, as set forth in the response to comment 9.5a, the upgrade option is not a reasonably foreseeable method of compliance as these agencies, through BACWA, have stated that such upgrades are cost-prohibitive and unreasonable, and therefore not expected to be

implemented. The City of Sunnyvale does not need to undertake any efforts to comply with the reduced allocation as its current levels are already 41 percent below the reduced allocation.

Comment 9.5c: “Similarly, the stormwater agencies have pointed out that new facilities may be likely necessary to meet the reductions mandated by their WLAs. And even if an offset and trading program is under consideration, there is no discussion of the potential environmental impacts that offsetting projects constructed under such a program may have. The TMDL does not adequately consider the impacts from collection, storage, transportation and disposal of mercury as the result of pollution prevention activities, or increased regulatory requirements for wetlands to avoid methylation of mercury. ”

See responses to comments 5.1, 9.3c, 11.2a-d.

Comment 9.5d: “The Staff Report and the comment letters and testimony from government officials throughout the Bay Area with personal knowledge of the potential impacts on their communities all support a “fair argument” that the adoption of the TMDL and the objectives will have a significant adverse environmental impact. These are not merely opinion or idle speculation. (City of Livermore v. Local Agency Formation Com. (1986) 184 Cal.App.3d 531, 542, 230 Cal.Rptr. 867.) ”

This comment is made in the context of the argument that 1) upgrading to advanced waste treatment is an inevitability and 2) the stormwater agencies have indicated construction of stormwater facilities may be necessary, and 3) the TMDL does not adequately consider impacts from pollution prevention activities or increased regulatory requirements related to avoiding methylation in wetlands.

The record contradicts the commenter’s claim that upgrading is an inevitability due to the Mercury TMDL. See response to comments 5.1 and 9.3. The wasteload allocations for stormwater are not being changed; therefore, the analysis set forth in the 2004 Mercury TMDL Environmental Checklist pertaining to stormwater treatment facilities is still applicable. To make these points clear, the following revision is proposed to the current Environmental Checklist, p. B-19, XVI. Utilities and Service Systems:

- b) ~~Because the Project would not affect water demands or supplies, it would not require the construction of new or expanded water or wastewater treatment facilities.~~ The Project does not mandate the construction of new or expanded water or wastewater treatment facilities. Upgrading of existing wastewater treatment facilities to advanced treatment/filtration, which has the potential for air, construction and traffic impacts, is not a reasonably foreseeable method of compliance for the reasons given above. System

improvements may occur to comply with the 40 percent reduction, which may involve minor construction activities. But it would be speculative to evaluate such changes without knowing the specifics of the improvements. If and when they are proposed, they would be evaluated in a project-specific Tier 2 environmental analysis.

- c) Because the Project does not revise the stormwater wasteload allocations, tThe Project would not cause local agencies to construct some new or expanded urban storm water runoff management facilities beyond what was evaluated in the 2004 Environmental Checklist and analysis and no impacts would occur.

In any case, even if there is a fair argument that significant impacts *may* occur, the Water Board has fulfilled its CEQA duties by analyzing whether significant impacts would in fact occur and considering any required mitigation measures and alternatives in the Staff Report and appendices, the substitute CEQA document under its certified regulatory program.

Comment 9.5e: “The Regional Board is required by law to explain the reasons for its environmental conclusions in order to provide the public and concerned stakeholders and opportunity to evaluate the true impacts of the project. (Federation of Hillside & Canyon Assns. v. City of Los Angeles, supra, 126 Cal.App.4th 1180, 1198, 24 Cal.Rptr.3d 543.) The CEQA documentation in this case is inadequate.”

See response to comment 5.1.

Comment 9.6: “Is the Regional Board Confident that the TMDL and the Proposed Fish Tissue Objectives Will be Approved by the U.S.E.P.A.?”

Yes. See Comment letter no. 1.

Comment 9.7: “Does the Regional Board Have Authority to Require Dischargers to Pay for Health Monitoring or Health Care as Part of ‘Risk Reduction’?”

See response to comment 5.9.

Comment 9.8a “Water Code Section 13241 is the primary source of the Regional Board’s authority to adopt water quality objectives. That Section authorizes the Regional Board to “ensure the reasonable protection of beneficial uses . . .” Does this proposal meet that requirement? There are a number of aspects of the proposal that suggest that the Regional Board has exceeded the bounds of reasonableness. “

Water Code Section 13241 mandates that the Water Board establish water quality objectives that in its judgment will ensure the reasonable protection of beneficial uses and prevent nuisances. Mercury concentrations in San Francisco Bay fish are high

enough to threaten human health and the beneficial uses of sport fishing, wildlife habitat and protection of rare and endangered species. The proposed water quality objectives and their implementing vehicle, the San Francisco Bay Mercury TMDL, will ensure the reasonable protection of these important beneficial uses. The proposed objectives are numeric interpretations of the narrative bioaccumulation objective for protection of associated beneficial uses as it relates to mercury in San Francisco Bay. Board staff disagree with the commenter's claim that a number of aspects of the proposed action exceed the bounds of reasonableness.

Comment 9.8b: "First, it is clear that the scientific foundation of the proposal is extremely weak and is certainly not creditable enough to justify the TMDL's harsh treatment of the POTWs. The Staff Report admits the scientific weakness of the TMDL by calling for "adaptive implementation," which is another name for acting now and achieving scientific clarity later. The only certainty is that there are no scientifically defensible answers to the key questions, and hence the proposal is founded on a series of assumptions and hypotheses (as identified in my letter of June 14, 2004) that are essentially guesses being made for the purpose of establishing a hypothetical approach."

Here the commenter makes unsupported, editorial assertions that the scientific foundation of the proposal is weak. First, this comment does not concern any element that is within the scope of items to receive comment. Second, the scientific basis of the TMDL was reviewed by three scientists from the University of California and San Jose State University, who generally supported our scientific approach, and they are more qualified to judge scientific merit than is the commenter. Adaptive implementation, contrary to the commenter's opinion, is the application of the scientific method to resource management, and we were careful to state our assumptions and information gaps, but this is not the same thing as admitting scientific weakness. Indeed, rather than a sign of "scientific weakness," that we explicitly state the limits of our working conceptual understanding of the system is a sign of scientific integrity and responsible resource management.

Comment 9.8c: "Second, the Regional Board has failed completely to quantify the projected beneficial impact of its proposed controls on the POTWs."

Staff is not required to quantify the beneficial impact of proposed controls on Municipal wastewater treatment plants. We must simply demonstrate that the cumulative beneficial impact of the TMDL is the protection of beneficial uses through attainment of water quality standards.

Comment 9.8d: "Third, the potential costs imposed on the POTWs and the stormwater agencies have not been adequately recognized in the Staff Report, and no calculation has been made as to what those costs will be over the attainment period."

Nor has the Regional Board justified a program that could potentially force Sunnyvale and the other AWT plants in need of credits to pay for the installation of filtration on the secondary plants.”

We are not aware of additional information that would help us improve our consideration of economics. We have considered economics to the best of our ability. The commenter asserts that we have not adequately recognized costs but provides no information for staff to consider in order to improve our analysis. He suggests that no calculation has been made regarding costs over the attainment period, but we have presented a yearly cost estimate that could easily be multiplied by any number of years required to attain water quality standards. He speculates on a “program that could potentially force Sunnyvale and other AWT plants to pay for installation of filtration,” but the TMDL makes no mention of such a program. See response to comment 9.3a. We are required to consider costs associated with the project, rather than costs associated with the commenter’s speculations.

Comment 9.8e: “Fourth, the principal beneficial use being protected is human consumption of Bay-caught fish. The population segment at risk is that of subsistence fishermen, who comprise a relatively small percentage of the overall population. But has the Regional Board considered the reasonable likelihood that consumption patterns might change significantly in the future owing to changing cultural and subsistence patterns due to the assimilation of the population subgroup into the culture (and consumption habits) of the general population? What about the effects of the risk reduction steps envisioned by the Staff Report, that hopefully will lead to less fish consumption (and less risk) as the subsistence fishermen are made aware of the dangers of eating Bay-caught fish?”

The commenter provides no support for his erroneous claim that the “principal beneficial use being protected is human consumption of Bay-caught fish.” Equally important is the protection of wildlife, including rare and endangered species that consume Bay fish. We have crafted a plan to provide for protection of beneficial uses protection as they exist today, not in some speculative manner in the future. It may be the case that consumption patterns in the future will change, but the Water Board would be engaging in speculation if it attempted to craft a TMDL based on the particular manner in which those changes occur. Moreover, it would still be necessary to protect other beneficial uses ignored in this comment.

Comment 9.8f: “There are alternatives that could be explored that could outweigh the burdens of the present proposal. Only after consideration of those alternatives can the Regional Board explain why it would not be justifiable to provide for a growth allowance in the TMDL. All a growth allowance would do would be to extend the attainment period a year or so (and add minutely to the associated human risk factor). But it would avoid the enormous potential associated costs of the current proposal.

The Regional Board should provide a better justification than it has thus far for the imposition of a permanent cap on POTW mercury loadings."

There are an infinite number of alternatives to any project, and we are obviously not obligated to analyze every one of them. Board staff has considered numerous feasible alternatives to the project. Further, we have responded to comments concerning growth (see responses to comments 8.5, and 9.2a-d).

Comment Letter no. 10: Western States Petroleum Association, Kevin Buchan; June 2, 2006

Comment 10.1: "Under the Industrial Wastewater section, the draft BPA reads, 'Develop and implement effective programs to reduce mercury-related risks to humans and wildlife, and quantify the risk reductions resulting from these activities.' It is not clear what NPDES permit holders would do within their permit to accomplish this requirement. WSPA members understand that compliance with this requirement is intended to be achieved by supporting efforts of the Clean Estuary Partnership. We request the language be changed to conform with similar elements in this Section, specifically,

'Develop and implement Conduct or cause to be conducted effective programs by supporting efforts through collaborative programs such as the Clean Estuary Partnership to reduce mercury-related risks to humans and wildlife and quantify the risk reductions resulting from these activities."

"Develop" does not preclude "cause to be conducted." Staff currently foresees this to consist of supporting efforts through collaborative programs, namely the Clean Estuary Partnership, but this could change over time. Both of these comments could be incorporated into permit language at a later date, as they would be consistent with the language in the proposed Basin Plan amendment. However, striking "and implement" would preclude implementation, which is unacceptable. After the Risk Management Action Plan is completed, the appropriate components could be reflected in permits.

Comment 10.2 "...NPDES permittees will monitor levels of methylmercury in their discharges. We request the Regional Board make the following addition (in underline): "Monitor levels of methylmercury in discharges as appropriate." Regional Board staff are expected to soon issue a CWC Section 13267 letter requesting monitoring of methylmercury in NPDES permitted outfalls. In the time between the issuance of the 13267 request and the future approval and incorporation of the BPA into the Basin Plan, the Regional Board will have collected a significant amount of mercury analytical data, which we believe will provide a sound basis for proposing an appropriate frequency for methyl mercury monitoring."

The addition of these two words is not necessary. The State Water Board has ordered the Water Board to require methylmercury monitoring in NPDES permits. In advance of permit renewals we issued, on July 5, 2006, a 13267 requirement for methylmercury monitoring by wastewater dischargers listed in Tables 4-x, 4-y, and 4-z who discharge at least 15 million gallons per year. If we were to append "as appropriate" to nearly every requirement in the Basin Plan it would add many pages to this document. Nonetheless, "as appropriate" is implicit in the Basin Plan requirements. The definition of "as appropriate," particularly for methylmercury, is expected to change rapidly over the next several permit cycles due to anticipated rapid increases in our knowledge of methylmercury behavior in San Francisco Bay. Dischargers are expected to monitor methylmercury, at a minimum, in accordance with NPDES permits, 13267 letters, and/or other regulatory mechanisms. Each of these regulatory mechanisms is reviewed carefully each time they are developed or re-issued, and the monitoring requirements are, and will continue to be, updated "as appropriate."

Comment Letter no. 11: Bay Area Stormwater Management Agencies Association, Donald Freitas; June 5, 2006

Comment 11.1a "Attainment of Proposed Water Quality Objectives... BASMAA requests that, prior to Regional Water Board adoption of the proposed Basin Plan Amendment, the analysis conducted via California Water Code 13241 be revised to include the most current information available regarding the reasonable attainment by urban runoff dischargers of the proposed WLAs and associated WQOs."

The commenter has not provided any new, reliable information to review for the purpose of revising the environmental analysis. The footnote to this comment cites an oral presentation of preliminary, incomplete results of an evaluation of urban stormwater controls that was not available at the time we prepared the Staff Report. These interim results have been considered by staff and are deemed too preliminary and incomplete to be relied upon substantially in the manner suggested. Therefore, it is inappropriate for staff to revise its Water Code § 13241 analysis as requested.

Comment 11.1b: "The cost estimates presented in the Staff Report appear to contradict the Regional Water Board staff cost estimates presented in their response to comments dated September 2, 2004. BASMAA believes that the Regional Water Board staff needs to reconcile its prior cost estimates, which vary from \$3 million/year to \$100 million/year. Because of this very wide range of potential costs, we again request that a thorough and reliable analysis regarding the economic costs associated with urban runoff programs' implementation of the WLAs and attainment of the proposed WQOs be prepared and considered by the Regional Water Board prior to its adoption of the proposed Basin Plan Amendment. "

In response to comments submitted by BASMAA on the September 2004 Staff Report (that estimated costs between \$434 million to \$526 million per year), we recognized these estimates as an upper bound of approximately \$500 million per year. In responding to comments on the September 2004 TMDL, we included a table of implementation costs that represents order of magnitude cost estimates of an additional \$100 million per year (reflecting the \$500 million per year upper bound estimate) for the Bay Area's urban runoff programs to implement their TMDL-prescribed actions. We also noted that the actions that will incur these costs will have multi-pollutant, stream protection, and flood management benefits. In order to capture these additional cost considerations from the 2004 Responses to Comments document, we are making the following changes to page IV-5 of the Staff Report.

Although the additional costs to urban stormwater management programs associated with the proposed Basin Plan Amendment are unknown, they would likely range from \$5 million per year to \$500 million per year (Looker & Johnson 2004c). ~~be a fraction of existing costs, which~~ These costs would cover a range of pollutants, including mercury, and would offer stream protection and flood management benefits as well.

Comment 11.2a: "BASMAA requests that the Regional Water Board requires the staff to prepare a more thorough analysis of possible environmental (and related social and economic) impacts associated with the TMDL and urban runoff WLAs. The Regional Water Board should also require that the staff's CEQA analysis thoroughly evaluate the potential impacts of and alternatives to the proposed change to the Basin Plan Amendment's mercury WQOs (such as a 0.3 ppm fish tissue WQO reflecting U.S. EPA's water quality criterion for mercury).

The urban runoff wasteload allocations are not being changed from the 2004 Mercury TMDL, which was supported by a Staff Report and appendices that sufficiently evaluated environmental impacts. To the extent that Mr. Freitas is referring to the CEQA analysis beyond just the urban runoff wasteload allocations, it has been revised in response to comments to clarify its conclusions of no significant impacts, which remains unchanged. See response to comments 5.1 and 5.2d. Water Board staff notes that social impacts are not required to be analyzed under CEQA.

Regarding the suggested alternative, adoption of U.S. EPA's water quality criterion of 0.03 mg mercury per kg fish was considered as a potential alternative in the Staff Report, p. IV-16. It was rejected because it is not based on local consumption data and does not provide adequate human health protection for consumption of fish. Nor does it protect at least one endangered wildlife species in San Francisco Bay, the California least tern.

Comment 11.2b: "All potentially significant environmental impacts of the current and previous proposal have not been identified and analyzed as well as compared to alternatives as CEQA requires; these include temporary impacts that will be

experienced as a result of implementation of the WLA. For example, the CEQA checklist does not consider the potential adverse environmental impacts from collection, storage, transportation and disposal of mercury as the result of pollution prevention activities to be implemented as the result of the TMDL.”

The Mercury TMDL adopted by the Water Board in 2004 was supported by a Staff Report and appendices that evaluated environmental impacts of the project. The current proposal includes a handful of amendments to the 2004 adopted TMDL (the most substantive being the more stringent wasteload allocations for wastewater sources) and two new water quality objectives. The potential environmental impacts associated with the amendments and the new water quality objectives are considered in the current Staff Report and appendices.

With respect to pollution prevention and outreach activities, the 2004 Staff Report evaluated them on a programmatic Tier 1 level, stating that the TMDL does not prescribe or specify the nature of these actions and that project-specific environmental review would be undertaken by the lead agency for each project. (2004 Staff Report, p. B-12.) Specifically, the 2004 Staff Report stated pollution prevention and outreach activities could result in increased hazardous waste generation, would divert mercury-containing wastes from sewers and solid waste landfills, and would reduce breakage that could release mercury into the atmosphere. (2004 Staff Report, pp. B-14, B-19.) The 2004 Staff Report concluded that to the extent that such wastes are diverted from inappropriate waste streams, the TMDL would be a benefit to the environment.

The current proposed amendments to the 2004 TMDL will result in wastewater sources intensifying their pollution prevention and outreach activities to comply with the more stringent allocations (from an aggregate 17 kg/yr to 11 kg/yr for all of wastewater sources). Some of these efforts are already underway under separate regulatory programs and intensifying these activities will not result in additional significant impacts. Diverting mercury, for example from dental offices, from inappropriate waste streams; and properly handling, collecting, transporting and disposing of mercury in accordance with applicable laws and regulations governing the handling of hazardous waste remain environmentally beneficial activities. The current proposed amendments do not change urban runoff’s wasteload allocations necessitating more pollution prevention activities. Additional environmental analyses beyond the 2004 Staff Report are not necessary.

Comment 11.2c: “Likewise, it does not consider the adverse environmental impacts (both temporary and long term) of the potential construction or operation of stormwater controls or treatment facilities that may be required to meet the WQOs if pollution prevention measures are not sufficient to address the WLAs and/or WQOs by themselves.”

No amendments to the 2004 TMDL are proposed with respect to urban runoff sources requiring additional CEQA analyses. Nevertheless, it is important to note that urban runoff agencies will meet their wasteload allocations by undertaking those activities set forth in the Basin Plan as permit requirements. To the extent treatment controls are necessary, that possibility was already considered the 2004 TMDL Environmental Checklist as part of minor construction activities.

Comment 11.2d: “Adverse significant environmental impacts could also result from increased regulatory requirements for wetlands to avoid methylation of mercury. ”

The TMDL, as adopted in 2004 and proposed to be amended, contains no direct or indirect regulatory requirements relating to wetlands and methylation. Environmental impacts, significant or otherwise, do not flow from non-existent requirements.

Comment 11.2e: “These activities will also affect local housing and transportation patterns, and changes in these will also effect housing and transportation patterns, and changes in these will also undoubtedly have some related adverse environmental effects (e.g. increased air pollution and noise), as well as social and economic effects, that have not been analyzed as CEQA requires.”

There is no basis in the record to support this claim of effects on local housing and transportation patterns, which in turn will have some adverse environmental impacts such as air and noise, as well as social and economic effects.

Comment 11.3: “Stormwater Methylmercury Monitoring... BASMAA requests the requirement for methylmercury monitoring in urban stormwater discharges be removed from the proposed Basin Plan Amendment...”

In remand finding no. 7b, the State Water Board found the TMDL inadequate with respect to methylmercury, the form in which mercury bioaccumulates. The requirement for stormwater methylmercury monitoring is required by remand resolved no. 5, which “(d)irects the San Francisco Bay Water Board to revise the TMDL to require inclusion in the next round of NPDES permits or in the watershed NPDES permits monitoring for, and determination of the relative proportion of, methylmercury in effluent discharges.”

See also response to comment 10.2 regarding “monitoring methylmercury as appropriate.”

Comment 11.4: “Risk Management... it is well outside the purview of municipal urban runoff management agencies to address public health impacts or to develop, deliver or finance health care for discrete communities or individuals...”

See response to comment 5.9.

IV. ORAL COMMENTS

Commenters

1. Diane Fleck, U.S. Environmental Protection Agency
2. Jim Kelly, Central Contra Costa Sanitary District
3. Andria Ventura, Clean Water Action
4. Michele Pla, Bay Area Clean Water Agencies
5. Kevin Buchan, Western States Petroleum Association
6. Ellen Johnck, Bay Planning Coalition
7. Dave Williams, East Bay Municipal Utility District
8. Sejal Choksi, Baykeeper
9. Dr. Khalil Abusaba, Quicksilver Solutions
10. Robert Falk, Counsel to Santa Clara Valley Urban Runoff Pollution Prevention Program
11. Peter McGaw, Partnership for Sound Science and Environmental Policy

Introduction to Oral Comments

Many of the comments raised in oral comments at the Water Board testimony hearing on June 14, 2006 are addressed in our responses to public comment letters. In addition, some of the comments were addressed by Water Board staff during the hearing. Below we respond to issues raised in oral testimony before the Water Board that are not addressed elsewhere in this document.

Responses to Oral Comments

Commenter no. 1: Diane Fleck, P.E., Esq., U.S. Environmental Protection Agency

Ms. Fleck reiterated her agency's support (see Part III, comment letter no. 1).

Commenter no. 2: Jim Kelly, Central Contra Costa Sanitary District

Mr. Kelly stated support for the 20 percent and 40 percent reduction scheme for municipal wastewater treatment operations, and for the watershed approach that allows dischargers to combine resources in solving a water quality problem. He requests "a regional solution for dealing with fluorescent bulbs....The universal waste laws [make this] very difficult....We need an incentive." With regard to an

offset program, Mr. Kelly asked, "What does a credit mean? It's very difficult for us (municipal wastewater) to promise 20 percent and 40 percent reductions, having no knowledge what the details are....While we are only 2 percent [of the mercury load], we're the only people who have a[n allocation] number [to attain]....We're...the folks who have a target on our front and back."

We note and greatly appreciate the statements supportive of the reduced allocation to wastewater and our watershed approach. The Department of Toxic Substances Control (DTSC) is the primary agency responsible for implementing California's "Universal Waste Rule." Thus, the Water Board does not have the authority to mandate regional solutions for the disposal of fluorescent bulbs. However, it does seem reasonable that collection and disposal of mercury-containing items like fluorescent bulbs should be recognized in an offset policy. The commenter is encouraged to raise this issue with the State Water Board as it develops this policy. The offset policy is envisioned as a last resort after municipal wastewater dischargers have employed every reasonable and feasible treatment method and pollution prevention action, and we appreciate the discharger's faith and patience as these policy details are solidified in the next decade.

Commenter no. 3: Andria Ventura, Clean Water Action

Ms. Ventura notes that in the Central Valley TMDL and the Guadalupe River watershed TMDL for mercury, methylmercury is "looked at in a somewhat more stringent fashion" than in the Bay mercury TMDL. Ms. Ventura's other comments are addressed in Part III, comment letter no. 3.

See response to Water Board member Gary Wolff, question 3, in Part II of this document.

Commenter no. 4: Michele Pla, Bay Area Clean Water Agencies

Ms. Pla's comments are addressed in Part III, response to comment letter no. 5.

Commenter no. 5: Kevin Buchan, Western States Petroleum Association

Mr. Buchan, on behalf of the Western States Petroleum Association, expressed support for the direction of the proposed revision to the TMDL and urged adoption by the Water Board.

We note and greatly appreciate the Association's supportive statements.

Commenter no. 6: Ellen Johnck, Bay Planning Coalition

Comment 6a: Ms. Johnck informed the Board that the maritime community supports the TMDL.

We note and greatly appreciate the maritime community's support of the TMDL.

Comment 6b: Ms. Johnck requested "more discussions" on the retained suspended sediment concentration target of 0.2 ppm, clarifying whether this target "will be applied to project-specific WDRs for upland disposal that require decanting. The issue is that decanted water from an upland placement project with moderate bulk sediment, mercury levels...tend to [range] between 0.2 ppm to perhaps as high as 0.5 ppm. 'These would likely contain finer-grained sediments that would be expected to have a little higher mercury concentrations than the bulk concentrations, and therefore exceed the 0.2 target.' She questions whether 'there is an intent to regulate point discharges of suspended sediments.'"

The Water Board is required to regulate point source discharges of suspended sediments. However, the TMDL suspended sediment target of 0.2 ppm total mercury is not a discharge limit.

Comment 6c: Ms. Johnck's organization is concerned "about the mercury in sediments that are proposed for in-Bay disposal, and the requirement that they be below ambient Bay concentrations, which will be based on the ten previous years of Regional Monitoring Program (RMP) data. With this requirement, the DMMO would "have to apply greater scrutiny to in-Bay projects, but this is a moving target."

This comment is also beyond the scope of the remand, and this issue was fully considered by the Water Board when it acted in September 2004. The DMMO may have to apply greater scrutiny to in-Bay projects, but this is considered a reasonable amount of oversight. The requirement that dredged material disposed of in the Bay be below ambient Bay concentrations can be considered "a moving target." As the Bay becomes cleaner over time, the ambient concentration of mercury will decrease. It is reasonable to require that the mercury concentrations in dredged material be compared to these reduced ambient concentrations to determine the appropriateness of in-Bay disposal.

Comment 6d: Ms. Johnck requested more discussion with staff about additional studies that will be required by the proposed Basin Plan amendment. "Dredgers support about 17 percent of the \$3 million budget of the RMP)," and "substantial funds coming in [for] study of methylmercury in particular....We want to know who's doing what and what the parameter of these studies are."

Staff looks forward to continued discussions with the maritime community, and all participating dischargers, through the many committees of the Regional Monitoring Program.

Commenter no. 7: Dave Williams, East Bay Municipal Utility District

Mr. Williams' comments regarding water recycling are addressed in Part III, comment letter no. 6.

Commenter no. 8: Sejal Choksi, Baykeeper

Ms. Choksi's comments are addressed in Part III, comment letter no. 3.

Commenter no. 9: Dr. Khalil Abusaba, Quicksilver Solutions

Dr. Abusaba spoke in favor of the TMDL.

Commenter no. 10: Robert Falk, Counsel to Santa Clara Valley Urban Runoff Pollution Prevention Program

Mr. Falk requested that the Board retain the stormwater "deemed in compliance" language. Board member Wolff requested that Mr. Falk provide him with an example of how that language implements a policy adopted elsewhere.

See response to Water Board member Gary Wolff's question no. 1, in Part II of this document.

Commenter no. 11: Peter McGaw, Partnership for Sound Science and Environmental Policy

Mr. McGaw spoke on the topic of mercury in crude oil that comes into the refineries. He stated that the State Board did not direct this Board to do anything additional beyond what it has already done with the 13267 letter.

See response to comment 3.3 in Part III.

V. STAFF-INITIATED CHANGES

Staff has made the following minor corrections to the proposed Basin Plan amendment.

In the proposed Basin Plan amendment, Table 3-3B, Marine Water Quality Objectives for Mercury in San Francisco Bay, we revised footnote b to include the names of the water bodies which, together, make-up San Francisco Bay.

Notes:

- a. Marine waters are those in which the salinity is equal to or greater than 10 parts per thousand 95% of the time, as set forth in Chapter 4 of the Basin Plan. For waters in which the salinity is between 1 and 10 parts per thousand, the applicable objectives are the more stringent of the freshwater or marine objectives.
- b. Objectives apply to all segments of San Francisco Bay, including Sacramento/San Joaquin River Delta (within San Francisco Bay region), Suisun Bay, Carquinez Strait, San Pablo Bay, Richardson Bay, Central San Francisco Bay, Lower San Francisco Bay, and South San Francisco Bay (including the Lower South Bay) all marine and estuarine waters contiguous to San Francisco Bay.
- c. Compliance shall be determined by analysis of fish tissue as described in Chapter 6, Surveillance and Monitoring

In the proposed Basin Plan amendment, we moved the four tables of individual wasteload allocations, Tables 4-w, 4-x, 4-y, and 4-z, to the end of the *Allocations* section and before the *Total Maximum Daily Load* section to aid the reader in locating these tables.

In the proposed Basin Plan amendment and Staff Report we have rounded the TMDL and individual and aggregate wasteload allocations to two significant figures. For example, in 2004 the Board adopted a TMDL of 706 kg/yr. Our 2006 corrections and reductions in the wastewater allocations result in a TMDL of 698 kg/yr, which rounds to 700 kg/yr.

In Table 4-x, in 2004 the East Bay Dischargers Authority (CA0037869) allocation was presented as 3.67 kg/yr (rounded to three significant figures). We have corrected a small rounding error in this allocation which results in a corrected allocation of 3.6 kg/yr (rounded to two significant figures).

On Page A-21 of the proposed Basin Plan amendment we have corrected our reference to the existing Long-Term Management Strategy for dredging (USACE 2001):

All in-Bay disposal of dredged material shall comply with the Dredging and Disposal of Dredged Sediment program described in Chapter 4 and the Long-Term Management Strategy for the Placement/Disposal of Dredged Material in the San Francisco Bay Region.

On Page A-22 of the proposed Basin Plan amendment we have corrected our reference to the Mines Program in the existing Basin Plan:

Local inactive mercury mines shall be addressed through continued implementation of the Mines and Mineral Producers Discharge Control Program (Mines Program) described ~~later in this e~~Chapter 4.

Throughout the proposed Basin Plan amendment, staff has made more specific reference to this TMDL by the following changes:

~~the San Francisco Bay M~~mercury TMDL
~~the San Francisco Bay M~~mercury TMDL
~~the San Francisco Bay~~ mercury TMDL

Staff has made the following minor corrections to the Staff Report.

Staff Report, Page II-1, II. Proposed Water Quality Objectives for Mercury in San Francisco Bay, third paragraph which describes the proposed wildlife objective, we deleted the incorrect description of small fish as those “commonly consumed by the California least tern, an endangered species.” This objective applies to all fish species as described in Section II.3 and in the proposed Basin Plan amendment in Table 3-3B.

The proposed objective to protect aquatic organisms and wildlife applies to small fish (3–5 cm in length) ~~commonly consumed by the California least tern, an endangered species~~. This objective is 0.03 mg mercury per kg fish (average wet weight concentration).

Staff Report, Page II-5, II.2. Proposed Human Health Objective, we supplement the description of the U.S. EPA methylmercury criterion.

U.S. EPA assumed an adult body weight of 70 kilograms. The reference dose (RfD) in the equation is 0.0001 milligrams mercury per kilogram body weight per day (mg/kg-day). It represents a lifetime daily exposure level at which no adverse effects would be expected. It is derived from mercury levels shown to cause neurological developmental effects in children exposed to mercury prior to birth. In vitro exposure is the most sensitive exposure route and therefore the criterion is intended to protect for in vitro effects. “In the studies so far published on subtle neuropsychological effects in children, there has been no definitive separation of prenatal and postnatal exposure that would permit dose-response modeling. That is, there are currently no data that would support the derivation of a child (vs. general population) RfD. This RfD is applicable to lifetime daily exposure for all populations including sensitive subgroups” (USEPA 2001). U.S. EPA’s approach for developing its fish tissue criterion includes incorporating a factor of 10 in the reference dose.

The relative source contribution (0.000027 mg/kg-day) accounts for other sources of mercury exposure (USEPA 2001).

Staff Report, IV.2 Peer Review and Sound Scientific Rationale, third paragraph, we deleted the reference to the Rooney memo because it is merely descriptive; it is immaterial to peer review or the basis of the TMDL.

The scientific portion of a rule consists of “foundations of a rule that are premised upon, or derived from, empirical data or other scientific findings, conclusions, or assumptions establishing a regulatory level, standard, or other requirements for the protection of public health or the environment.” (Health & Saf.Code, §57004, subd. (a)(2).) The California Environmental Protection Agency (Cal/EPA) has described this review as “an objective, critical review of a draft Agency scientific work product.” ~~(Memorandum from Peter M. Rooney (Secretary of Cal/EPA) to John Caffrey (Chairman of State Board) (Jan. 22, 1998).)~~ Taken together, it is clear that Health and Safety Code §57004 is designed to ensure that the scientific assumptions of a rule are tested by external peer review.

Staff Report, page References-1:

~~Rooney, Peter M. 1998 (Secretary of Cal/EPA). Memorandum to John Caffrey (Chairman of State Board). Jan. 22.~~

VI. REFERENCES

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