



California Sportfishing Protection Alliance

"An Advocate for Fisheries, Habitat and Water Quality"

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19 May 2007

Dr. Karl Longley, Chairman
Ms. Pamela Creedon, Executive Officer
Mr. Kenneth Landau, Assistant Executive Officer
Mr. Jim Pedri, Principle WRCE
Mr. Bryan J. Smith, Senior WRCE
Ms. Stacy Gotham, WRC Engr.
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: Waste Discharge Requirements (NPDES No. CA0082589) and Cease and Desist Order for City of Redding, Stillwater Wastewater Treatment Facility, Shasta County

Dear Messrs. Longley, Landau, Pedri, Smith and Mesdames Creedon and Gotham:

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

CSPA requests status as a designated party for this proceeding. CSPA is a 501(c)(3) public benefit conservation and research organization established in 1983 for the purpose of conserving, restoring, and enhancing the state's water quality and fishery resources and their aquatic ecosystems and associated riparian habitats. CSPA has actively promoted the protection of water quality and fisheries throughout California before state and federal agencies, the State Legislature and Congress and regularly participates in administrative and judicial proceedings on behalf of its members to protect, enhance, and restore California's degraded surface and ground waters and associated fisheries. CSPA members reside, boat, fish and recreate in and along waterways throughout the Central Valley, including Shasta County.

- 1. The proposed Permit contains numeric Effluent Limitations for alpha BHC, beta BHC and gamma BHC contrary to the Basin Plan water quality objective of "non-detectable" in violation of Federal Regulations 40 CFR 122.44 and California Water Code (CWC) Section 13377.**

The proposed Permit, Table 6, contains numeric Effluent Limitations for alpha BHC, beta BHC and gamma BHC contrary to the water quality control plan (Basin Plan) water quality objective of non-detectable. The Basin Plan prohibits total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer. 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 of non-detectable for alpha BHC, beta BHC and gamma BHC in the proposed permit violates 40 CFR 122.44 and CWC 13377.

- 2. The proposed Permit utilized mixing zones to develop limitations for copper, zinc, cyanide chlorodibromomethane and dichlorobromomethane without having conducted a mixing zone analysis as required by the Basin Plan and the SIP and the proposed limitations may therefore exceed water quality standards in violation of Federal Regulations 40 CFR 122.44 and CWC Section 13377.**

The proposed Permit utilized mixing zones to develop limitations for copper, zinc, cyanide chlorodibromomethane and dichlorobromomethane. The proposed Permit, Fact Sheet page F-7, states that the Discharger in attempting to conduct a mixing zone study found that all of the diffuser ports, except one, were plugged. There was no mixing zone study and with only one port operational the discharge is not likely to be completely mixed in the receiving stream.

The Basin Plan, page IV-16.00, requires the Regional Board use EPA's *Technical Support Document for Water Quality Based Toxics Control (TSD)*. The TSD, page 70, defines a first stage of mixing, close to the point of discharge, where complete mixing is determined by the momentum and buoyancy of the discharge. Obviously the wastewater discharge here is not completely mixed in the first stage. The second stage is defined by the TSD where the initial momentum and buoyancy of the discharge are diminished and waste is mixed by ambient turbulence. The TSD goes on to state that in large rivers this second stage mixing may extend for miles. There are drinking water intakes, and proposed intakes, downstream of the wastewater discharge which could be impacted prior to the pollutants from the discharge are completely mixed. The TSD, Section 4.4, requires that if complete mix does not occur in a short distance mixing zone monitoring and modeling must be undertaken.

The extensive SIP, Section 1.4.2.2, requirements for a mixing zone study apply here and must be analyzed before a mixing zone is allowed for this discharge. The proposed Effluent Limitations in the proposed Permit are not supported by the scientific investigation that is required by the SIP and the Basin Plan.

SIP Section 1.4.2.2 requires that a mixing zone shall not:

1. Compromise the integrity of the entire waterbody.
2. Cause acutely toxic conditions to aquatic life.
3. Restrict the passage of aquatic life.
4. Adversely impact biologically sensitive habitats.
5. Produce undesirable aquatic life.
6. Result in floating debris.
7. Produce objectionable color, odor, taste or turbidity.
8. Cause objectionable bottom deposits.
9. Cause Nuisance.
10. Dominate the receiving water body or overlap a different mixing zone.
11. Be allowed at or near any drinking water intake.

The proposed Permit's mixing zones have not addressed a single required item of the SIP. To the contrary the Sacramento River is already 303d listed as impaired for copper and zinc and the permit appears to indicate that a domestic or municipal water intake may be nearby downstream. A very clear unaddressed requirement (SIP Section 1.4.2.2) for mixing zones is that the point(s) in the receiving stream where the applicable criteria must be met shall be specified in the proposed Permit. The "edge of the mixing zone" has not been defined.

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 "end of pipe" effluent limitations, since a mixing zone analysis was not conducted, violates 40 CFR 122.44 and CWC 13377.

3. The proposed Permit does not contain mass based Effluent Limitations contrary to Federal Regulations and technical advise from EPA.

Section 5.7.1 of U.S. EPA's *Technical Support Document for Water Quality Based Toxics Control* (TSD, EPA/505/2-90-001) states with regard to mass-based Effluent Limits:

"Mass-based effluent limits are required by NPDES regulations at 40 CFR 122.45(f). The regulation requires that all pollutants limited in NPDES permits have limits, standards, or prohibitions expressed in terms of mass with three exceptions, including one for pollutants that cannot be expressed appropriately by mass. Examples of such pollutants are pH, temperature, radiation, and whole effluent toxicity. Mass limitations in terms of pounds per day or kilograms per day can be calculated for all chemical-specific toxics such as chlorine or chromium. Mass-based limits

should be calculated using concentration limits at critical flows. For example, a permit limit of 10 mg/l of cadmium discharged at an average rate of 1 million gallons per day also would contain a limit of 38 kilograms/day of cadmium.

Mass based limits are particularly important for control of bioconcentratable pollutants. Concentration based limits will not adequately control discharges of these pollutants if the effluent concentrations are below detection levels. For these pollutants, controlling mass loadings to the receiving water is critical for preventing adverse environmental impacts.

However, mass-based effluent limits alone may not assure attainment of water quality standards in waters with low dilution. In these waters, the quantity of effluent discharged has a strong effect on the instream dilution and therefore upon the RWC. At the extreme case of a stream that is 100 percent effluent, it is the effluent concentration rather than the mass discharge that dictates the instream concentration. Therefore, EPA recommends that permit limits on both mass and concentration be specified for effluents discharging into waters with less than 100 fold dilution to ensure attainment of water quality standards.”

Federal Regulations, 40 CFR 122.45 (f), states the following with regard to mass limitations:

- “(1) all pollutants limited in permits shall have limitations, standards, or prohibitions expressed in terms of mass except:
 - (i) For pH, temperature, radiation or other pollutants which cannot be expressed by mass;
 - (ii) When applicable standards and limitations are expressed in terms of other units of measurement; or
 - (iii) If in establishing permit limitations on a case-by-case basis under 125.3, limitations expressed in terms of mass are infeasible because the mass of the pollutant discharged cannot be related to a measure of operation (for example, discharges of TSS from certain mining operations), and permit conditions ensure that dilution will not be used as a substitute for treatment.

- (2) Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations.”

Federal Regulations, 40 CFR 122.45 (B)(1), states the following: “In the case of POTWs, permit effluent limitations, standards, or prohibitions shall be calculated based on design flow.”

Traditional wastewater treatment plant design utilizes average dry weather flow rates for organic, individual constituent, loading rates and peak wet weather flow rates for hydraulic design of pipes, weir overflow rates, and pumps.

Increased wet weather flow rates are typically caused by inflow and infiltration (I/I) into the sewer collection system that dilutes constituent loading rates and does not add to the mass of wastewater constituents.

For POTWs priority pollutants, such as metals, have traditionally been reduced by the reduction of solids from the wastestream, incidental to treatment for organic material. Following adoption of the CTR, compliance with priority pollutants is of critical importance and systems will need to begin utilizing loading rates of individual constituents in the WWTP design process. It is highly likely that the principal design parameters for individual priority pollutant removal will be based on mass, making mass based Effluent Limitations critically important to compliance. The inclusion of mass limitations will be of increasing importance to achieving compliance with requirements for individual pollutants.

As systems begin to design to comply with priority pollutants, the design systems for POTWs will be more sensitive to similar restrictions as industrial dischargers currently face where production rates (mass loadings) are critical components of treatment system design and compliance. Currently, Industrial Pretreatment Program local limits are frequently based on mass. Failure to include mass limitations would allow industries to discharge mass loads of individual pollutants during periods of wet weather when a dilute concentration was otherwise observed, upsetting treatment processes, causing effluent limitation processes, sludge disposal issues, or problems in the collection system.

TMDLs represent a mass loading that may occur over a given time period to attain and maintain water quality standards. Mass loadings from WWTPs are critical to determining individual discharger allocations once a TMDL has been completed.

Mixing zone allowances will increase the mass loadings of a pollutant to a waterbody and decrease treatment requirements. Accurate mass loadings are critical to mixing zone determinations.

In addition to the above citations, on June 26th 2006 U.S. EPA, Mr. Douglas Eberhardt, Chief of the CWA Standards and Permits Office, sent a letter to Dave Carlson at the Central Valley Regional Water Quality Control Board strongly recommending that NPDES permit effluent limitations be expressed in terms of mass as well as concentration.

- 4. The proposed Permit contains an Effluent Limitation for acute toxicity that allows mortality that exceeds the Basin Plan water quality objective and does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i).**

Federal regulations, at 40 CFR 122.44 (d)(1)(i), require that limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The Water Quality Control Plan for the Sacramento/ San Joaquin River Basins (Basin Plan), Water Quality Objectives (Page III-8.00) for Toxicity is a narrative criteria which states that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This section of the Basin Plan further states, in part that, compliance with this objective will be determined by analysis of indicator organisms.

The Tentative Permit requires that the Discharger conduct acute toxicity tests and states that compliance with the toxicity objective will be determined by analysis of indicator organisms. However, the Tentative Permit contains a discharge limitation that allows 30% mortality (70% survival) of fish species in any given toxicity test.

The Regional Board has looked hard and long to find some citation as to the source of the limitation that would allow or recommend 10% and 30% mortality, such a find however does not eliminate the more restrictive applicable Basin Plan objective that simply prohibits the discharge from causing mortality in the receiving stream.

For an ephemeral or low flow stream, such as the case here, allowing 30% mortality in acute toxicity tests allows that same level of mortality in the receiving stream, in violation of federal regulations and contributes to exceedance of the Basin Plan's narrative water quality objective for toxicity. Accordingly, the proposed Permit must be revised to prohibit acute toxicity in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i).

5. The proposed Permit does not contain Effluent Limitations for chronic toxicity and therefore does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i) and the SIP.

Proposed Permit states that: “On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.” The SIP, Section 4, Toxicity Control Provisions, Water Quality-Based Toxicity Control, states that: “A chronic

toxicity effluent limitation is required in permits for all dischargers that will cause, have a reasonable potential to cause, or contribute to chronic toxicity in receiving waters.”

Federal regulations, at 40 CFR 122.44 (d)(1)(i), require that limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, or contribute to an excursion above any State water quality standard, including state narrative criteria for water quality. The Water Quality Control Plan for the Sacramento/ San Joaquin River Basins (Basin Plan), Water Quality Objectives (Page III-8.00) for Toxicity is a narrative criteria which states that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. The Proposed Permit states that: “...to ensure compliance with the Basin Plan’s narrative toxicity objective, the discharger is required to conduct whole effluent toxicity testing...”. However, sampling does not equate with or ensure compliance. The Tentative Permit requires the Discharger to conduct an investigation of the possible sources of toxicity if a threshold is exceeded. This language is not a limitation and essentially eviscerates the Regional Board’s authority, and the authority granted to third parties under the Clean Water Act, to find the Discharger in violation for discharging chronically toxic constituents. An effluent limitation for chronic toxicity must be included in the Order. In addition, the Chronic Toxicity Testing Dilution Series should bracket the actual dilution at the time of discharge, not use default values that are not relevant to the discharge.

Proposed Permit is quite simply wrong; by failing to include effluent limitations prohibiting chronic toxicity the proposed Permit does not “...implement the SIP”. The Regional Board has commented time and again that no chronic toxicity effluent limitations are being included in NPDES permit until the State Board adopts a numeric limitation. The Regional Board explanation does not excuse the proposed Permit’s failure to comply with Federal Regulations, the SIP, the Basin Plan and the CWC. The Regional Board’s Basin Plan, as cited above, already states that: “...waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses...” Accordingly, the proposed Permit must be revised to prohibit chronic toxicity (mortality and adverse sublethal impacts to aquatic life, (sublethal toxic impacts are clearly defined in EPA’s toxicity guidance manuals)) in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i) and the Basin Plan and the SIP.

6. The proposed Permit does not contain an Effluent Limitation for ammonia in violation of Federal Regulations 40 CFR 122.44 and California Water Code, Section 13377

The proposed Permit is for a domestic wastewater treatment plant. Domestic wastewater treatment plants, by their nature, receive ammonia in concentrations ranging from 30 mg/l to 60 mg/l and present a reasonable potential to exceed the Basin Plan narrative toxicity water quality objective. Ammonia is toxic to aquatic life in fairly low concentrations. The Central Valley Regional Board has a long established history of including ammonia limitations in NPDES permits based on U.S. EPA’s ambient criteria

for the protection of freshwater aquatic life, which has established BPTC for POTWs. Failure to operate a wastewater treatment plant in a nitrification mode allows ammonia concentrations to pass through the system. The nitrification process can be a fairly unstable treatment process; even POTWs that employ nitrification should be limited for ammonia to ensure the system is properly operated. 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. Where numeric water quality objectives have not been established, 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a), proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter. Failure to include an effluent limitation for ammonia in the proposed permit violates 40 CFR 122.44 and CWC 13377.

7. The proposed Permit incorrectly cites a DHS letter as stating that secondary treated sewage with an instream dilution ratio of 20-to-1 is protective of the domestic and municipal beneficial uses of the receiving stream.

The proposed Permit, Fact Sheet page F-19 No. g, incorrectly cites a April 8, 1999 DHS letter as stating that secondary treated sewage with an instream dilution ratio of 20-to-1 is protective of the domestic and municipal beneficial uses of the receiving stream. The reference to drinking water is properly excluded from a similar Finding in the Fact Sheet, page F-30 No. m. The citation regarding secondary treated sewage with an instream dilution ratio of 20-to-1 being protective of the domestic and municipal beneficial uses is incorrect and should be removed from page F-19. Actually, the Finding should be elaborated to state that DHS has commented on the Stockton and Placer County permits that tertiary treatment plus a dilution ratio of 20-to-1 is protective of the domestic and municipal beneficial uses of the receiving stream. The permit should be amended to state that the level of treatment provided at Redding is not protective of the municipal and domestic beneficial uses of the receiving stream. 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."

8. The proposed "advanced secondary" treatment system does not provide Best Practicable Treatment and Control (BPTC) of the discharge which is evidenced by the fact that the discharge cannot meet many of the proposed Effluent Limitations and the level of treatment provided at Redding is not

protective of the municipal and domestic beneficial uses of the receiving stream.

As a part of the Antidegradation Policy, Dischargers are required to provide BPTC. The Antidegradation Policy, State Water Resources Control Board Resolution No. 68-16, states that: “Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained.” The Antidegradation Policy has been incorporated into the Basin Plan. Waste Discharge Requirements must require that the treatments systems provide BPTC.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Bill Jennings". The signature is fluid and cursive, with a large initial "B" and "J".

Bill Jennings, Executive Director
California Sportfishing Protection Alliance