

October 15, 2007

Mr. Dale Harvey, Sr. Engineer  
Regional Water Quality Control Board  
1685 E Street  
Fresno, CA 93706

REF: MARIPOSA PUBLIC UTILITY DISTRICT WASTEWATER TREATMENT  
FACILITY TENTATIVE WASTE DISCHARGE REQUIREMENTS  
(NPDES NO. CA0079430) (Tentative Order)

Dear Mr. Harvey:

The Mariposa Public Utility District (MPUD) currently has a permit for the discharge of treated wastewater from its wastewater treatment facility (WWTF) to Mariposa Creek issued in June of 2000 (RWQCB Order 5-00-122). The permit was scheduled to expire on June 1, 2005. MPUD submitted an application to renew the permit on December 15, 2004. On January 31, 2005 the RWQCB Executive Officer provided an "Administrative Continuation of Order No. 5-00-122". On August 9, 2007 MPUD received a notice of proposed effluent limitations for copper, zinc and dichlorobromomethane (DCBM). At the Regional Board staff's request, MPUD submitted an "infeasibility report" to request compliance schedules for the constituents of concern on August 28, 2007. In addition to submitting the requested "infeasibility report," MPUD also submitted written comments documenting MPUD's concerns with the rationale for the proposed effluent limitations. On September 12, 2007 MPUD received the Tentative Order discussed further herein.

The Tentative Order contains new permit limitations that require the MPUD Board of Directors to consider actions that will have long term, significant impacts on the operation of the wastewater facility along with extensive economic impacts associated with permit compliance. Because of these significant impacts, the MPUD Board of Directors authorized resources to obtain consultant services to help review and comment on the Tentative Order. Furthermore, the Board expressed major concerns with the short time period allowed to MPUD for comment on a permit with such large ramifications to the MPUD and those that it services. We understand that typically the Regional Board staff endeavors to provide dischargers with an administrative draft version of the tentative waste discharge requirements prior to public release of the tentative order. For whatever reason, MPUD was not granted this opportunity and as such we have limited time to review and comment on the Tentative Order and its impact on the MPUD. To allow MPUD sufficient time to investigate the impacts of the Tentative Order on the current wastewater disposal services in Mariposa, the Board of Directors respectfully requests that the

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RWQCB staff re-schedule the MPUD Tentative Order hearing to March of 2008 and allow additional time for comment. In the meantime, MPUD provides some initial response to the content of the Tentative Order. Our initial comments are provided below:

MUN BENEFICIAL USE DESIGNATION FOR MARIPOSA CREEK:

The Tentative Order designates MUN as a beneficial use of Mariposa Creek. Page F-11 of the Tentative Order states “Mariposa Creek is an unlisted water body. Thus, MUN applies pursuant to the State Water Board Resolution 88-63 which is incorporated into the Sacramento River Basin and the San Joaquin River Basin (Basin Plan), but given the ephemeral nature of Mariposa Creek MUN may not be attainable”.

Thus, the Regional Board staff has determined that the MUN beneficial use applies to Mariposa Creek on the sole basis of the Regional Board’s incorporation and interpretation of the State Water Resources Control Board (SWRCB) Resolution 88-63 and its application of the MUN designation to all water bodies within the State. MPUD respectfully disagrees with this interpretation and application of Resolution 88-63 as incorporated into the Basin Plan.

MPUD contends that the generic designation of MUN beneficial use to Mariposa Creek through the Regional Board’s reliance on Resolution 88-63 as it was incorporated into the Basin Plan lacks the requisite evaluation of the nature and characteristics of Mariposa Creek. MPUD prepared a draft Public Exposure and Prevention Plan for Mariposa Creek dated January 2002. This plan provides an inventory of properties located adjacent to Mariposa Creek downstream of the MPUD WWTF. The plan identifies current land uses, designated land uses, water supply uses and their distance from the WWTF. Based on this inventory of uses, the plan indicates that MUN is not a beneficial use of Mariposa Creek. In support of this conclusion, Regional Board staff observations as documented in the Tentative Order indicate that the beneficial uses of Mariposa Creek downstream of the discharge are AGR, REC-1 REC-2, WARM and WILD, inclusive. Thus, MUN was not observed by Regional Board staff. (Tentative Order, p. F-11.) Moreover, the Tentative Order expressly acknowledges that MUN may not be attainable (Tentative Order, p. F-11) and does not include any findings to indicate Mariposa Creek is presently or potentially suitable for MUN. Thus, the MUN designation for Mariposa Creek should be removed from the Tentative Order.

Furthermore, the Regional Board should remove the MUN beneficial use designation from the Tentative Order because Mariposa Creek fits within the exceptions contained in Resolution 88-63. The exceptions are self-effectuating because the Regional Board incorporated Resolution 88-63 in its entirety into the Basin Plan, including the exceptions. MPUD respectfully disagrees with any interpretation that Resolution 88-63 requires a Use Attainability Analysis (UAA) and Basin Plan Amendment to invoke an exception expressly provided for in the Basin Plan. The exceptions in Resolution 88-63 apply to Mariposa Creek for the following reasons:

Exception 1-B to Resolution 88-63 exempts water bodies from the MUN designation where:

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*There is contamination, either by natural processes or by human activity (unrelated to the specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices.*

Mariposa Creek falls within Exception 1-B because Mariposa Creek is contaminated by natural processes that cannot reasonably be treated for domestic use by best management practices or best economically achievable treatment practices.

The USEPA surface water treatment rule standard requirements for treatment of surface water includes a 3.0 log giardia and 4.0 log virus removal. USEPA has established guidelines for determining when surface waters will require more than the minimum levels of treatment defined in the surface water treatment regulations. In order to reasonably implement these regulations it has been assumed that *the level of giardia cysts contamination is directly related to the animal population in the water shed that is known to carry high levels of giardia since the major source of coliform contamination in the water shed will be from these animals, it will be assumed that there is a relationship between giardia and total coliform bacteria.*

Based on this and other assumptions, USEPA has developed tables summarizing the treatment and monitoring requirements for source waters with varying levels of total coliform concentrations.

TABLE B-1  
TREATMENT REQUIREMENTS FOR GIARDIA CYST REDUCTION

Level of Microbiological Contamination Total Coliform Concentrations <u>Median Monthly /100 ml</u> Raw Water	Giardia Cyst Treatment Requirements (Log Removals)	Monitoring Frequencies
<1000	3	2/monthly
>1000 - 10,000	4	Weekly
>10,000 - 100,000	5	Daily

TABLE B-2  
TREATMENT REQUIREMENTS FOR VIRUS REDUCTION

Level of Microbiological Contamination Total Coliforms Median Monthly/100 ml	Virus Treatment (log removals)
<1000	4
>1000 - 10,000	5

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>10,000 - 100,000	6
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Past monitoring of Mariposa Creek (RWQCB Order 5-00-122 monitoring of receiving water) indicate fecal coliform levels within the creek exceed 1600 mpn per 100 milliliters. Fecal coliform is a part of the total coliform group, therefore the total coliform within Mariposa Creek exceeds 1600 mpn without any influence of the current WWTF discharge. (Monitoring reports show some analysis results as >1600 mpn fecal and >1600 total coliform; since the monitoring does not show levels beyond 1600 mpn, these amounts may be considerably higher, into the 10s and 100s of thousands mpn). Thus, the bacteriological quality of Mariposa Creek indicates that a 4, 5 or greater log removal of giardia cyst and a 5, 6 or greater log removal of viruses would be required for the use of the creek as a domestic water supply.

Carollo Engineers has commented that, based on the high fecal counts and the potential for Giardia, Cryptosporidium, and/or viruses, and the need for additional log removals discussed above, a standard coagulation/sedimentation/sand filtration/disinfection process would not be the recommended municipal water treatment for this water source. It is more likely that a membrane system with possibly UV treatment in addition to chlorination would be needed. Although achievable, this treatment is significantly more costly and would not be justified for a water source of this quality and intermittent nature.

Thus, the Basin Plan expressly exempts Mariposa Creek from the MUN beneficial use designation because the contamination of Mariposa Creek by natural processes cannot reasonably be treated for domestic use using best management practices or best *economically achievable treatment practices*.

Exception 1-C to Resolution 88-63 exempts water bodies from the MUN designation where:

*The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.*

Mariposa Creek also falls within Exception 1-C because, due to the intermittent characteristics of Mariposa Creek, the water source does not provide sufficient water to supply a single well capable of producing an average sustained yield of 200 gallons per day.

Mariposa Dam and Reservoir<sup>1</sup>, a flood control project operated by the United States Army Corps of Engineers is located approximately 27 miles downstream of the WWTF discharge. Data made available online by the United States Army Corps of Engineers Water Control Data System demonstrates that Mariposa Creek does not provide a sustainable water supply sufficient to provide an average, sustained yield of 200 gallons per day.

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<sup>1</sup> The Mariposa Public Utility District Draft Public Exposure Prevention Plan includes a complete description of the Mariposa Dam and Reservoir. In brief, however, the project controls the floodwater runoff from an area of about 107 square miles of foothill and mountain drainage. The entire capacity is available for flood control at all times. The outlet works is always open to regulate water flow less than or equal to 1,000 cfs. The normal condition of the facility is an empty reservoir.

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The Army Corps Water Control Data System indicates that Mariposa Creek has been at zero flow in August and September of every year for the past 6 years and July and October for three years of the past 6 years. These non-existent flows fail to provide a sufficient water supply and would not provide sufficient water to produce “an average sustained yield of 200 gallons per day.” (Resolution 88-63, Exception 1-C.) Thus, the incorporation of Resolution 88-63 into the Basin Plan expressly precludes the MUN designation on Mariposa Creek.

However, in the event the Regional Board continues to contend that the exception requires a UAA and Basin Plan Amendment, MPUD requests that the Regional Board expressly provide for an expedient and streamlined process for Regional Board consideration of a Basin Plan Amendment to de-designate MUN for Mariposa Creek.

Finally, MPUD recognizes that the Regional Board and State Board’s interpretation of Resolution 88-63 as it has been incorporated into the Basin Plan is currently being challenged in Contra Costa Superior Court. Thus, at the very least the Regional Board should commit to revisiting the designation of MUN to Mariposa Creek if the resolution of that litigation results in any new legal precedent or regulation affecting the Regional Board’s designation of MUN to Mariposa Creek. Further comments on this issue are provided in the comments separately prepared by Carollo Engineers for the MPUD.

#### COMPLIANCE SCHEDULE FOR TERTIARY TREATMENT:

The tertiary treatment requirement is the most significant operational and economic requirement in the Tentative Order. Even though the existing WWTF is a secondary treatment facility, for the last 12 months and more the effluent has met tertiary type effluent limitations for BOD and total suspended solids and removal. The coliform tertiary effluent limitation would have been met about 50% of the time over the last 12 months. The cost estimate of \$600,000 (Tentative Order page F-14) conflicts with a 2007 estimate documented in a feasibility study to provide MPUD services in the Mariposa Town Planning Area prepared by Provost and Pritchard with an estimated cost of \$2,800,000 for construction of tertiary treatment facilities.

The Water Quality Control Plan for the Basin Plan policy for application of water quality objectives allows for a schedule of compliance for water quality objectives, criteria or effluent limitations based on the objectives or criteria. As stated above, the existing WWTF currently meets BOD and TSS removal and limitations consistent with tertiary effluent limitations. Even though the existing WWTF does not consistently meet total coliform limitations of tertiary treatment requirements, the background levels of fecal coliform in the receiving water above discharge has been in excess of 200 mpn and has exceeded 1600 mpn at times, much higher than the secondary treatment or current WWTF effluent limitation. There is no benefit of immediate compliance with the requirement to construct a tertiary treatment facility. MPUD’s experience with time lines for major construction projects over the past has been four to eleven years from planning to completion including design, environmental documentation and funding. Therefore, the MPUD proposes the maximum compliance period of ten years.

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The Tentative Order includes a five year time frame for providing tertiary treatment. Compliance with effluent limitations based on the full operation of a tertiary treatment facility is required by May 2010 (see Tentative Order, page 10, section IV, tables 5 and 7). It would be appropriate for the compliance with tertiary type effluent limitations to be consistent with the actual construction completion of tertiary treatment unit processes.

The attached table, provided by Carollo Engineers, demonstrates the need for a ten-year compliance period for providing tertiary treatment. The schedule also provides a ten-year period for compliance with the zinc, copper, possible DCBM and nitrate effluent limits, and continuous chlorination/dechlorination monitoring. Due to the small size of our utility, limited staff and financial resources, it is imperative that MPUD achieve a permit schedule that allows us to address planning, design, and construction of all treatment upgrades in one project, along with the tertiary upgrades.

CTR EFFLUENT LIMITATIONS FOR COPPER, ZINC, AND  
DICHLOROBROMOMETHANE (DCBM)

The Draft Permit proposes very low effluent limitations for three constituents based on the CTR, namely copper, zinc, and DCBM. There are several technological issues related to the treatment of these constituents. Compliance with the effluent limitations will pose a significant economic hardship on MPUD. Treatment beyond typical tertiary filtration technology may be needed for copper and zinc. UV disinfection may be needed to interrupt the formation of DCBM. The MPUD primary water supply is an impoundment on Stockton Creek. Stockton Creek is tributary to Mariposa Creek. The confluence is approximately 0.8 miles downstream of the WWTF discharge. The impoundment is approximately 2.5 miles above the confluence. Monitoring records of water system source water indicate copper and zinc level of up to 15 and 21 ug/l respectively. It may be appropriate to pursue additional sampling of Mariposa Creek above the discharge and give some consideration of the Stockton Creek monitoring when assigning a long term effluent limitation. Furthermore, due to anti-backsliding policies we are concerned about the permanence of these unrealistic limits once the permit becomes adopted.

Copper and zinc are metals, and are regulated based on CTR criteria for protection of freshwater aquatic life. These criteria are based on a function of hardness, for which the Regional Board used the minimum observed effluent hardness of 87 mg/L. Effluent concentrations for copper and zinc ranged from <5 to 10 ug/L and 60 to 120 ug/L, respectively.

The range of effluent copper results is low for a typical municipal wastewater effluent. It is likely that the vast majority of the remaining copper is in the dissolved form, due to the very high solids retention time (SRT) of the oxidation ditch process and the excellent historical TSS removal performance of the secondary clarifiers. Dissolved metals are particularly difficult to remove from wastewater, with three potential treatment approaches: chemical addition and filtration, reverse osmosis treatment (which would create a high strength brine waste), and extended treatment in a wetlands process. Recent pilot testing performed by Carollo Engineers at the City of Davis, California, showed membrane bioreactors (MBRs) to have little or no removal

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of dissolved metals without chemical addition. Pilot testing will be necessary to evaluate the best chemical, dose, and treatment train for MPUD's wastewater matrix. The addition of chemicals will increase effluent EC and can interfere with UV transmittance.

Only one zinc effluent result, the December 14, 2006 sample at 120 ug/L, exceeds the most stringent criterion of 107 ug/L. The other two data points, at 60 and 71 ug/L, are much more consistent with typical effluent zinc data from a number of Central Valley wastewater treatment plants. Zinc concentrations in the source water are approximately 20 ug/L. However, zinc orthophosphate is added at MPUD's drinking water treatment facility as a corrosion inhibitor at a concentration of 2.5 mg/L, or an equivalent zinc concentration of about 1,000 ug/L. This appears to be the predominant source of zinc to the WWTF. MPUD is beginning an investigation as to the necessity of corrosion inhibition, and of the potential to use alternate chemicals. Therefore, it would be beneficial to allow MPUD time for additional monitoring and the potential for reduction or termination of zinc orthophosphate use. A reopener clause should be included in the permit so that the Regional Board may consider eliminating the final effluent limitation for zinc if the additional data show there is no longer any reasonable potential for the effluent to cause or contribute to a violation of the water quality objective.

DCBM is a chlorinated disinfection byproduct, and is regulated based on a CTR criterion for protection of human health for consumption of water and organisms. This criterion of 0.56 ug/L is much less than the primary MCL of 80 ug/L for total trihalomethanes (THMs). A January 2007 Study by West Yost Associates and the University of California, Davis, titled "*Advanced Wastewater Treatment Capabilities for California Toxics Rule Constituents and Other Trace Toxics: Evaluation of Research Needs*", reviewed DCBM data for 24 Central Valley WWTFs with chlorine disinfection. The Study concluded the following:

"The data indicate that no conventional activated sludge treatment plant using chlorine disinfection will reliably achieve compliance with human health-based water quality objectives for THMs in the absence of receiving water dilution, and/or some unspecified additional treatment for THMs. This holds true with or without filtration."

The SIP established minimum level for analysis of DCBM is 0.5 ug/L. Minimum level is the lowest calibration standard used in the setup of the laboratory equipment. The typical detection limit for wastewater matrix analysis of volatile organics such as DCBM is 0.5 ug/L. This value is very close to the draft effluent limitation of 0.6 ug/L. Effluent limitations set very close to the detection limit pose a concern for false positives and other laboratory artifacts.

As DCBM is a semi-volatile organic, extended exposure to the atmosphere will eventually reduce the concentration. However, kinetic constants are not available for this rate. Therefore, the only practical approach to compliance with the DCBM limit without dilution is conversion to UV disinfection. Also, please review my letter of August 28, 2007 concerning formation of disinfection by-products in the collection system.

#### HISTORICAL DATA:

The tentative permit includes some historical monitoring data for the MPUD WWTF that conflicts with our records. Page F-5 indicates that the WWTF effluent pH was as low as 3.76 pH units sometime between July 1, 2000 and February 28, 2007. Page F-6 "Compliance Summary" includes a statement indicating there was a single exceedence of the pH limitation for the WWTF

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effluent. MPUD records indicate NO effluent pH values of 3.72, or anything below 6.5 for the period stated in Table F-2, page F-5.

The tentative permit also indicates effluent nitrate levels of 91 mg/L on Dec. 13, 2005 and 50 mg/L on Dec. 14, 2006 (pages G-12 and G-15, respectively). MPUD monitoring data indicates NO nitrate samples collected on those two days and no historical values near those levels.

#### SUMMARY:

In summary, MPUD respectfully requests the following:

- Reschedule the RWQCB hearing date to March 2008 or later.
- Meet with MPUD to resolve issues and prepare a revised tentative order
- Provide for written comments from MPUD to be accepted through Feb. 15, 2008.
- Remove the MUN designation for Mariposa Creek.
- Adjust the proposed compliance schedules to: (1) provide sufficient time for MPUD to meet final effluent limitations for non-CTR constituents; (2) allow MPUD a 10-year compliance schedule for providing tertiary treatment to meet final effluent limitations for BOD and TSS; and (3) (in the event the Regional Board does not remove the MUN designation) set forth provisions within the nitrate and dichlorobromomethane compliance schedules to facilitate the Regional Board's expeditious consideration of a Basin Plan amendment to de-designate MUN from Mariposa Creek.
- Add the following reopener provisions to section VI.C.1 at pages 19-20 of the Tentative Order:
  - (g) The Regional Board may reopen this permit to eliminate final effluent limit(s) for zinc, copper, nitrate, and/or dichlorobromomethane provided adequate monitoring information shows there is no reasonable potential that the effluent will cause or contribute to a violation of a water quality objective.
  - (h) This permit may be reopened upon any change in legal precedent, statute, or regulation affecting this permit's designation of beneficial uses for Mariposa Creek.

MPUD has other concerns with the tentative order. However, inadequate time was allowed to prepare a complete response. I will be available to meet with you at your convenience to discuss the Tentative Order and these comments.

Thank you.

Sincerely,

(original signed by Mark. L. Rowney)

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Mark L. Rowney  
General Manager

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**October 15, 2007**  
**Mariposa Public Utility District**  
**Preliminary Tertiary Treatment Completion Schedule**

<b>Task</b>	<b>Date of Completion</b>
RWQCB Adopt Order - assume Mariposa request for March adoption date is granted	March 2008
Copper and Zinc (and possibly DCBM and Nitrate) Treatment Feasibility Work Plan Submitted to RWQCB (Tentative Order VI.C.7.b.ii) (request 6 months following permit adoption)	September 2008
Copper and Zinc (and possible DCBM and Nitrate) Treatment Feasibility Study Completed and Submitted to RWQCB (Tentative Order VI.C.7.b.iii) (2 years following EO approval of work plan, assume one month for EO approval)	December 2010
Issue Requests for Consulting Engineering Proposals for Facilities Plan, CEQA, and Revenue Plan	January 2011
Award of Consulting Engineering Contracts	May 2011
Begin search for grants/low-interest loans	May 2011
Work Plan for Tertiary Treatment (Tentative Order VI.C.7.c.i) including measures to address copper, zinc, (possible DCBM and nitrate), and continuous monitoring for chlorine residual and dechlorination	September 2011
Complete Draft Facilities Plan with Estimate of Capital and Annual Costs	March 2012
Complete and Circulate Draft CEQA Document	May 2012
Submit Report of Waste Discharge to RWQCB	June 2012
Continue pursuing grants and low-interest USDA/SRF loans	
Certify Final CEQA Document and Adopt Facilities Plan	December 2012
Complete Draft Revenue Plan for Project Design and Construction Financing, Include preliminary recommendations for sewer rate increase	March 2013
Begin Public involvement and begin compliance with Proposition 218	March 2013
Complete Final Revenue Plan for Project Financing. Assume likelihood of grants/loans known by now.	September 2014
Proposition 218 compliance completed. Adopt sewer rate increase	December 2014
Initiate Design	January 2015
30 Percent Design and Preliminary Engineering Report	April 2015
Loan/grant application submittals/approvals continue	
60 Percent Design	July 2015
90 Percent Design	September 2015
Obtain approval of plans and specifications and proof of grant/loan funding	October 2015
100 Percent Design and complete 1 month bidding period	December 2015
Obtain funding agency approval of lowest responsive responsible bidder. Issue Notice to Proceed with Construction	January 2016

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Complete Construction and Commence Debugging and Startup	January 2017
Achieve Full Compliance with Tertiary Treatment	December 2017