



CVCWA

Central Valley Clean Water Association

Representing Over Fifty Wastewater Agencies

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May 6, 2013

Submitted Via Electronic Mail

Mr. Greg Cash
Water Resources Control Engineer
Regional Water Quality Control Board,
Central Valley Region
364 Knollcrest Drive, Suite 205
Redding, CA 96002
gdcash@waterboards.ca.gov

**Re: Comments on the Tentative Waste Discharge Requirements Order R5-2013-XXXX,
City of Red Bluff Wastewater Reclamation Plant, Tehama County**

Dear Mr. Cash:

The Central Valley Clean Water Association (“CVCWA”) appreciates the opportunity to submit comments on the tentative Waste Discharge Requirements for the City of Red Bluff Wastewater Reclamation Plant (“Tentative Order”). CVCWA is a non-profit association of public agencies located within the Central Valley region that provide wastewater collection, treatment, and water recycling services to millions of Central Valley residents and businesses. We approach these matters with the perspective of balancing environmental and economic interests consistent with state and federal law. In this spirit, we provide the following comments regarding certain discharge prohibitions and ammonia reduction study requirements, dilution, toxicity, calculation of projected maximum effluent concentrations, and its justification for Biological Oxygen Demand and Total Suspended Solids effluent limitations.

I. Dilution

It is CVCWA's position that when granting dilution credits and determining the size of mixing zones, that the Regional Board should not unreasonably restrict the amount of dilution granted in the derivation of numerous effluent limits. This has recently stemmed from the use of projected future effluent quality as the basis for determining constituent-by-constituent dilution credits. It also stems from the notion that multiple mixing zones for each constituent will be adopted for a single discharge. CVCWA believes that these practices are inappropriate, for the reasons described below.

As a preliminary matter, CVCWA representatives have been working with Central Valley Regional Water Quality Control Board ("Regional Board") staff to reach agreement on mixing zone issues and the derivation of effluent limits based on dilution. To date, we have reached agreement on the following principles regarding effluent limits that are established when dilution credits are being applied, or being considered for application:

1. Effluent limits must protect beneficial uses outside of the applicable mixing zone.
2. As applicable, such limits must meet requirements of the state's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* ("SIP").
3. Adoption of such limits must satisfy antidegradation policies, where such policies are applicable.
4. Must consider impacts of mixing zone decisions on assimilative capacity.
5. Seek to avoid inappropriate permit violations resulting from unintentionally restrictive effluent limits.

Working with Regional Board staff, CVCWA has developed an approach to the development of effluent limits that addresses antidegradation and assimilative capacity concerns. We are currently working to finalize agreement with Regional Board staff on that approach. The basis for this approach is that incremental increases in the discharge of a constituent from existing levels that are less than 10% of the remaining assimilative capacity of the receiving water represent minimal risk to the receiving water. Using 10% as a significance threshold with respect to protecting high quality waters in the case where ambient water quality is better than the criterion is discussed in a 2005 U.S. Environmental Protection Agency ("USEPA") memorandum.¹ The 2005 Memorandum was the result of a four year process led by USEPA involving environmental groups, industry representatives, and other experts where a consensus was reached that any individual decision to lower water quality for non-bioaccumulative chemicals that is limited to 10% of the available assimilative capacity (i.e., difference between the downstream ambient concentration and the water effects ratio ("WER"))

¹ E.S. King, Office of Science and Technology. Tier 2 Antidegradation Review and Significance Thresholds. Memorandum to Water Management Division Directors, Regions 1-10. August 10, 2005 ("2005 Memorandum").

adjusted copper wasteload application (“WLA”) in that case) “represents minimal risk to the receiving water and is fully consistent with the objectives and goals of the Clean Water Act.” Considering the process in which the 10% significance threshold was identified, it is an appropriate threshold to apply in the Central Valley as well in the exercise of best professional judgment for determining what amount of assimilative capacity being used should be considered significant or not.

Although some agreement has been reached on some issues, CVCWA has a remaining point of concern with Regional Board staff over the interpretation and implementation of the “mixing zone shall be as small as practicable” language in the SIP. Regional Board staff has interpreted this language to mean that dilution credit and size of mixing zone should be determined to provide “only what a POTW needs” (i.e., should be based on current plant performance for every constituent with reasonable potential).

It is CVCWA’s position, based on its reading of the SIP and its analysis of supporting State documents and USEPA guidance, that the factors to be used in minimizing the size of a mixing zone, or determining what constitutes “as small as practicable” are described in SIP Section 1.4.2.2 A & B and include the following:

- No lethality to organisms passing through the mixing zone
- No significant human health risks
- The integrity of the water body shall not be compromised
- Passage of aquatic life shall not be restricted
- Biologically sensitive or critical habitats shall not be adversely impacted
- Shall not produce nuisance conditions
- Shall not dominate the receiving water or overlap with other mixing zones
- Shall not be near drinking water intakes

In other words, the size of the mixing zone should be determined based on the potential impact to the receiving water and its beneficial uses, not based on treatment plant performance.

Based on our discussions with Regional Board staff, it appears that Regional Board staff presume that the SIP and USEPA guidance require the establishment of a separate mixing zone for each constituent that has reasonable potential. (See, e.g., Tentative Order, Table F-9, p. F-24.) In reaching this position, Regional Board staff may be relying, at least in part, on the State Water Resources Control Board’s (“State Board”) decision *In the Matter of the Petition of the California Sportfishing Protection Alliance for . . . the City of Yuba City Wastewater Treatment Plant* (Order WQ 2008-0010) (“Yuba City 2008 Order”). In the Yuba City 2008 Order, the State Board considered, *inter alia*, California Sportfishing Protection Alliance’s (“CSPA”) contention that the permit must be modified to define the edge of the mixing zone for each constituent. Although this was CSPA’s contention, the State Board does not state or imply that a mixing zone for each constituent is necessary. Rather, the Yuba City 2008 Order states that points in the

receiving water must be identified “where applicable criteria or objectives must be met (the mixing zone boundary) for acute aquatic life criteria, chronic aquatic life criteria, and human health criteria.” (Yuba City 2008 Order, pp. 3-4.) Further, in its fact-specific analysis, the Yuba City 2008 Order refers to human health criteria collectively and refers to “*the* dilution credit for human health criteria.” (Yuba City 2008 Order, p. 4, emphasis added.) In other words, there is one mixing zone and dilution credit for all human health criteria, not constituent-by-constituent mixing zones. Accordingly, the Yuba City 2008 Order does not support the approach taken in the Tentative Order, and the approach is not consistent with the USEPA guidance and the SIP.

With respect to USEPA guidance, it states, in referring to mixing zones, “sometimes it is appropriate to allow for ambient concentrations above criteria in small areas near outfalls. These areas are called mixing zones Mixing zone allowances will increase the mass loadings . . . to the waterbody, and decrease treatment requirements.” (USEPA Technical Support Document (1991) (“USEPA TSD”), p. 33.)

Further, the permitting guidance in the USEPA TSD depicts mixing zones as follows: for a specific discharge, for aquatic life standards, a mixing zone is established for acute effects and a mixing zone is established for chronic effects. (See USEPA TSD, Figure 2-1, p. 33.) For a specific discharge, for human health standards, a different mixing zone is established for human health effects. These three mixing zones pertain to all constituents in the discharge, to allow compliance with all standards. The USEPA TSD does not discuss or suggest that constituent-specific mixing zones (i.e., the concept of multiple mixing zones for acute, chronic, and human health for a single discharge) should be established.

Rather, to establish the appropriate size of a mixing zone (i.e., one for acute criteria, one for chronic criteria, and one for human health criteria), the mixing zone should be limited to that which is necessary to allow the constituent requiring the largest mixing zone to meet standards at the edge of the mixing zone. (USEPA TSD, p. 33 [mixing zone size should be determined by which pollutant “most limits the allowable discharge”].) Under such an approach, all other constituents in the discharge will achieve compliance with standards at the edge of the designated mixing zone.

The USEPA TSD provides further permitting guidance by stating that mixing zones be as small as practicable to avoid having aquatic life mixing zones that are based on complete mix with the receiving water at critical low flow. This would not allow any zone of passage for fish and would utilize the full assimilative capacity of the receiving water. This is an example of what is meant by minimizing the size of mixing zones – not that they are set or based on performance of the treatment system on a constituent-by-constituent basis.

CVCWA has discussed its concerns with Regional Board staff with respect to their interpretation of “as small as practicable” being linked to plant performance for every constituent. Moreover, CVCWA has evaluated relevant, available information (e.g., supporting

documentation to the USEPA TSD and SIP) to determine if plant performance (other than for the controlling constituent) was to be considered or used in the determination of dilution credit or calculation of resulting effluent limits. Based on its evaluation of readily accessible information, the approach advocated by Regional Board staff is not specified in the SIP, was not addressed or mentioned in the SIP administrative record documents, is not mentioned in the California Toxics Rule ("CTR"), is not mentioned in relevant portions of the Water Quality Control Plan for the Sacramento and San Joaquin River Basins ("Basin Plan"), and is not stated in the USEPA TSD. Accordingly, there is no support for the staff's position that mixing zones must be established on a constituent-by-constituent basis.

While CVCWA understands that the Regional Board staff is concern is that effluent quality will deteriorate if higher effluent limits are adopted, the approach advocated by staff is arbitrary and should be reconsidered. An alternative approach that could be considered would be to use intermediate trigger values, somewhere between the existing effluent quality and the SIP-allowable effluent limit that would have the permittee submit information to the Regional Board to explain increases above the trigger concentration. This would provide flexibility not afforded by unnecessarily stringent permit limits and would avoid inappropriate permit violations that have no bearing on impacts to water quality or beneficial uses.

II. Use of Normally Distributed Data

In Table F-7 of the Tentative Order, the Projected Maximum Effluent Concentration is footnoted, which states that calculation of the Projected Maximum Effluent Concentration was "[b]ased on normally distributed data where 99.9% of the data will lie within 3.3 times the standard deviations of the mean (when there are ten sampling data points or more). If the maximum observed effluent concentration was greater, then the MEC is listed in brackets[]." (Tentative Order, p. F-21.) Here, CVCWA comments that effluent and receiving water data are nearly always log-normally distributed, and as such the log-normal distribution should be used to calculate the 99.9th percentile. Using the normal distribution and 3.3 times the standard deviation results in a significant underestimation of the potential maximum effluent concentration. It is because of this underestimate that the MEC is greater than the projected MEC. Accordingly, at the very least, where performance based limits are applicable, log-normally distributed data should be used rather than normally distributed data.

III. Toxicity

In section VI.C.2.a.iii of the Tentative Order, the chronic toxicity monitoring trigger would be 2 TUc. A trigger of 2 TUc does not take into account or consider the full chronic dilution which is at least 25:1 which occurs at the edge of a 164 foot mixing zone, but again bases this trigger on treatment plant performance. This is unnecessarily stringent. As noted on p. F-63 of the Tentative Order, dilution has been granted. Therefore, based on a more appropriate chronic dilution of 25:1, the toxicity trigger should be 25 TUc. CVCWA has discussed the concept of an

intermediate trigger value (a value less than 25 TUc), which could be used in the permit to address the Regional Board's concern that effluent quality will be allowed to deteriorate. The trigger concept could be used to require submittal of information as to why the trigger was exceeded and would lead to an appropriate level of response. Such an approach would provide greater flexibility than the proposed 2 TUc value in avoiding unwarranted action in response to an effluent quality that is not indicative of adverse effects on beneficial uses. CVCWA recommends that this concept be discussed with the City and considered for incorporation in the final permit.

IV. Discharge Prohibition Language

The Tentative Order includes a discharge prohibition that would prohibit, "[t]he discharge of waste that causes violation of any narrative or numeric water quality objective contained in the Basin Plan." (Tentative Order, p. 11.) Such a prohibition is inappropriate as it nullifies the reasonable potential analysis process that is otherwise applied, and establishes a more stringent permit requirement than is otherwise established by the receiving water limitations.

First, the State Board and Regional Board have well-established processes for determining reasonable potential that comply with federal regulatory requirements. Federal regulations require that NPDES permits include water quality-based effluent limits when the Regional Board determines that the discharge will cause, have the reasonable potential to cause, or contribute to a violation of a water quality objective. (40 C.F.R. § 122.44(d)(1)(i).) Accordingly, the state adopted procedures for the 126 priority pollutants identified in the CTR (i.e., SIP), and the Regional Board may use these procedures for both priority and non-priority pollutants. Through the established reasonable potential analysis process and adoption of water quality-based effluent limitations, constant effluent monitoring, and regular permit renewals every five years (or thereabouts), the Regional Board is able to ensure that the discharge of treated effluent is not causing water quality standards to be exceeded in the receiving water.

Second, in addition to the establishment of water quality-based effluent limitations, the Tentative Order includes receiving water limitations that are based on water quality objectives. (Tentative Order, pp. 14-16.) The receiving water limits state that the discharge cannot cause the exceedance of the specified water quality objectives in the Sacramento River. These receiving water limitations ensure that the Sacramento River is protected and that water quality objectives are not caused to be exceeded by the discharge.

Considering the inclusion of water quality-based effluent limitations and the receiving water limitations, it is inappropriate to include a broad discharge prohibition such as the one included in the Tentative Order. Further, by including this provision, the City could be held liable for the violation of several repetitive permit provisions even though the discharge may be limited to a single pollutant, and in a limited circumstance. Creating additional liability for

publicly-owned treatment works (“POTWs”) is not good public policy. Accordingly, CVCWA recommends that Discharge Prohibition III.E be deleted.

V. Ammonia Reduction Study

The Tentative Order requires submittal of an Ammonia Reduction Study. (Tentative Order, p. 26.) This study would require the City to determine if additional ammonia reduction measures may be implemented at the facility in order to reduce the size of the mixing zone. Such a study requirement is inappropriate and should be removed from the Tentative Order. As indicated above, and in the Fact Sheet to the Tentative Order, a mixing zone is found to be approvable for acute and chronic aquatic life for ammonia. The Tentative Order finds for ammonia that such mixing zones are 66 feet and 20 feet, respectively, and that granted dilution credits are 8.1 and 3.1, respectively. These granted mixing zones, in comparison to what was determined available through the 2012 mixing zone study, are significantly reduced from the 20.1 and 25.1 dilution factor that also would be protective of beneficial uses. Considering that the receiving water clearly has significant assimilative capacity for ammonia, and considering that the Tentative Order already proposes a significantly reduced mixing zone, it is inappropriate for the Regional Board to also require further ammonia reductions via an Ammonia Reduction Study requirement. Accordingly, the provision needs to be deleted from the Tentative Order.

VI. Biochemical Oxygen Demand and Total Suspended Solids Limitations

The Tentative Order includes final effluent limitations for [biochemical oxygen demand] (“BOD”) and [total suspended solids] (“TSS”) that are being carried over from the City’s current permit. In the current permit, it explains that tertiary treatment was determined to be necessary to protect certain beneficial uses (which were included in the municipal and domestic supply, agricultural, and recreational beneficial uses). (See discussion in Order No. R5-2007-0058, p. F-12.) It then further explains that the final effluent limitations for BOD and TSS are based on the technical capability of the tertiary process. (Order No. R5-2007-0058, p. F-11.)

The Tentative Order proposes to depart dramatically from the previous reasons and explanations for including the final effluent limitations for BOD and TSS. (See Tentative Order, p. F-48.) Rather than relying on the previous reasons, which CVCWA believes have not changed, the Tentative Order includes statements that allege that the BOD and TSS limits in the permit are necessary to ensure compliance with the antidegradation policy. The reference to compliance with the antidegradation policy here is unexplained and unsupported. Accordingly, CVCWA recommends that the Tentative Order be revised to mirror Order No. R5-2007-0058 with respect to the limits for BOD and TSS.

We appreciate your consideration of these comments and request that you revise the Tentative Order as suggested above. If you have any questions or if CVCWA can be of further assistance, please contact me at (530) 268-1338 or eofficer@cvcwa.org.

Sincerely,



Debbie Webster,
Executive Officer

cc (*via electronic mail*): Pamela Creedon, Central Valley Regional Water Quality Control Board