

ITEM: 8

SUBJECT: City of Modesto Water Quality Control Facility, Wastewater Treatment Facility, Stanislaus County

BOARD ACTION: *Consideration of NPDES Permit Renewal and New Time Schedule Order (NPDES Permit No. CA0079103)*

BACKGROUND: The City of Modesto (Discharger) is the owner and operator of the City of Modesto Water Quality Control Facility (Facility), serving a population of approximately 224,000. The Discharger provides sewerage service to the City of Modesto, the community of Empire, and a portion of the City of Ceres. Seasonally, from 1 October through 31 May, the current NPDES permit (R5 2008-0059-01) allows up to 70 million gallons per day (mgd) of disinfected secondary treated municipal wastewater to be discharged to the San Joaquin River when there is sufficient diluting flow in the river. The existing permit also allows a discharge of 4.8 mgd of tertiary treated municipal wastewater year-round to the San Joaquin River.

The proposed NPDES Permit renewal issued for public review includes an expansion of the current tertiary facilities. The proposed upgrade to the tertiary facility includes an increase in the discharge flow from 4.8 mgd to 19.1 mgd. With the expansion of the tertiary facilities, the Facility will no longer seasonally discharge secondary treated wastewater.

The proposed NPDES Permit renewal includes effluent limitations for aluminum, copper, and iron that the Facility cannot immediately comply. Therefore, a Time Schedule Order is also proposed allowing time schedules for the Discharger to comply with these effluent limitations.

ISSUES: Public comments were received on 20 April 2012 from the Discharger, California Sportfishing Protection Alliance (CSPA), and Central Valley Clean Water Association (CVCWA). In addition, per a request by staff, the Discharger provided additional information on 27 April 2012 regarding its mixing zone study. The following is a summary of the comments on the major permitting issues and Central Valley Water Board staff responses. Detailed comments and responses are included in the Staff Response to Comments document included in the agenda package.

**Dilution and Mixing Zone.** *The Discharger submitted an update to its 2003 Mixing Zone study to justify the mixing zones for human health and agricultural water quality criteria and requested that the provision in the proposed Permit requiring this information be removed.*

The update to the mixing zone study satisfactorily identifies the size of the mixing zones for human health and agricultural water quality criteria. Therefore, the proposed Permit has been updated to remove the provision requiring more information, and the mixing zone/dilution section of the Fact Sheet has been updated based on the new information.

**Description of the Project Phasing and Permitting.** *The Discharger has requested: (a) the permitted year-round tertiary discharge flow be increased from the proposed 2.3 mgd to 4.8 mgd, consistent with the current permit, and (b) the mass limits for the year-round tertiary discharge be increased based on the currently permitted flow of 4.8 mgd.*

The Discharger originally planned to complete plant upgrades to treat 4.8 mgd of wastewater to a tertiary level in two phases, Phase 1A (2.3 mgd) and Phase 1B (2.5 mgd). The Phase 1A tertiary facilities were completed on 1 July 2010. However, Phase 1B has not proceeded to construction and is no longer planned as a stand-alone

project. The Phase 1B upgrade project has been added to the proposed Phase 2 upgrade that is expected to be initiated in 2012, with completion expected by February 2018. Therefore, the currently permitted flow and mass effluent limits have been reduced in the proposed Permit based on the change in project phasing and the new lower design capacity to treat 2.3 mgd to a tertiary level rather than 4.8 mgd. Federal regulations require that effluent limits for publicly-owned treatment works be based on design flow. Since the current tertiary facility only has a design capacity of 2.3 mgd, the average daily flow limit and associated mass limits must be based on a flow of 2.3 mgd. The proposed Permit allows the flow limit and mass limits to increase as the Discharger demonstrates to the Central Valley Water Board's Executive Officer that the construction of the necessary facility improvements with sufficient design capacity has been completed.

**Performance Based Effluent Limitations for Molybdenum.** *The Discharger requested a new reopener provision to allow the performance-based effluent limit for molybdenum of 23 µg/L, as a daily maximum, to be increased if new information was provided in the future.*

*CVCWA commented that effluent limits for molybdenum need to be re-calculated using the maximum allowed dilution credits, resulting in maximum daily limits of 203 µg/L and 87 µg/L for the secondary and tertiary discharges, respectively.*

The State Implementation Plan requires that mixing zones are as small as practicable and the Antidegradation Policy requires best practicable treatment or control (BPTC) of the discharge to minimize degradation of the receiving water downstream of the mixing zone. The proposed Permit allows a dilution credit of 1.8:1, which results in a maximum daily limit of 23 µg/L. Based on effluent data from 2001-2007, the proposed maximum daily effluent limitation represents the implementation of BPTC for this Facility and the allowed mixing zone is as small as practicable. A reopener provision has been added to the proposed Permit, per the Discharger's request.

**Title 22 Recycled Water Criteria Provision.** *The Discharger commented that the provision to require equivalent to Department of Public Health (DPH) Title 22 disinfected tertiary recycled water is not appropriate for a surface water discharge; the requirement is too broad and requested clarification in the proposed Permit.*

The year-round tertiary discharge may at times receive little or no dilution. Title 22 is not directly applicable to surface waters; however, the DPH recommends an equivalent level of treatment to Title 22 reclamation criteria to protect public health, because the undiluted effluent may be used for the irrigation of food crops and/or for direct body-contact water recreation. To address the Discharger's concern about the requirements being too broad, Section VII.B.6 of the Fact Sheet has been modified to provide clarification of the Title 22, or equivalent, disinfection requirements.

**Ultraviolet (UV) Disinfection Specifications** *The Discharger and CVCWA requested that the operating specifications for UV dosage be eliminated from the permit and the turbidity specifications be increased.*

Equivalent to Title 22 disinfected tertiary recycled water is required to protect public health. The proposed Permit includes effluent limits and operating specifications to ensure the required level of disinfection for this municipal wastewater discharge, including effluent limits for total coliform organisms, and operating specifications for the UV disinfection system (e.g., turbidity and UV dose). Compliance with the effluent limits and UV operating specifications are necessary to demonstrate compliance with the equivalency to Title 22 disinfection requirement.

With regard to the turbidity specifications, the proposed Permit includes specifications for turbidity based on recommendations by DPH for membrane filtration, which is used at the Facility. The Discharger and CVCWA requested turbidity specifications for granular media filtration, which is not appropriate for this Facility. No changes are proposed for the turbidity specifications.

The Board's enforcement of the operation specifications is an additional concern of the CVCWA. However, the turbidity and UV operational specifications are not final effluent limitations. Therefore, these specifications are not subject to Mandatory Minimum Penalties.

**Effluent Limitation for Nitrate + Nitrite (as N).** *CVCWA commented that because it has not been determined that the discharge has reasonable potential for nitrate+nitrite (as N) for either the secondary or tertiary discharge, the effluent limits should be removed.*

The proposed Permit does not include effluent limits for nitrate+nitrite (as N) for the secondary discharge. However, for the tertiary discharge, the current permit includes effluent limits for nitrate+nitrite (as N) of 10 mg/L. Due to federal anti-backsliding provisions, the effluent limits cannot be removed. The Discharger has not provided sufficient information to satisfy the exceptions to the anti-backsliding provisions.

**Tertiary Facility Expansion and California Environmental Quality Act (CEQA) Compliance.** *CSPA commented that the expansion of the tertiary treatment system capacity described in the proposed Permit should include a "discussion" of compliance with CEQA and any impacts to water quality.*

The Central Valley Water Board's action to adopt an NPDES permit is exempt from CEQA in accordance with California Water Code section 13389. The responsibility for CEQA compliance belongs to the local lead agency for the project. The proposed Permit includes information regarding the facility expansions and evaluates the water quality impacts of the expanded discharge, potentially above and beyond the identified impacts in a corresponding CEQA document. A complete Antidegradation analysis was conducted that demonstrates the proposed action complies with the Antidegradation Policy. Nevertheless, some clarifying changes have been made to the proposed Permit to discuss the Discharger's compliance with CEQA for the Facility expansion.

**Compliance Schedules for Electrical Conductivity (EC).** *CSPA commented that the proposed Permit contains compliance schedules for EC that exceed the maximum ten years allowed under the Basin Plan.*

The State Water Board's Compliance Schedule Policy has an exception to the ten year rule when there is an established Total Maximum Daily Load (TMDL). The TMDL for the Lower San Joaquin River for Salt and Boron requires that Publicly-Owned Treatment Works (POTWs) comply with the water quality objectives for EC by 28 July 2022, for wet through dry years and 28 July 2026 for critical years (Basin Plan, Section 19, Table IV-4.3, pg IV-32.03). Clarifying changes have been made to the Fact Sheet (Section VII.B.7.b) to better describe the compliance schedules for EC.

**Compliance with and the Receiving Water Limitation for Toxicity.** *CSPA commented that the proposed Permit does not adequately implement the Basin Plan's narrative toxicity objective and should include a study requirement for the presence of constituents of emerging concern (CECs).*

The Fact Sheet details the Central Valley Water Board staffs' analysis, evaluations, and determinations conducted pollutant by pollutant to determine whether or not concentrations are discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above any water quality standard. In addition, the proposed Permit includes acute and chronic whole effluent toxicity (WET) testing conducted on the most sensitive of species to determine whether the effluent discharge causes adverse effects to the beneficial uses of the receiving water.

**Mixing Zone Requirements.** *CSPA commented that the proposed permit contains an allowance for a mixing zone that does not comply with federal regulations and the SIP because it does not specify the boundaries of the mixing zones.*

Staff concurs and the proposed Permit has been modified to identify the boundaries of the mixing zones based on the Discharger's update to its 2003 Mixing Zone study submitted as part of the Discharger's comments to the tentative Permit.

Mgmt. Review \_\_\_\_\_

Legal Review \_\_\_\_\_

7/8 June 2012  
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