California Sportfishing Protection Alliance
"An Advocate for Fisheries, Habitat and Water Quality"
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2 October 2007

Dr. Karl Longley, Chairman
Ms. Pamela Creedon, Executive Officer
Mr. Kenneth Landau, Assistant Executive Officer
Mr. Dave Carlson, Env. Program Manager, NPDES
Ms. Diana Messina, Sr. WRC Engineer
Ms. Amy Simpson, WRC Engineer
Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6144

VIA: Electronic Submission
Hardcopy if Requested

RE: Comments on Revisions, Waste Discharge Requirements (NPDES No. CA0079049) for City of Davis Wastewater Treatment Plant, Yolo County

Dear Messrs. Longley, Landau, Carlson and Mesdames Creedon, Messina and Simpson:

The California Sportfishing Protection Alliance and Watershed Enforcers (CSPA) has reviewed the Central Valley Regional Water Quality Control Board's (Regional Board) revised tentative NPDES permit (Order or Permit) for City of Davis Wastewater Treatment Plant (Discharger) and submits the following comments.

On September 4th 2007 the Regional Board issued a Notice of Continuation of a Public Hearing for the City of Davis' Wastewater Treatment Plant. There are significant changes to the proposed NPDES Permit. The following comments address the changes to the proposed Permit and incorporate our previous 19 May 2007 comments by reference.

1. **The proposed Permit establishes Effluent Limitations for metals based on the hardness of the effluent as opposed to the ambient upstream receiving water hardness as required by Federal Regulations, the California Toxics Rule (CTR, 40 CFR 131.38(c)(4)).**

The proposed Permit acknowledges (Fact Sheet page F-16, Hardness) that Federal Regulation 40 CFR 131.38(c)(4) states that: "For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/l or less as calcium carbonate, <u>the actual ambient hardness of the surface water shall be used</u> in those equations." (Emphasis added).

Despite citation of the regulatory requirement, the proposed Permit then illegally uses the hardness of the effluent rather than the actual ambient hardness of the surface water to

establish Effluent Limitations. As there is no explanation or attempted technical justification for this illegal action, Regional Board staff is deliberately ignoring Federal Regulations. There are procedures for changing regulations if public and peer reviewed science indicates the need to do so, this has not been done and any such need has not been expressed.

The ramifications of this specific illegal use of effluent rather than ambient receiving water hardness will be devastating to water quality in the receiving streams. The proposed Permit has been modified to use an effluent hardness value of 190 mg/l as $CaCO_3$ rather than the ambient receiving water hardness of 74 mg/l at discharge point 001 and to use an effluent hardness value of 250 mg/l as $CaCO_3$ rather than the ambient receiving water hardness of 85 mg/l at discharge point 002. This illegal action has eliminated the Effluent Limitations for copper and silver (See Tables 6a and 6b and Fact Sheet discussions for hardness, copper (F-23 and 24) and silver (F-40 and 41, *discussion deleted*)). Copper and silver are toxic to freshwater aquatic life above given criteria based of the hardness of the water column. The reasonable potential for copper and silver in the prior proposed Permit, using the ambient receiving water hardness, clearly showed the discharge presented a reasonable potential to exceed CTR water quality standards. The proposed Permit, Fact Sheet page F-5 Compliance Summary and Section IV.C.5, states that the City of Davis wastewater discharge has failed bioassays which show the discharge to be toxic to aquatic life. The City's wastewater system is clearly not capable of adequately removing copper and silver to nontoxic concentrations. Failure to include Effluent Limitations for copper and silver allow the City of Davis to continue to discharge toxic substances and degrade the designated and confirmed aquatic life beneficial uses of the receiving waters.

2. The proposed Permit fails to include an Effluent Limitation for copper as required by Federal Regulations 40 CFR 122.44 and the permit should not be adopted in accordance with California Water Code Section 13377.

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "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 which 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." The Water Quality Standard for copper is 10.2 μg/l, using the appropriate ambient receiving water hardness of 74 mg/l. The wastewater discharge maximum observed 16 was ug/l. Clearly the discharge exceeds the water quality objective. The proposed Order fails to establish an effluent limitation for copper.

California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to

implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

3. **The proposed Permit fails to include an Effluent Limitation for silver as required by Federal Regulations 40 CFR 122.44 and the permit should not be adopted in accordance with California Water Code Section 13377.**

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "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 which 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." The Water Quality Standard for silver is 2.4 μg/l, using the appropriate ambient receiving water hardness of 74 mg/l. The wastewater discharge maximum observed 4.2 was ug/l. Clearly the discharge exceeds the water quality objective. The proposed Order fails to establish an effluent limitation for silver.

California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

4. **The proposed Permit contains an Interim Effluent Limitation for electrical conductivity (EC) that is not protective of the beneficial uses of the receiving water in violation of Federal Regulations 40 CFR 122.4 (a), (d) and (g), 122.44 (d)(i), the Basin Plan and the California Water Code Section 13377.**

Outside Scope of Hearing

The proposed Permit contains an Interim Effluent Limitation of 2050 umhos/cm as an annual average. The instantaneous maximum concentration of EC is not limited and could be astronomically high.

Irrigated agriculture and freshwater aquatic life are beneficial uses of the receiving water.

The Basin Plan states, on Page III-3.00 Chemical Constituents, "Waters shall not contain constituents in concentrations that adversely affect beneficial uses." The Basin Plan's "Policy for Application of Water Quality Objectives" provides that in implementing narrative water quality objectives, the Regional Board will consider numerical criteria and guidelines developed by other agencies and organizations. This application of the Basin Plan is consistent with Federal Regulations, 40CFR 122.44(d).

For EC, *Ayers R.S. and D.W. Westcott, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29,*

Outside Scope of Hearing

Rev. 1, Rome (1985), levels above 700 μmhos/cm will reduce crop yield for sensitive plants. The University of California, Davis Campus, Agricultural Extension Service, published a paper, dated 7 January 1974, stating that there will not be problems to crops associated with salt if the EC remains below 750 μmhos/cm. A recent (May 2007) memorandum from Mr. Mark Gowdy, Regional Board staff specializing in salinity issues, to Ms. Diana Messina, NPDES Permitting Section, concluded that a study by the City of Woodland of Site Specific Objectives (SSO) for EC levels in the Yolo Bypass: "is based on assumptions that are not appropriate for developing EC SSO for the Tule Canal and downstream waterbodies." This Regional Board staff memorandum further cites the *Ayers R.S. and D.W. Westcott – Irrigation and Drainage Paper No. 29* as "the basis for Basin Plan EC water quality objectives that provide protection of agricultural supply (AGR) beneficial uses at numerous locations in the region." The City of Woodland discharges wastewater into the Yolo Bypass upstream of the City of Davis and the site-specific study is relevant to the Davis wastewater discharge. Ultimately recent site specific studies confirm the Findings of the *Ayers R.S. and D.W. Westcott* report that irrigation waters with EC levels above 700 μmhos/cm will reduce crop yield for sensitive plants.

In a *Biological Significance* document, dated November 1st 2006, James M. Harrington, Staff Water Quality Biologist with the California Department of Fish and Game, citing McKee and Wolf (1971 Water Quality Criteria) wrote that: "Surveys of inland fresh waters indicates that good mixes of fish fauna are found where conductivity values range between 150 and 500 umhos/cm. Even in the most alkaline waters, the upper tolerance limit for aquatic life is approximately 2000 umhos/cm."

The proposed Permit Interim Effluent Limitation for EC of 2050 umhos/cm as an annual average exceeds the recommended levels necessary to protect beneficial uses of irrigated agriculture (700 umhos/cm) and the upper tolerance limit for aquatic life (2000 umhos/cm). The City's wastewater discharge increases concentrations of EC to unacceptable concentrations adversely affecting the agricultural and aquatic life beneficial use.

Federal Regulation, 40 CFR 122.4 (a), (d) and (g) require that no permit may be issued when the conditions of the permit do not provide for compliance with the applicable requirements of the CWA, or regulations promulgated under the CWA, when imposition of conditions cannot ensure compliance with applicable water quality requirements and for any discharge inconsistent with a plan or plan amendment approved under Section 208(b) of the CWA. The proposed Permit Effluent Limitation for EC is inconsistent with the Basin Plan Requirement that "Waters shall not contain constituents in concentrations that adversely affect beneficial uses."

California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary,

Outside Scope of Hearing

thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance." The proposed Permit Interim Effluent Limitation for EC of 2050 umhos/cm as an annual average exceeds the recommended levels necessary to protect beneficial uses of irrigated agriculture (700 umhos/cm) and the upper tolerance limit for aquatic life (2000 umhos/cm).

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "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 which 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." The proposed Permit Interim Effluent Limitation for EC of 2050 umhos/cm as an annual average exceeds the recommended levels necessary to protect beneficial uses of irrigated agriculture (700 umhos/cm) and the upper tolerance limit for aquatic life (2000 umhos/cm) exceeding the Basin Plan Chemical Constituents water quality standard, that "Waters shall not contain constituents in concentrations that adversely affect beneficial uses." The Basin Plan's "Policy for Application of Water Quality Objectives" provides that in implementing narrative water quality objectives, the Regional Board will consider numerical criteria and guidelines developed by other agencies and organizations, which are cited above.

5. Effluent Limitations for specific conductivity (EC) is improperly regulated as an annual average contrary to Federal Regulations 40 CFR 122.45 (d)(2).

Federal Regulation 40 CFR 122.45 (d)(2) requires that permit for POTWs establish Effluent Limitations as average weekly and average monthly unless impracticable. The proposed Permit establishes Effluent Limitations for EC as an annual average contrary to the cited Federal Regulation. Establishing the Effluent Limitations for EC in accordance with the Federal Regulation is not impracticable; to the contrary the Central Valley Regional Board has a long history of having done so. Proof of impracticability is properly a steep slope and the Regional Board has not presented any evidence that properly and legally limiting EC is impracticable.

6. 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 contrary to CWC 13267.

Current Waste Discharge Requirements, Order No. 5-01-067, included a requirement that the City of Davis complete the required study regarding the impacts of salinity. The University of California at Davis and the City of Woodland, two nearby domestic wastewater dischargers, have completed similar studies. The City of Woodland discharges into the Yolo Bypass just upstream of the City of Davis and the completed study has been submitted to and reviewed by Regional Board staff. As cited above, a recent (May 2007) memorandum from Mr. Mark Gowdy, Regional Board staff specializing in salinity issues, to Ms. Diana Messina, NPDES Permitting Section,

concluded that a study by the City of Woodland of Site Specific Objectives (SSO) for EC levels in the Yolo Bypass: "is based on assumptions that are not appropriate for developing EC SSO for the Tule Canal and downstream waterbodies." This Regional Board staff memorandum further cites the *Ayers R.S. and D.W. Westcott – Irrigation and Drainage Paper No. 29* as "the basis for Basin Plan EC water quality objectives that provide protection of agricultural supply (AGR) beneficial uses at numerous locations in the region." The City of Woodland discharges wastewater into the Yolo Bypass upstream of the City of Davis and the site-specific study is relevant to the Davis wastewater discharge. Ultimately recent site specific studies confirm the Findings of the *Ayers R.S. and D.W. Westcott* report that irrigation waters with EC levels above 700 μmhos/cm will reduce crop yield for sensitive plants. The requirement to complete an additional study, when the requested information is readily available, is a waste of resources and time and appears to be an attempt to delay the proper regulation of salinity in the City of Davis' wastewater discharge. CWC 13267 requires that the burden of technical reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the report. The information that could be gained from such a study already exists.

7. The proposed Permit allows until 1 September 2015 for the City of Davis to comply with tertiary treatment requirements contrary to the Basin Plan.

The proposed Permit, Final Effluent Limitations (i) allows until 1 September 2015 for the City of Davis to comply with tertiary treatment requirements contrary to the Basin Plan, *Policy for Application of Water Quality Objectives* (Policy WQO), page IV-17.00. The Basin Plan, Policy WQO, allows that where the Regional Board determines it is infeasible to achieve immediate compliance with water quality objectives; the Regional Board may establish a schedule of compliance in an NPDES permit. The Basin Plan requires that a compliance schedule be as short as practicable and shall not exceed ten years from the date of adoption of the criteria. 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.

There is no evidence, other than unsubstantiated, unsupported, undocumented conclusory statements in the proposed Permit that the proposed compliance schedule is as short as practicable. To the contrary, the City of Davis has apparently squandered the period from 2001 to the present and has not accomplished any meaningful movement toward achieving tertiary treatment and protection of beneficial uses of the receiving stream. Other local surrounding wastewater treatment systems, the City of Woodland and the University of California at Davis already provide tertiary treatment. The Central Valley Regional Board has a long established successful practice of requiring tertiary treatment systems be completed within the life cycle of an NPDES permit (5-years). There is no explanation why the City of Davis cannot meet the standards that have been applied consistently and successfully throughout the Region. The proposed compliance schedule fails the Basin Plan's required tests that compliance be achieved within 10-years and the schedule is as short as practicable.

8. The proposed Permit, Fact Sheet, Hardness Discussion, inappropriately eliminates hardness data contrary to the CWC, Section 13377.

The proposed Permit, Fact Sheet, Hardness discussion states that low hardness data points were not used because they do not correspond to low flow periods. One would expect the low hardness periods to occur when the Yolo Bypass is flooded with Sacramento River water, periods of very high flow rates. This period has not been assessed for assimilative capacity for pollutants of concern and the low hardness data during this period is relevant to the toxicity of hardness dependent toxic metals. Failure to use this hardness data will result in artificially high Effluent Limitations for hardness dependent metals resulting in additional toxic discharges from the City of Davis contrary to the CWC, Section 13377. California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

9. The proposed Permit fails to contain an Effluent Limitation for bis(2-ethylhexyl)phthalate despite a clear reasonable potential to exceed waste quality standards in violation of Federal Regulations 40 CFR 122.44.

Outside Scope of Hearing

Bis(2-ethylhexyl)phthalate exceeds water quality standards in the receiving stream at 6.0 μg/l, above the CTR Water Quality Standard of 5.9 μg/l. Bis(2-ethylhexyl)phthalate has been detected in the wastewater effluent at 59 μg/l, also above the CTR Water Quality Standard. The proposed Permit Fact Sheet states that the receiving water sampling data for bis(2-ethylhexyl)phthalate is subject to error and is being discarded without any supporting documentation from the laboratory quality assurance/quality control (QA/QC) documents. The City of Davis could have easily tested plastic tubing, collected travel blanks and undertaken measures to avoid errors and did not do so. The Regional Board total disregards scientific methods, specifically sampling and laboratory QA/QC methodologies, in throwing out data points that would lead to a reasonable potential for a pollutant to exceed water quality standards when the burden should properly be placed on wastewater Dischargers to conduct proper sampling and analysis. The California Water Code (CWC), Section 13377 states in part that: "...the state board or the regional boards shall...issue waste discharge requirements...which apply and ensure compliance with ...water quality control plans, or for the protection of beneficial uses..." Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Failure to include an effluent limitation for bis(2-ethylhexyl)phthalate in the proposed permit violates 40 CFR 122.44 and CWC 13377.

10. The proposed Permit fails to include an Effluent for Manganese as required by Federal Regulations 40 CFR 122.44 and the permit should not be adopted in accordance with California Water Code Section 13377.

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "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 which 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." The Water Quality Standard for the protection of irrigated agriculture (Westcott and Ayers) and human health (US EPA Ambient water quality criteria (consumption of aquatic organisms)) for the manganese is 100 μg/l and 200μg/l, respectively. The wastewater discharge maximum observed 740 was ug/l. Clearly the discharge exceeds the water quality objective. The proposed Order fails to establish an effluent limitation for manganese.

California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

11. The proposed Permit fails to include an Effluent for Boron as required by Federal Regulations 40 CFR 122.44 and the permit should not be adopted in accordance with California Water Code Section 13377.

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "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 which 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." The Water Quality Standard for the protection of irrigated agriculture for boron is 700 μg/l. The wastewater discharge maximum observed 1800 was ug/l. Clearly the discharge exceeds the water quality objective. The proposed Order fails to establish an effluent limitation for boron.

California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to

implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

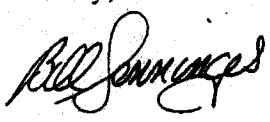
12. The proposed Permit fails to include an Effluent for dioxin and congeners as required by Federal Regulations 40 CFR 122.44 and the permit should not be adopted in accordance with California Water Code Section 13377.

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "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 which 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." The CTR criterion for Human health protection for consumption of aquatic organisms only is 0.014 pg/l for 2,3,7,8-tetrachlorodibenzo-p-dioxin. There are many congeners of chlorinated dibenzodioxins that exhibit toxic effects similar to those of 2,3,7,8-TCDD, including 2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-HpCDD). USEPA toxic equivalency factors (TEFs) express the relative toxicities of the congeners compared to 2,3,7,8-TCDD to allow these congeners to be compared to the criterion for 2,3,7,8-TCDD. As shown in the SIP, the TEF for 1,2,3,4,6,7,8- HpCDD is 0.01. The observed maximum concentration in Discharge 001 for 1,2,3,4,6,7,8-HpCDD was 13.8 pg/l, based on six samples collected between May 2002 and May 2005. The observed maximum concentration in Discharge 002 for 1,2,3,4,6,7,8-HpCDD was 3.80 pg/l, based on seven samples collected between May 2002 and May 2005. Multiplying by the TEF of 0.01, the relative toxicity of 1,2,3,4,6,7,8-HpCDD is 0.138 pg/l in Discharge 001 and 0.0380 pg/l in Discharge 002, both of which are above the CTR criterion of 0.014 pg/l. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for dioxin and congeners.

California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

Thank you for considering these comments. If you have questions or require clarification, please don't hesitate to contact us.

Sincerely,



Bill Jennings, Executive Director
California Sportfishing Protection Alliance