BAYKEEPER.

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Via Electronic Mail: caustin@waterboards.ca.gov

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RE: Baykeeper Comments on the February 2008 Guadalupe River Watershed Mercury TMDL, Proposed Basin Plan Amendment

Dear Ms. Austin:

We are writing on behalf of San Francisco Baykeeper ("Baykeeper") to offer the following comments on the Guadalupe River Watershed Mercury Total Maximum Daily Load ("TMDL") Project, Proposed Basin Plan Amendment.[1] We appreciate the effort that the San Francisco Bay Regional Water Board ("Regional Board") has put into developing a TMDL for the mercury problem in the Guadalupe River Watershed. The TMDL offers the Regional Board an opportunity to meaningfully reduce mercury loads to the Guadalupe Watershed, and ultimately to the San Francisco Bay to make lasting improvements to the health of wildlife and people in the Bay Area.

In order to attain water quality objectives for the San Francisco Bay, the San Francisco Bay Mercury TMDL ("SF Bay TMDL") designated a 97% load reduction in mercury from the Guadalupe River Watershed.[2] To meet this mandate the Guadalupe River Watershed Mercury TMDL ("Guadalupe TMDL") must aggressively and comprehensively target sources of mercury loading, including potential aerial sources. We urge the Regional Board to address outstanding issues in the Guadalupe TMDL identified herein and take the necessary steps to immediately reduce mercury levels in the Guadalupe Watershed.

[1] Guadalupe River Watershed Mercury Total Maximum Daily Load Project, Proposed Basin Plan Amendment, California Regional Water Quality Control Regional Board, San Francisco Bay Region, February 2008.
[2] See BPA – 9, Table 4-v: Mercury Load and Wasteload Allocations by Source Category, Guadalupe River Watershed (mining legacy) [2003 Mercury Load: 92 kg/yr, Allocation: 2 kg/yr], San Francisco Bay TMDL Chapter 3 Water Quality Objectives, Basin Plan Amendment.

In particular, we respectfully request that you amend the proposed TMDL to do the following:

- Use daily loads, instead of seasonal and annual loads, as required by law;
- Identify potential aerial sources of mercury in the Guadalupe Watershed and require monitoring and reporting pursuant to Section 13267 of the California Water Code; and
- Protect at-risk communities by including exposure reduction requirements.

I. The TMDL Should Contain Daily Loads

Neither the Guadalupe River Watershed nor the San Francisco Bay has any assimilative capacity for mercury, meaning that no mercury can be added to the watershed without exceeding applicable water quality criteria. Until the Guadalupe River Watershed and the Bay have assimilative capacity for mercury, the letter of the Clean Water Act requires that controllable sources such as wastewater and stormwater be allocated zero loads and should not be permitted to increase their individual contributions.[3]

The TMDL program, outlined in Section 303(d) of the Clean Water Act, is the foundation of our country's water quality laws and brings "rigor, accountability, and statutory authority to the process."[4] Section 303(d) requires the states to identify those waters within their boundaries for which existing technology-based pollution controls are not stringent enough to ensure that applicable water quality standards are achieved and maintained.[5] For each waterbody and pollutant listed on a 303(d) list, the state must calculate the TMDL necessary to implement the applicable water quality standards.[6]

The Regional Board identified in their 1998 California 303(d) List and TMDL Priority Schedule several waterbodies in the Guadalupe River Watershed as impaired due to the presence of mercury. Legally, this classification now means that all future load allocations for mercury discharges in the watershed should be zero until assimilative capacity is created within a particular waterbody. However, in practice, a zero allocation is not immediately assigned, nor is it always feasible. Given the reluctance of the Regional Board to assign load allocations of zero here, the Regional Board must at a minimum, create load allocations that will meaningfully reduce mercury. A meaningful TMDL must address all controllable sources, create maximums that will reduce mercury in a timely fashion, and allocate loads that are, as the name suggests, daily.

The plain language of the Clean Water Act requires that TMDLs allocate "daily" loads ("total maximum *daily* loads"). Courts have also interpreted the Act to require daily loads: "[a TMDL is] the maximum amount of pollutants a waterbody can receive *daily*

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[3] 33 USC § 313(d)(1)(C).
[4] New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs), Memorandum from Robert Perciasepe, Assistant Administrator for Water, U.S. EPA, to Regional Administrators and Regional Water Division Administrators, U.S. EPA (August 8, 1997).; *See* 33 U.S.C. § 1313(d).
[5] 33 U.S.C. § 1313(d)(1) and (2); *see also* 40 C.F.R. § 130.7(b)(1).
[6] 33 U.S.C. § 1313(d)(1)(C).

without violating the state's water quality standard."[7] In fact, a recent court decision suggests that a TMDL that expresses loads in a timeframe other than a daily basis is invalid.

In *Friends of the Earth v. Environmental Protection Agency ("Friends of the Earth")*, environmental groups challenged two TMDLs which provided for seasonal and annual limitations as opposed to daily limits.[8] The plaintiffs in *Friends of the Earth* argued that neither seasonal nor annual limitations were capable of properly limiting the amount of pollutants from finding their way into the Anacostia River, the watershed at issue in that case.[9] The D.C. Circuit Court affirmed this argument, and held that "daily means daily, nothing else" and "nothing in the language [of the CWA] even hints at the possibility that EPA can approve maximum 'seasonal' or 'annual' loads."[10]

A subsequent United States Environmental Protection Agency ("EPA") guidance document clarified the impact of this ruling, addressing a court ruling in another jurisdiction[11] which had signaled a possible split between the Circuits. The November 15, 2006 EPA memorandum recommended that "all TMDLs … be expressed in terms of daily time increments."[12] EPA also predicted that new TMDLs would "likely be drafted in a way that is consistent with the D.C. Circuit's decision,"[13] expressing maximum loads on a daily basis pursuant to the *Friends of the Earth* holding. In addition to a plain reading of the word 'daily' in 'total maximum daily load,' the EPA's and courts' interpretations should leave little doubt for the Regional Board that daily means daily.

TMDLs in the Proposed Basin Plan Amendment for the Guadalupe River Watershed are currently expressed as annual medians and seasonal maximums. Though this is an improvement from the five-year averages used to determine compliance in the San Francisco Bay TMDL, a yearly or seasonal maximum load still violates the unambiguous requirement for a *daily* load. The use of a yearly or seasonal timeframe is a departure from the 'daily' requirement of Section 303(d).

Further, the use of annual medians allows for some extremely high volumes of loading on certain days, so long as over the year there are also days with smaller concentrations. This type of allocation could actually allow dischargers to increase mercury loading.

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[7] *Id.*; Alaska Center for Environment v. Browner, (emphasis added) 20 F.3d 981, 983 (9th Cir. 1994).
[8] *Friends of the Earth, Inc. v. Environmental Protection Agency*, 446 F.3d 140, 142, 144 (D.C. Cir. 2006). *2004);* See also Matthew Chalker, *Recent Development: Friends of the Earth, Inc. v. Environmental Protection Agency: The U.S. Court of Appeals for the D.C. Circuit Holds that "Daily" Within the Context of the Clean Water Act, Unambiguously Requires Daily Loads*, 14 U. Balt. J. Envtl. L. 201 (Spring 2007).
[9] See generally *Corrected Final Opening Brief of Petitioner Friends of the Earth at* 11-12, *Friends of the Earth, Inc. v. Environmental Protection Agency*, 446 F. 3d 140 (D.C. Cir. 2006) (No. 02-1123 (Consolidated with No. 02-1124)).
[10] *Id.*
[11] Natural Resources Defense Council v. Muszynski, 268 F. 3d 91 (2d Cir. 2001).
[12] EPA Memorandum clarifying Agency expectations concerning appropriate time increments used to express TMDLs (Nov. 15, 2006) at 2 (available at http://www.epa.gov/owow/tmdl/pdf/ anacostiamemo111506.pdf).
[13] Brief for the Federal Respondents in Opposition at 4, District of Columbia Water and Sewer Authority v. Friends of the Earth., No. 06-119 (Nov. 22, 2006).

Rather than allowing for increases in mercury loads nearly a decade after the Guadalupe River watershed was first listed as impaired for mercury, the TMDL developed must be calculated to reduce mercury loading and it is critical that daily requirements be imposed.

Recommendation: We urge the Regional Board to revise the seasonal or annual average load allocations currently used in the Guadalupe TMDL to make the maximum loads daily.

II. The TMDL Implementation Plan Should Require an Inventory and Investigation of Local Facilities that Emit Mercury

Baykeeper is concerned that this TMDL, like the SF Bay TMDL, fails to adequately address aerial sources of mercury in the Guadalupe River watershed. The Clean Water Act and its implementing regulations clearly require that a TMDL identify *all* nonpoint sources of pollutants contributing to impairment.[14] For over a decade—essentially since implementation of the TMDL program—EPA has interpreted nonpoint sources of pollutants to include aerial sources.[15] Consideration of aerial sources in a TMDL is particularly important for mercury, as several studies have shown that mercury deposited through atmospheric deposition is more rapidly converted to methylmercury than "native" mercury.[16]

While this TMDL includes a load allocation for atmospheric deposition of mercury, this load allocation does not account for local, stationary sources. The load allocation for this TMDL was calculated using the same rate of atmospheric deposition as that used in the SF Bay TMDL and is based on geographically and temporally skewed data.[17] The data used to generate the ambient rate of atmospheric deposition was collected from only three sites in the San Francisco Bay Area, one in the South, Central and North Bay respectively. Additionally, the study relied on data that is temporally limited: one 24-hour composite sample was collected at each site only once every fourteen days for just over a year.[18] In short, the data relied upon to calculate the load allocation for aerial sources for the Guadalupe TMDL is unsuitable to capture the potentially significant emissions from industrial sources.

There are many industrial sources of aerial mercury emissions in California and at least one known industrial source in the Santa Clara Basin, the Hanson Permanente Cement

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[14] 33 USC § 1313(d)(1)(C); 40 CFR §130.2(g) & (i).
[15] National Clarifying Guidance For 1998 State and Territory Clean Water Act Section 303(d) Listing Decisions, (available at <http://www.epa.gov/OWOW/tmdl/lisgid.html#b>); EPA, *What is Nonpoint Source (NPS) Pollution? Questions and Answers* (excerpt from EPA brochure EPA-841-F-94-005, 1994), (available at <http://www.epa.gov/owow/nps/qa/htm.l>).
[16] Sarah Rothenberg, Lester McKee, Don Yee, Alicia Gilbreath, Michelle Lent, San Francisco Estuary Institute, *An Investigation of Atmospheric Mercury Deposition to Bay Area Storm Runoff: a Pilot Study*, February 20, 2008 ("SFEI Power Point") citing Hintelmann et al. 2002.
[17] San Francisco Estuary Institute, *San Francisco Bay Atmospheric Deposition Pilot Study, Part I: Mercury* (July 2001) at 15.
[18] *Id.*

("Hanson") portland cement facility in Cupertino.[19] As of 1995, EPA estimated that the 208 portland cement facilities in the United States generated approximately 4.4 tons of mercury each year.[20] A recent study by the San Francisco Estuary Institute revealed that particulate and reactive gaseous mercury levels—which are likely be deposited closer to local or regional sources[21]—were significantly higher near the Hanson facility, than elsewhere in the Basin.[22] In light of the potentially significant mercury loading that may be attributable to local air sources, like the nearby Hanson facility, we strongly urge the Regional Board to use the Guadalupe TMDL to establish a framework identifying, evaluating, and controlling local aerial sources. As part of the implementation of this TMDL, the Regional Board should conduct an inventory of all industrial and commercial facilities in the watershed that may by emitting mercury.
Once these dischargers are identified, the Regional Board should issue requests for monitoring reports, pursuant to Section 13267 of the California Water Code. The Regional Boards have clear authority to require technical and monitoring reports of those entities whose air emissions may be affecting water quality. Section 13267 provides the Regional Board with broad authority to issue a request to any person who has discharged, discharges, is suspected of discharging, or who proposes to discharge waste that "could affect the quality of waters."[23] Reports are not limited to preexisting reports; the Regional Board may "require a person to conduct technical or monitoring programs and produce reports."[24] Indeed, this Regional Board successfully exercised this authority in issuing a request for technical information to the Bay Area oil refineries, requiring them to measure mercury emissions. Similarly, in 2007 the Los Angeles Regional Board issued requests to dozens of commercial and industrial facilities suspected of emitting metals in sufficient quantities to harm water quality.

We respectfully request that the Regional Board transmit 13267 Letters to require technical information regarding the fate and transport of mercury from the top ten dischargers that release aerial emissions of mercury and may be contributing directly, or indirectly, to 303(d)-list mercury impaired waters in the Guadalupe River Watershed.

Finally, the current lack of information about air sources suggests that loads should be allocated to these local aerial sources in order to provide the legally required margin of safety until more is known.[25] The Guadalupe TMDL must assign a preliminary load allocation for local aerial sources based on the number of known emitting facilities in the Guadalupe Watershed and can study the source to determine what the right load is going

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[19] Hanson Permanente Cement is located at 24001 Stevens Creek Blvd., Cupertino, CA 95014-5659.
[20] EPA-454/R-97-012, Locating And Estimating Air Emissions From Sources Of Mercury And Mercury Compounds, United States Office of Air Quality Environmental Protection Planning And Standards (December 1997).
[21] Swackhamer, D. et. al, Impacts of Atmospheric Pollution on Aquatic Ecosystems, Issues in Ecology, Vol. 12, p. 7, Summer 2004, (available at <http://epa.gov/owow/airdeposition/ESA_Air_Dep_Ecosystems.pdf>).
[22] *SFEI Power Point*, *supra*, note 16.
[23] Cal. Water Code § 13267(b)(1).
[24] *Spartan Lacquer & Paint v. California Regional Water Quality Control Bd.*, 2003 Cal. App. Unpub. Lexis 1748 (California Unpublished Opinions 2003).
[25] 33 USC § 1313(d)(1)(C).

to be. The Regional Board can subsequently adjust the number as governed by the adaptive implementation framework currently in place in the TMDL.

As the Regional Board acquires reporting data from facilities, the data should be analyzed in a special study. A special study to better understand the sources and quantities of aerial deposition would address the following questions:

1. How much mercury is being deposited from the atmosphere from *local* sources?
2. How much mercury is being directly deposited into the Guadalupe Watershed and how much is being deposited on land than entering the creek through runoff?
3. Recent scientific research suggests that mercury sources can be traced;[26] is it possible to trace the sources of mercury deposition in the Guadalupe Watershed?

Recommendation: We urge you to identify all potential aerial sources of mercury in this TMDL and issue 13267 letters requiring further study of the potential for deposition into the watershed. The reporting results should then be analyzed in a special study and used to create more accurate allocations for local aerial deposition. In the meantime, a protective load allocation should be inserted into the TMDL as a placeholder to reduce the aerial contribution of mercury to the watershed.

III. The TMDL Should Include Exposure Reduction Language to Better Protect At-Risk Communities from the Dangers of Consuming Mercury Contaminated Fish Until the Watershed's Mercury Problem is Resolved

The link between historic gold mining and mercury impacts to human health and the environment is firmly established.[27] This is true in the Guadalupe Watershed, where mercury from mining waste has accumulated in riverbed and creekbed sediment and is a key source of loading to creeks and rivers.[28] Bacteria in the sediment of rivers and creeks convert inorganic mercury to the methylmercury, a potent neurotoxin which impairs the nervous system, which also enters the ecosystem and food chain.[29] High mercury levels have been measured in fish, amphibians, and invertebrates downstream of historic hydraulic gold mines in the Guadalupe Watershed.[30]

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[26] Recent research by scientists offers the promise of a new tracer of mercury sources. Their research into the measurement of natural variations in the stable isotope composition of Hg from coal formations could be helpful in source tracking of coal combustion emissions of Hg. Biswas, Blum and Bergquist, University of Michigan 2007, *Geochima Cosmo Acta*, 71 (15): A94-A94, Suppl. S; and Blum and Bergquist, (2007) *Anal Bioanal Chem* 388: 353 – 359).

[27] Mercury Contamination from Historic Gold Mining in California, *USGS Fact Sheet FS-061-00*, Charles N. Alpers and Michael P. Hunerlach; Unites States Geological Survey, California Water Science Center; (available at <http://ca.water.usgs.gov/mercury/fs06100.html>). ("Mercury Contamination from Historic Gold Mining in California")

[28] California Environmental Protection Agency; California Regional Water Quality Control Regional Board San Francisco Bay Region and California Office of Environmental Health Hazard Assessment, Press Release No. 04-08: Reservoir Study Shows Elevated Levels of Mercury, PCBs in Fish, October 14, 2004

[29] *Mercury Contamination from Historic Gold Mining in California, supra,* note 27.

[30] *Id.*

As of 2004, the Guadalupe Reservoir had the highest recorded fish mercury concentrations in California – nearly 20 times higher than the U.S. EPA methylmercury criterion.[31] Baykeeper applauds the Regional Board for including fish tissue targets in the TMDL, however the value of the fish tissue target is 32 g/day, accounting for only one meal per week. This assumption is troubling because a target which is protective for people eating one fish meal per week does not protect subsistence fishers and others who may eat more than one meal per week in different seasons. In the absence of a local fish consumption study, the Regional Board should use the U.S. EPA mercury target to protect subsistence fishers.

Exposure to mercury is dangerous to both animals and people living in the Guadalupe Watershed. Mercury has been linked to adverse reproductive and developmental impacts in fish, bird and other wildlife species.[32] When humans consume enough mercury-contaminated fish the health effects are severe and numerous. Health problems from mercury and methylmercury exposure include headaches, impaired fine motor skills, a weakened immune system, kidney failure, deafness, blindness, mental retardation and death.[33] The health problems for fetuses whose mothers consume mercury-tainted fish are even more severe, including delayed onset of walking and talking, altered muscle tone, mental retardation, cerebral palsy, deafness and blindness.[34]

In light of the significant health impacts for people who consume mercury-contaminated fish, Santa Clara County issued a fish consumption advisory in 1987, warning people not to eat any fish from Guadalupe, Almaden and Calero reservoirs, Guadalupe and Alamitos creeks, the Guadalupe River, and percolation ponds along the river and creeks. Over 20 years later, elevated mercury levels in fish in the Guadalupe Watershed still make it unsafe for people to consume any fish taken from the Watershed.[35] Communities that rely on fish from the creeks and streams within the Guadalupe Watershed as a food source are vulnerable to mercury impacts.

It is imperative that the Regional Board protect the human health and safety of communities that live in the Guadalupe Watershed by addressing the dangers associated with mercury and methylmercury. Given that the Guadalupe TMDL has a twenty-year time frame for addressing the mercury problem, the document must outline safeguards which will reduce consumer exposure to mercury-contaminated fish in the interim.

Recommendation: Until local fish consumption studies are done, we ask the Regional Board use the U.S. EPA mercury target to better protect subsistence fishers. We also ask the Regional Board to include exposure reduction language similar to that of the San Francisco Bay TMDL, which contains a provision on risk management and protects subsistence fishing communities.

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[31] Proposed Basin Plan Amendment, Problem Statement, BPA-5, February 2008.
[32] Barnhart et al., Mercury: Global Problems, Local Solutions, Columbia University, April 2004.
[33] *Id.*
[34] *Id.*
[35] *See* California Office of Environmental Health Hazard Assessment, Fish, Safe Eating Guidelines (available at <http://www.oehha.org/fish/so_cal/guadalupe.html>).

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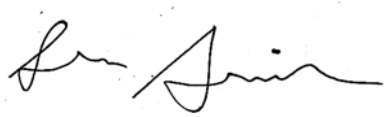
In conclusion, while this TMDL is a step in the right direction to mitigate mining legacy mercury in the Guadalupe River watershed, we do not believe it is aggressive enough in addressing the other sources of mercury or in protecting human health in the interim. Therefore we respectfully recommend that the Water Regional Board consider and make changes:

- to reflect daily loads,
- to better account for local aerial sources of mercury in the watershed, and
- to protect subsistence fishers and families in affected communities.

Thank you for this opportunity to provide comments. Please feel free to contact us if you should have any questions regarding these recommendations.

Sincerely,



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