

ITEM: 8

SUBJECT: City of Davis WWTP, Yolo County

BOARD ACTION: *Continuation of Hearing for Consideration of NPDES Permit Renewal*

BACKGROUND: The City of Davis (Discharger) owns and operates a wastewater treatment plant (WWTP) that provides sewerage service for the City of Davis, and serves a population of approximately 65,000, with a monthly user charge of \$39.00. The existing treatment system consists of conventional primary treatment, equivalent to secondary treatment using a pond and overland flow system, chlorination and dechlorination, and treatment wetlands. Wastewater is discharged through either of two outfalls to receiving waters that are tributary to the Yolo Bypass (the Willow Slough Bypass and the Conway Toe Drain). The tentative Order (proposed NPDES permit) is more stringent than the existing Order, No. 5-01-067. (Following the adoption of Order No. 5-01-067, the Discharger filed a timely petition with the State Water Resources Control Board. As a result of the petition, certain effluent limitations in the NPDES permit were stayed.)

On 22 June 2007, the tentative Order was presented to the Regional Water Board for consideration of adoption. During the public hearing, the Regional Water Board elected to continue the hearing for this Item to allow public comments on the following specific issues:

- changes to time schedules and due dates;
- changes to effluent limitations for ammonia, manganese, boron, chloride, sodium, mercury, and dioxin and congeners;
- use of critical low-flow hardness and effluent hardness for analysis of hardness-dependent metals; and
- modification of the monitoring and reporting program requirements.

The tentative Order was re-issued on 4 September 2007 for a 30-day public comment period limited to the issues identified above.

ISSUES: The following is a brief summary of the major issues.

Compliance Schedule for Tertiary Treatment and Related Limitations:

The Discharger submitted an Infeasibility Report on 25 July 2007 demonstrating that an eight-year compliance schedule is the shortest practicable compliance schedule. Since the existing WWTP treats effluent to an equivalent-to-secondary level, the Discharger anticipates it will take longer than five years (one permit term) to complete the upgrade to a conventional secondary and tertiary treatment system that will achieve the necessary treatment for compliance with new and more stringent effluent limitations. Therefore, the proposed NPDES permit includes an eight-year compliance schedule for tertiary treatment and related effluent limitations for ammonia and aluminum. Two additional

compliance schedule alternatives for tertiary treatment and related limitations were also issued with the tentative Order for a 30-day public review period. One of the alternatives provides a five year compliance schedule and the other alternative provides a ten year compliance schedule from the date of permit adoption.

Study Requirements instead of Limitations:

Site-specific conditions such as crop type, soil type, irrigation methods, rainfall, and other factors may affect the levels at which different constituents negatively impact agriculture. The site-specific levels of constituents/parameters necessary to protect agricultural beneficial uses have not been determined.

The agricultural water quality goals contained in the *Irrigation and Drainage Paper No. 29, Rev. 1, R.S. Ayers and D.W. Westcot, Rome, 1985* were used as screening values to determine whether a study is necessary to determine site-specific levels. Effluent levels of boron, chloride, sodium, TDS, EC, and manganese exceeded their respective screening values, so the proposed permit requires a study to determine the site-specific levels of these constituents/parameters necessary to protect the agricultural irrigation beneficial use. The proposed permit includes re-openers stating that a final effluent limitation may be added for these constituents/parameters based on the results of the site-specific studies.

Hardness: The federal regulations state that, “[f]or purposes of calculating freshwater aquatic life criteria for [hardness-based] metals ...the actual ambient hardness of the surface water shall be used...” State Board Water Quality Order No. 2004-0013 recommends ‘fixed’ rather than ‘floating’ effluent limitations for hardness-based metals. Therefore, the proposed permit establishes water quality-based effluent limitations for metals using a ‘fixed’ hardness. The ‘fixed’ hardness is the lowest most reasonable ambient upstream receiving water hardness during critical low flow conditions.

The receiving waters, at times, have no measurable flow upstream of the discharge points. A hardness value of 190 mg/L (as CaCO₃) was used for discharges from Discharge 001 and a hardness value of 250 mg/L was used for discharges from Discharge 002. Selection of these values were based on a reported Willow Slough Bypass hardness of 190 mg/L and a reported Conaway Ranch Toe Drain hardness of 250 mg/L during late summer months from 2001 through 2005.

Also issued with the tentative Order is an option for the Regional Water Board’s consideration concerning the selection of hardness to determine reasonable potential and calculate effluent limitations for metals using effluent hardness. This option is based on a study demonstrating that the use of effluent, or a combination of effluent and receiving stream hardness, is protective and has been used in other NPDES permits. However, the use of ambient receiving water hardness, as described

above, appears to be most applicable for discharge to these specific water bodies.

Dioxin Congeners:

The California Toxics Rule (CTR) identifies only one dioxin, 2,3,7,8-TCDD, in the list of priority pollutants for which effluent limits are to be established. The CTR includes a criterion for 2,3,7,8-TCDD of 0.014 pg/L for the protection of human health based on a one-in-a-million cancer risk. Sixteen other dioxin compounds (congeners), produce similar toxicological responses as 2,3,7,8-TCDD, but have varying potencies. There are no formally promulgated numeric water quality criteria for these other “dioxin-like” congeners.

Dioxin congeners appear to be ubiquitous (i.e., ever-present). They exist in the environment worldwide, particularly in the water, soils and sediment. Dioxins enter the atmosphere through aerial emissions and widely disperse through a number of processes, including erosion, runoff, and volatilization from land or water. According to rulemaking documents in development of the State Water Resources Control Board State Implementation Policy (SIP), U.S. EPA staff indicated in a presentation to a public forum that air deposition is a major source of dioxins in soil, and soil erosion is a major source of dioxins in water.

The SIP requires collection of data for all 17 dioxin-like congeners and reporting of the data using the toxic equivalency factors (TEFs) listed in the SIP method for a three-year monitoring period. The SIP states, “The purpose of the monitoring is to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays, and estuaries for the development of a strategy to control these chemicals in a future multi-media approach.” To date, this multi-media control strategy has not been developed.

The Discharger has not detected 2,3,7,8-TCDD in the effluent. The Discharger has detected non-CTR congeners in its effluent, however, at levels which can be only be estimated and not quantified with confidence. There is currently no data indicating that the CTR and non-CTR forms of dioxin in the receiving water are at concentrations that may threaten beneficial uses. Regional Water Board staff believes that there is insufficient data to determine if a water-quality based effluent limitation is appropriate (i.e., feasible). The site specific studies required in the proposed permit are intended to gather additional information to (i) further investigate the frequency or significant detections of any congener, (ii) evaluate the threat to beneficial uses, and (iii) determine the appropriateness of effluent limitations. The proposed Order exceeds the SIP monitoring requirements by requiring quarterly monitoring of all seventeen dioxin congeners for eight consecutive quarters following the effective date of this Order, then annual monitoring thereafter. The proposed permit also requires the Discharger to implement measures to evaluate and reduce detected dioxin congeners.

Comments were received from the Discharger and the California

Sportfishing Protection Alliance. Some of the comments received addressed issues outside the scope of the continued hearing and should therefore not be accepted into the record. Copies of the comments posted on the website and placed in the file as part of the agenda package were marked to indicate those comments which are outside of the scope of this continued hearing. A Response to Comments was prepared for the comments received that are within the scope of the noticed hearing item.

Mgmt. Review _____

Legal Review _____

25/26 October 2007

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