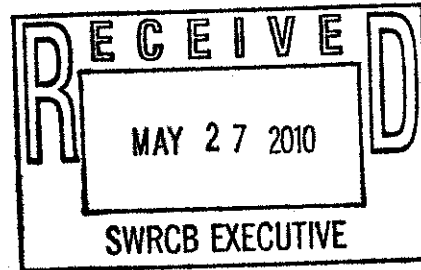




May 27, 2010



Ms. Jeanine Townsend  
State Water Resources Control Board  
1001 I Street  
Sacramento, CA 95814

Subject: Comment Letter – 2010 Integrated Report / Section 303(d) List

Dear Ms. Townsend:

In response to the State Water Resources Control Board's (SWRCB's) *Notice of Opportunity for Public Comment on the Proposed 2010 Integrated Report: Clean Water Act Section 303(d) List of Water Quality Limited Segments and Clean Water Act Section 305(b) Assessment of Surface Water Quality* (Integrated Report), the East Bay Municipal Utility District (EBMUD) has reviewed said report and respectfully offers the following comments.

### Camanche Reservoir

On February 22, 2007, EBMUD petitioned the Central Valley Regional Water Quality Control Board (CVRWQCB) for the removal of Camanche Reservoir from the 303(d) List for copper<sup>1</sup>. EBMUD evaluated a total of 654 dissolved copper concentration data points collected from January 2001 to January 2007. Our analysis showed that there were 213 valid data points out of 654. Within the 213 valid samples, there were four exceedances of corresponding hardness-dependent criterion continuous concentrations (CCCs) and criterion maximum concentrations (CMCs).

According to the SWRCB's *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List* (Water Quality Control Policy), water segments or pollutants shall be removed from the Section 303(d) List if any of the 11 listed conditions are met<sup>2</sup>. For toxicants, a water segment with a valid water sample size of 213 can have a maximum of 18 measured exceedances and still qualify for removal from the Impaired

<sup>1</sup> *Removal of Camanche Reservoir from the Clean Water Act Section 303(d) List of Impaired Waters for Copper*, J. H. Schroeter and D. C. Lee, EBMUD, February 2007.

<sup>2</sup> Pages 11 -13 of the *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List*.

Waters List, using the binomial distribution delisting criterion. The four recorded exceedances were significantly below the maximum number of allowable exceedances. Additionally, the greatest source of copper contamination in Camanche Reservoir was the abandoned Penn Mine, which was remediated in 1999 and no longer represents a significant threat of copper contamination. Therefore, we requested the removal of Camanche Reservoir from the list for copper.

The Integrated Report recommends the SWRCB not remove Camanche Reservoir from the 303(d) List for copper. The reason given is that “Fifty-nine samples were taken from Camanche Reservoir from January 2001 to January 2007.” And, “Ten of fifty-nine samples exceed the 4-day average concentration levels.” The Integrated Report cites EBMUD’s documents submitted in 2007 as the source of their data.

In our 2007 petition, we clearly laid out the criteria applied to the available data to screen out invalid data points. However, the CVRWQCB has not provided the methodology that they used to arrive at a higher number of exceedances (10), albeit with a significantly smaller pool of valid samples (59). The CVRWQCB staff did not adequately respond to EBMUD’s request for an explanation in early May 2010.

### **Pardee Reservoir**

The Integrated Report is recommending listing Pardee Reservoir for mercury based on fish tissue samples. The Water Quality Control Policy calls for using the bioaccumulation of a contaminant in fish tissue as one of the criteria for placing a water segment on the 303(d) list. This is the basis for listing Pardee Reservoir on the impaired water body list. This is the first opportunity that EBMUD has to submit the following comments.

EBMUD is concerned that the EPA fish advisory is being applied with greater precision than is present in the advisory level. The EPA fish advisory of 0.3 mg/kg (ppm) is established at one significant figure because the reference dose (RfD) used to calculate the fish advisory is only one significant figure. In their June 2001 Fact Sheet<sup>3</sup> on mercury, the EPA indicates the RfD of  $1 \times 10^{-4}$  mg/kg-day is not a “...“bright line” between safety and toxicity.” The statement reflects the uncertainty that is associated with this standard and underscores the fact that the health effects are not known to any greater accuracy than one significant figure.

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<sup>3</sup> EPA indicates on their webpage that this advisory is out of date and is due to be revised in 2005. However, we were unable to locate a more recent document. In a June 2008 document, the Office of Environmental Health Hazard Assessment (OEHHHA) also lists the RfD for methyl mercury at one significant figure ( $1 \times 10^{-4}$  mg/kg-day). The OEHHHA RfD is the same value as the one used in the June 2001 EPA fish advisory.

Since the fish advisory is established at one significant figure, it would seem appropriate to round all fish tissue results to one significant figure before determining whether or not a water body should be listed as impaired. The tissue data should be reduced in a manner consistent with the EPA's not-to-exceed tissue concentration of 0.3 mg/kg (0.3 ppm) before determining the number of samples that exceed the standard. This is not a reflection on the accuracy or precision of the fish tissue data, which is reported to three significant figures, but is an acknowledgement of the precision with which the health effects associated with the fish advisory are known. The California Department of Public Health (CDPH) uses this approach to determine compliance with the drinking water maximum contaminant levels (MCLs).

Applying the above approach to the given first and second data sets, the results from the first data set (n=4) would not change. However, in the second data set (n=39), 5 samples would equal 0.3 mg/kg, but only 3 of the 39 fish tissue samples would exceed 0.3 mg/kg, which according to Table 3.1 of the Water Quality Control Policy, is under the limit (n=4) for a 303(d) listing based on a toxicant.

Taking the approach of determining impairment as outlined above does not pose an increase in risk as the fish advisory for mercury is being implemented with an additional margin of safety built into the SWRCB determination of impairment. Aside from the uncertainty factor incorporated into the RfD, the EPA fish tissue advisory is based on a specific form of organic mercury, i.e., methyl mercury. The 303(d) listing based on mercury in fish tissue samples is determined based on total mercury. The Integrated Report uses total mercury in the fish tissue data from the "Fish Mercury Report" to determine impairment, not methyl mercury. The EPA notes that the use of total mercury is conservative and protective of public health because the use of total mercury will overestimate the methyl mercury present in the fish tissue. It is unclear just how the margin for error or degree of conservatism encompassed by the use of total mercury in place of methyl mercury has been incorporated into the tables that are being used to determine which water bodies should be classified as impaired.

The Water Quality Control Policy's Table 3.1 footnote indicates a minimum of 16 samples needs to be taken for the binomial test for determining if a water body is impaired. In the SWRCB-DWQ 2002 study, the number of fish in the sample is 4. Four samples fall short of the minimum data requirement for the binomial test. The table also states data criteria for a null hypothesis, alternate hypothesis, and minimum effect size. It is assumed the table is established, based on a sample size of 16, to meet these criteria. However, it is not clear how the table is "extended" to smaller sample sizes while still meeting the criteria (null hypothesis, alternate hypothesis, and minimum effect size). The only way to resolve this issue is to request additional documentation from the SWRCB detailing how Table 3.1 was derived.

In the second set of samples, from a second study, none of the four different fish species taken from Pardee was sufficient on their own to meet the minimum data requirements (n=16); all the fish tissue samples appear to be pooled in order to meet the minimum sample number. Since each group is biologically and ecologically distinct they should be treated independently of each other. At a minimum, the analysis should not consider just the pooled results, but should also consider grouping the results by species as part of the analysis. This may also make it problematic to identify one species of fish as being impaired, but not another. The biological and ecological diversity represented by the groups is not considered when determining compliance. Where the fish feed and their trophic levels all affect the degree to which the fish are exposed to mercury.

If each of the fish species is examined separate from the others and the comment regarding significant figures is applied, then three of the four fish species from the second study (one line of evidence) would not indicate an exceedance. Applying the same criteria to the first fish study (which is a separate line of evidence), neither of the fish species would indicate an exceedance. It is only by using the data from the first study collectively is the exceedance threshold met.

Also note that the two lines of evidence or the two fish tissue studies are of different QA levels, one excellent and one good which is a reflection of a QAPP in one study and the absence of one in the later. In the later study the tissue samples are described as being "composites," whereas, the tissue samples in the first study are not described in the same manner. The summary page for the supporting information lists seven exceedances of the fish tissue limit, combining the data from the two lines of evidence. However, there is no statement or analysis to determine if such an approach was technically justified. Additional study is needed to address these issues so the protocol for listing water bodies can be modified accordingly.

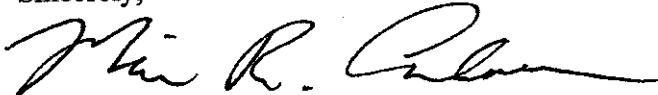
### **Conclusion**

EBMUD recommends removing Camanche Reservoir (Central Valley Region) from the 303(d) List for copper and deleting the proposed addition of Pardee Reservoir (Central Valley Region) for mercury until a more extensive study and monitoring program can be completed. We respectfully request the SWRCB reconsider our petition to remove Camanche Reservoir from the 303(d) List for copper and/or provide the methodology used by the CVRWQCB to screen the dissolved copper data provided by EBMUD. We also request the SWRCB establish and publish a clear (more detailed) set of criteria for determining impairment, based on fundamental scientific principles and practices, then reevaluate the fish tissue mercury data using these criteria. EMBUD believes that additional sampling is necessary to make a determination of impairment for mercury in Pardee Reservoir. We encourage the SWRCB to conduct that monitoring in the near future.

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EBMUD is interested in protecting public health and the environment. However, we also believe identification of impaired water bodies should be based on sound science. If you have any questions, please contact John Schroeter, Manager of Environmental Compliance at (510) 287-0345 or [jschroet@ebmud.com](mailto:jschroet@ebmud.com).

Sincerely,



Michael R. Ambrose, P.E.  
Manager of Regulatory Compliance

MRA:sd

cc: R. Hunsinger  
J. Schroeter  
R. Sykes  
E. White