**Central Valley Regional Water Quality Control Board**
**25/26 October 2007 Board Meeting**

**Response to Comments for City of Davis Wastewater Treatment Plant**
**Tentative Waste Discharge Requirements (NPDES No. CA0079049)**

The proposed NPDES permit for the City of Davis Wastewater Treatment Plant (WWTP) will be presented to the Regional Water Quality Control Board, Central Valley Region (Regional Water Board) at its 25/26 October 2007 Board meeting as part of a continuation of the public hearing held on 22 June 2007. The following are Regional Water Quality Control Board, Central Valley Region (Regional Water Board) staff responses to comments submitted by interested parties regarding the tentative Waste Discharge Requirements (NPDES Permit renewal).

Public comments regarding the proposed permit were required to be submitted to the Regional Water Board by noon on 4 October 2007. In addition, written and oral comments were required to be limited to the proposed revisions identified in "underline/strike-out" text in the tentative NPDES permit addressing the following issues that are the basis of the continuation of the public hearing:

- 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 Regional Water Board received timely comments regarding the proposed NPDES permit from the City of Davis (Discharger) and the California Sportfishing Protection Alliance. However, some of the comments received addressed issues outside the scope of the continued hearing. Copies of the comments posted on the website and placed in the case file with the agenda package are marked to indicate those comments which Regional Water Board staff believes are outside the scope of the continued hearing and therefore, should not be accepted into the record.

Comments within the scope of the hearing are summarized below, followed by staff responses. Also, where comments outside the scope indicated minor typographic or technical errors, and/or staff's best professional judgment concludes that the changes are necessary, some edits were made to the proposed permit to correct editorial and technical errors.

## CITY OF DAVIS COMMENTS

**CITY OF DAVIS - COMMENT #1:** The Discharger requests an eight-year schedule to construct a new equivalent-to-secondary and tertiary treatment system. The Discharger states that its July 2007 Infeasibility Report was based on an eight-year compliance schedule and that this is as short as practicable.

**RESPONSE:** The set compliance date of 1 September 2015 for tertiary (or equivalent) treatment and related effluent limitations, and for ammonia, aluminum, and iron limitations, was based on an earlier proposed Regional Water Board adoption date. The fact sheet of the proposed permit describes an eight-year compliance schedule, but included this fixed date that is not based on the permit being adopted in October 2007. The scope of the continued hearing includes updates to time schedules and due dates. Therefore, the proposed permit's compliance date for providing tertiary (or equivalent level) treatment and compliance with related effluent limitations, and ammonia, aluminum and iron limitations has been updated to eight years from the Order adoption date.

**CITY OF DAVIS - COMMENT #2:** The Discharger requests the compliance determination language for aluminum, as specified in Section VII. of the proposed permit, be included as footnotes to all the tables containing aluminum monitoring and effluent limitations.

**RESPONSE:** This comment is outside the scope of the continued hearing. However, the requested change is being made for clarity. The aluminum compliance determination language for aluminum has been included as a footnote to the appropriate tables, as requested. This does not change the requirements of the proposed permit, but simply re-iterates the language that is already in the compliance determination section of the permit.

**CITY OF DAVIS - COMMENT #3:** The Discharger requests the pond pH requirement be for treated wastewater entering the ponds instead of wastewater in the ponds. The concern is regarding the inability to control the increase in pond pH during warm weather months.

**RESPONSE:** This comment is outside the scope of the continued hearing. However, Regional Water Board staff's best professional judgment concludes that the pH in ponds, during hot summer conditions, may rise above 8.5 and is beyond the Discharger's control. The Discharger's monitoring reports show that the pond pH sometimes exceeds the pH requirement. Groundwater monitoring does not indicate an increase in groundwater pH due to the ponds and does not indicate groundwater pH above 8.5. Regional Water Board staff is concerned that the Discharger's effort to control the pH in the ponds by adding pH-lowering additives may result in higher salinity of the pond water. Therefore, the proposed permit has been modified such that the compliance point for the proposed pond pH requirement is for wastewater entering the ponds instead of wastewater in the ponds.

**CITY OF DAVIS - COMMENT #4:** The Discharger requests the proposed Monitoring and Reporting Program (MRP) be modified to require grab samples instead of 24-hour composite samples for effluent settleable solids, temperature, dissolved oxygen, and chronic toxicity.

**RESPONSE:** This comment is outside the scope of the continued hearing. However, Regional Water Board staff's best professional judgment concludes that continuous monitoring of effluent settleable solids, temperature, dissolved oxygen, and chronic toxicity from a pond system that equalizes these wastewater parameters is not practical. The proposed MRP has been revised to require grab samples in lieu of composite sampling for effluent settleable solids, temperature, dissolved oxygen, and chronic toxicity for the existing land-based treatment system, due to the equalizing nature of the treatment system. Once the treatment system is upgraded to a continuous-flow system, the proposed MRP requires composite sampling for these constituents/parameters.

**CITY OF DAVIS - COMMENT #5:** The Discharger requests that the effluent temperature and dissolved oxygen samples be changed to 1/week.

**RESPONSE:** This comment is outside the scope of the continued hearing. However, Regional Water Board staff's best professional judgment concludes that it is appropriate to revise the MRP to require weekly sampling of effluent temperature and dissolved oxygen samples, to correspond with the frequency of sampling required for receiving water temperature and dissolved oxygen. Effluent temperature and dissolved oxygen monitoring is required to demonstrate compliance with the effluent and receiving water temperature limitations and the dissolved oxygen receiving water limitation. The effluent temperature limitation is based on the receiving water temperature and the receiving water dissolved oxygen limitations requires the discharge to not reduce dissolved oxygen below a specified level. Since both effluent temperature and dissolved oxygen monitoring is compared to the receiving water monitoring, the frequency of the effluent monitoring may be modified to correspond to the frequency of the receiving water monitoring for these constituents. The MRP has been revised to require weekly sampling of effluent temperature and dissolved oxygen samples.

**CITY OF DAVIS - COMMENT #6:** The Discharger requests the proposed groundwater report submittal requirement in the MRP be once during the permit term instead of annually.

**RESPONSE:** This comment is outside the scope of the continued hearing. However, Regional Water Board staff's best professional judgment concludes that , a single groundwater report submittal at the time the Discharger files its Report of Waste Discharge for permit renewal is sufficient, as it will contain all the monitoring information since the wells were installed. The groundwater report is a summary of the monitoring performed by the Discharger throughout the term of the permit. Therefore, the MRP has been modified to require one groundwater report as part of the Report of Waste Discharge for the renewal of the permit.

**CITY OF DAVIS - COMMENT #7:** The Discharger identified edits to the proposed permit. The edits include removal of footnotes that correspond to previously deleted text, and correcting inconsistencies in the permit.

**RESPONSE:** This comment is outside the scope of the continued hearing. However, the proposed permit was edited to remove inconsistencies and footnotes that correspond to proposed changes due to the continuation of hearing.

## CALIFORNIA SPORTFISHING PROTECTION ALLIANCE (CSPA) COMMENTS

**CSPA –COMMENT #1**: The proposed permit is establishing effluent limitations for metals based on the hardness of the effluent as opposed to the ambient upstream receiving water hardness.

**RESPONSE:** The proposed permit establishes effluent limitation for metals based on the hardness of the ambient upstream receiving water hardness during critical low-flow conditions. The proposed permit also includes a hardness option (Enclosure No. 2 of the Tentative Permit) for the Regional Water Board's consideration to establish effluent limitations for metals based on effluent hardness or a combination of receiving stream and effluent hardness. This proposed option is based on a study demonstrating that the use of effluent hardness or a combination of effluent and receiving stream hardness is protective of the beneficial uses of the receiving water.

**CSPA –COMMENT #2**: The proposed permit fails to include an effluent limitation for copper.

**RESPONSE:** As explained in the Fact Sheet of the proposed permit, the hardness value used to determine reasonable potential for copper in the proposed permit reflects the most reasonable worse-case hardness in the receiving stream during critical low-flow conditions. See Staff Response to CSPA -Comment #1 above for further detail.

**CSPA –COMMENT #3**: The proposed permit fails to include an effluent limitation for silver.

**RESPONSE:** The hardness value used to determine reasonable potential, as explained in the permit fact sheet, resulted in no reasonable potential for silver, on the same basis as the reasonable potential analysis for copper discussed in CSPA Comment #1 and #2 above.

**CSPA –COMMENT #4**: The proposed permit, salinity limitations, page 7, inappropriately requires the City of Davis conduct a study of EC, boron, sodium, and chloride levels to protect irrigated agriculture in the Yolo Bypass.

**RESPONSE:** The WWTP effluent exceeds the screening values derived from 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* for these constituents/parameters. Although some studies have been submitted regarding levels of salinity necessary to protect the agricultural beneficial use of the area, Regional Board staff has not approved any of these studies at this time. Therefore, the proposed permit requires another study of the salinity levels necessary to protect agricultural beneficial uses.

**CSPA –COMMENT #5**: The proposed permit allows until 1 September 2015 for the City of Davis to comply with tertiary treatment requirements contrary to the Basin Plan. Waste Discharge Requirements, Order No. 5-01-067, required tertiary treatment be completed before expiration of that Order (2006). Ten years from the date of adoption of Order No. 5-01-067 is 2011. The Regional Board may not grant a compliance schedule beyond 2011.

**RESPONSE:** The proposed permit includes an eight-year time schedule for compliance with proposed new and/or more stringent effluent limitations. Corresponding effluent limitations in the existing Waste Discharge Requirements, Order No. 5-01-067 were stayed by the State Water Resources Control Board and not considered as having been in effect.

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.

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.

**CSPA –COMMENT #6**: The proposed permit, fact sheet, hardness discussion, inappropriately eliminates hardness data.

**RESPONSE:** Federal regulations do not specifically require that the hardness be based upon the minimum detected ambient receiving water hardness. For the proposed permit, a hardness value of 190 mg/L (as $CaCO_3$) 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 was 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 which represent critical low flow conditions in the receiving waters.

Also issued with the tentative Order is a second option for the selection of hardness to determine reasonable potential and calculate effluent limitations for metals. The second option considers the use of the lowest 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.

**CSPA –COMMENT #7**: The proposed permit fails to contain an effluent limitation for manganese.

**RESPONSE:** The previously used National Ambient Water Quality Criteria of 100 ug/L for manganese is for the protection of consumers of marine mulluscs and, therefore, not applicable to this discharge. The screening value of 200 ug/L used in for this proposed permit is based on the Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1, which states that manganese is "[t]oxic to a number of crops at a few-tenths to a few mg/l, but usually only in acid soils." The proposed permit requires a study of manganese to determine the level of manganese that is protective of agricultural beneficial uses, considering site-specific conditions including soil types. If the study demonstrates that the appropriate site-specific manganese level protective of agricultural beneficial uses leads to reasonable potential for the discharge to exceed water quality objectives/criteria, the permit may be reopened for a manganese effluent limitation to be added.

**CSPA –COMMENT #8**: The proposed permit fails to contain an effluent limitation for boron.

**RESPONSE:** The screening value of 700 mg/L is based on the Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1. Similar to Staff Responses No. 2 and 5 above, the proposed permit requires a site-specific study to determine the appropriate boron level that is protective of agricultural beneficial uses, considering site-specific conditions. If the study demonstrates that the appropriate site-specific boron level protective of agricultural beneficial uses leads to reasonable potential for the discharge to exceed water quality objectives/criteria, the permit may be reopened for a boron effluent limitation to be added.

**CSPA –COMMENT #9**: The proposed permit fails to contain an effluent limitation for dioxin and congeners.

**RESPONSE:** 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 0.013 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). Dioxins exist in the environment worldwide, particularly in the water, soils and sediment. They 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 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 State Water Resources Control Board State Implementation Plan (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.