

Central Valley Regional Water Quality Control Board
6/7 February 2014 Board Meeting

Response to Comments
for the
Calaveras County Water District
and Sierra Golf Management Corporation
Forest Meadows Wastewater Reclamation Plant
Tentative Waste Discharge Requirements

The following are Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff responses to comments submitted by interested parties regarding the tentative Waste Discharge Requirements (NPDES Permit No. CA0085278) renewal for the Calaveras County Water District and Sierra Golf Management Corporation (Discharger), Forest Meadows Wastewater Reclamation Plant (Facility).

The Tentative Order was issued for a 30-day public comment period on 1 November 2013 with comments due by 2 December 2013. The Central Valley Water Board received comments regarding the tentative Permit by the due date from the Central Valley Clean Water Association (CVCWA).

The submitted comments were accepted into the record, and are summarized below, followed by Central Valley Water Board staff responses.

CVCWA COMMENTS

CVCWA Comment I. Operating Specifications for Ultraviolet (UV) Disinfection

Section VI.C.4.b, Construction, Operation and Maintenance Specifications, includes minimum UV operating specifications to provide virus inactivation equivalent to Title 22 Disinfected Tertiary Recycled Water while discharging to surface water. First, CVCWA comments that these requirements violate California Water Code § 13360, because they dictate the manner in which the Discharger must comply with the disinfection requirements. Secondly, CVCWA comments that the Tentative Order does not include the option of an alternative UV operating plan in the event the Discharger conducts a site-specific UV engineering study. To ensure flexibility, CVCWA requests that the Tentative Order be revised to include the language “unless operated by an alternative plan approved by the Department of Public Health (DPH) or the Executive Officer” to paragraph IV.C.4.b of the Tentative Order.

RESPONSE: Central Valley Water Board staff does not concur. In response to CVCWA’s first comment, the proposed Permit requires disinfection of the discharge to a level equivalent to Title 22 disinfected tertiary recycled water. This requirement is necessary to protect public health from contact with undiluted treated municipal wastewater. The proposed Permit includes effluent limits and operating specifications to ensure this level of disinfection, including effluent limits for total coliform organisms, and operating specifications for the UV disinfection system (e.g., turbidity, UV dose, and UV transmittance). Compliance with the effluent limits and operating specifications are necessary to demonstrate compliance with the equivalency to Title 22 disinfection requirement and are consistent with California Water Code § 13360. No changes have been made to the proposed permit.

Regarding CVCWA’s second comment, the proposed Permit includes UV specifications based on the National Water Research Institute and American Water Works Association

Research Foundation NWRI/AWWRF's "Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse," first published in December 2000 and revised as a Second Edition dated May 2003. When UV disinfection is used as the disinfection method, California Department of Public Health recommends these UV operating specifications, in addition to the total coliform and turbidity requirements mandated for chlorine disinfection systems, to ensure the UV disinfection system meets the virus inactivation equivalent to Title 22 disinfected tertiary recycled water. CVCWA comments that if the Discharger conducts a site-specific UV engineering study that the proposed permit should allow the use of the site-specific UV specifications. The proposed Permit already allows use of site-specific UV specifications in the event the Discharger conducts an UV Engineering Study. Section VI.C.1.e of the proposed permit includes a reopener provision that states, "If the Discharger conducts a site-specific UV Engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation equivalent to Title 22 disinfected tertiary recycled water, this Order may be reopened to modify the UV operating specifications." Therefore, no changes have been made to the proposed permit.

CVCWA Comment II. Reasonable Potential Analysis for Ammonia, Nitrate+Nitrite, Pathogens, 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), and pH

CVCWA comments that the Central Valley Water Board has departed from its "normal" reasonable potential analysis procedure to determine if water quality-based effluent limitations (WQBELs) are necessary for ammonia, nitrate+nitrite, pathogens, BOD₅, TSS, and pH. Rather than evaluating the concentration (or mass) of a pollutant in the effluent and comparing it to an applicable water quality objective or criterion the Central Valley Water Board is using "best professional judgment" to impose treatment requirements under the guise of WQBELs. CVCWA comments that this is not consistent with federal regulations and requests a re-evaluation of the determinations for these non-priority pollutants by analyzing the actual "site-specific conditions," including the effluent and receiving water monitoring data.

RESPONSE: Central Valley Water Board staff does not concur. Federal regulations at 40 C.F.R. § 122.44(d)(1)(i) state, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level that will *cause*, have the *reasonable potential to cause*, or *contribute* to an excursion above any State water quality standard, including State narrative criteria for water quality." [*emphasis added*]. The process that a permit writer uses to determine whether WQBELs are required in an NPDES permit is a *reasonable potential analysis* (RPA). The specific approach for conducting the RPA is not specified in the regulations. A permit writer can conduct the RPA using effluent and receiving water data and modeling techniques, or through a qualitative assessment process without using available facility-specific effluent monitoring data.

For priority pollutants, the State Water Resources Control Board's SIP¹ dictates the procedures for conducting the RPA. The constituents referred to in CVCWA's comment are not priority pollutant constituents and, therefore, the Central Valley Water Board is not

¹ "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California" (State Implementation Policy or SIP) March 2005

restricted to one particular RPA method, including the method described in the SIP. Nonetheless, Section 1.3, Step 7 of the SIP, not only allows but requires (for priority pollutants) the Central Valley Water Board to “[r]eview other information available to determine if a water quality-based effluent limitation is required, *notwithstanding* the above analysis in Steps 1 through 6, to protect beneficial uses.” *[emphasis added]*. Therefore, even the SIP allows the Central Valley Water Board to determine reasonable potential based on other information regardless of the available monitoring data.

For non-priority pollutants, Central Valley Water Board staff considers guidance from the United States Environmental Protection Agency when conducting the RPA. Both the September 2010 NPDES Permit Writer’s Manual and the TSD² state that factors other than effluent data should be considered when conducting a RPA. The September 2010 NPDES Permit Writer’s Manual, page 6-30 states, “[s]tate implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters).” Section 3.2 of the TSD, “Determining the Need for Permit Limits Without Effluent Monitoring Data For A Specific Facility,” states “[w]hen determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.”

Due to the site-specific conditions of the discharge, the Central Valley Water Board determined the appropriate method for conducting the RPA for these non-priority pollutant constituents. The September 2010 Permit Writer’s Manual and the TSD include cautionary language that advises regulatory agencies to provide sufficient justification when a reasonable potential determination is made without facility-specific monitoring data. Sufficient justification is provided in the Fact Sheet of the proposed Order (Attachment F, section IV.C.3) and is described below.

Pathogens and pH. USEPA’s September 2010 NPDES Permit Writer’s Manual, page 6-30, states, “State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for [publicly-owned treatment works] POTWs discharging to contact recreational waters).” A qualitative RPA approach was used for pathogens and pH. The Facility is a POTW that treats domestic wastewater. Treated domestic wastewater, unless properly controlled can exceed the applicable water quality objectives for pathogens and pH. Therefore, the discharge has reasonable potential for these pollutants and WQBELs are required in the proposed Order. This RPA approach is consistent with USEPA guidance.

² *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991

Ammonia. A qualitative RPA approach was not used for ammonia. For conducting the RPA, in certain situations the USEPA recommends using a mass-balance approach to determine the expected critical downstream receiving water concentration using a steady-state modeling approach³. This downstream receiving water concentration is then compared to the applicable water quality objectives to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion. This approach allows assimilative capacity and dilution to be factored into the RPA. Due to the site-specific conditions of the discharge (e.g., rapid mixing in the receiving water), this USEPA recommended approach was used for ammonia. The critical downstream receiving water ammonia concentration was found to exceed the applicable criteria, demonstrating the discharge has reasonable potential and WQBELs are required. This RPA approach is consistent with USEPA guidance.

BOD₅ and TSS. Regulations promulgated in 40 C.F.R. § 125.3(a)(1) require technology-based effluent limitations for municipal dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards. These technology-based regulations apply to all municipal wastewater treatment plants and establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD₅ and TSS. Furthermore, CWA § 301(b) and 40 C.F.R. § 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. The proposed Order establishes WQBELs for BOD₅ and TSS that are equal to or more stringent than the secondary technology-based treatment described in 40 C.F.R. Part 133.

The proposed Order contains requirements for BOD₅ and TSS, expressed as a technology equivalence requirement, which are more stringent than secondary treatment requirements, but are necessary to meet applicable water quality standards. The WQBELs for BOD₅ and TSS in the proposed Order are based on the technical capability of the tertiary filtration process, which is necessary to meet the disinfection requirements for protection of the beneficial uses of the receiving water. BOD₅ is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD₅ and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants are the daily BOD₅ and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD₅ and TSS than the federal secondary treatment standards.

The proposed Order includes WQBELs for pH, pathogens, ammonia, BOD₅, and TSS in accordance with federal regulations, because the discharge has reasonable potential to cause or contribute to an exceedance of applicable water quality objectives in the receiving water. Central Valley Water Board staff evaluated the site-specific conditions of the discharge and used its professional judgment to determine the appropriate RPA method for each constituent. These RPA procedures are based on USEPA guidance for determining the need for WQBELs and are appropriate for this discharge.

³ USEPA NPDES Permit Writer's Manual (Chapter 6.3), September 2010 (EPA-833-K-10-001)