



## California Sportfishing Protection Alliance

*"An Advocate for Fisheries, Habitat and Water Quality"*

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14 December 2009

Mr. Ken Landau, Assistant Executive Officer

Ms. Diana Messina, Supervising WRCE

Mr. E. Cliff Raley, Sr. WRCE

Mr. Josh Palmer, WRCE

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: Tentative Order Amending Waste Discharge Requirements Order No. R5-2007-0134 (NPDES No. CA0079260) for City of Yuba City Wastewater Treatment Facility, Sutter County

Dear Messrs. Landau, Raley, Palmer and Ms. Messina;

The California Sportfishing Protection Alliance (CSPA) has reviewed the tentative order amending Waste Discharge Requirements for the Yuba City Wastewater Treatment Facility (Permit) and respectfully 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 water quality and fisheries. CSPA members reside, boat, fish and recreate in and along waterways throughout the Central Valley, including Sutter County.

- 1. The proposed Permit utilizes a Water Effects Ratio (WER) for aluminum without establishing a required Water Quality Standard in accordance with Federal Regulations 40 CFR 131.5 (a)(2) and 131.11(b).**

In 1994 US EPA issued *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals* (EPA-823-8-94-00). EPA's Interim Guidance states on page 4 that in accordance with the Clean Water Act:

“Derivation of a water-effect ratio by a State is a site specific criterion adjustment subject to EPA review and approval/disapproval under Section 303(c). There are two options by which this review can be accomplished.

Option 1: A State may derive and submit each individual water-effect ratio determination to EPA for review and approval. This would be accomplished through the normal review and revision process used by a State.

Option 2: A State can amend its water quality standards to provide a formal procedure which includes derivation of water-effect ratios, appropriate definition of sites, and enforceable monitoring provisions to assure that designated uses are protected. Both this procedure and the resulting criteria would be subject to full public participation requirements. Public review of a site-specific criterion could be accomplished in conjunction with the public review required for permit issuance. EPA would review and Approve/disapprove this protocol as a revised standard once. For public information, we recommend that once a year the State publish a list of site-specific criteria.”

An exception to this policy applies to the waters of the jurisdictions included in the California Toxics Rule ((CTR) 40 CFR 131). The EPA review is not required for WERs conducted under the CTR.

Aluminum is not a priority pollutant covered under the CTR. A WER for aluminum can only be adopted and considered as a formal *water quality standard*. States may adopt site specific criteria (water quality standards) in accordance with 40 CFR 131.11 (b). However, in accordance with 40 CFR 131.5 (a)(2), US EPA reviews standards to determine “whether a State has adopted criteria to protect the designated water use.”

Page F-104 of the proposed Permit states, in part that: “c. Water Effects Ratio (WER) and Metal Translators. As described in Section IV.C.3.g of this Fact Sheet, the Discharger submitted an Aluminum Water-Effect Ratio (WER) Work Plan, the protocols for which have been approved by the Regional Water Board. New information as described in the Fact Sheet Section IV.C.3.g were used to calculate the effluent limits” confirming use of an unapproved and un-adopted WER to develop the permit.

**2. The proposed Permit contains Effluent Limitations for aluminum that are less stringent than the existing permit and based on an illegal and unapproved water quality standard contrary to the Antbacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (I)(1).**

Effluent limitations for aluminum of 75 ug/l as a monthly average and 130 ug/l as a daily maximum have been deleted and replaced with a single daily maximum limitation of 353 ug/l.

The Regional Board has not adopted and submitted to US EPA a site-specific water quality objective for aluminum in accordance with federal regulations 40 CFR 131.5 (a)(2) and

131.11(b). The Regional Board's use of a water effects ratio (WER) for aluminum in the proposed Permit establishes an illegal water quality standard.

Pages F-36 and F-37 of the proposed Permit state that: *"The results of the Phase I WER study were available at the time Order No. R5-2007-0134 was adopted. At that time, the Regional Water Board found that the results of the Phase I WER study alone was not sufficient to discount the NAWQC chronic criterion. Since the adoption of Order No. R5-2007-0134, however, other major dischargers in the Central Valley Region have conducted Phase I and II WER studies for aluminum. Additionally, the National Recommended Water Quality Criteria: 2002 (EPA-822-R-02-047) does not support the use of the 87 ug/L criteria when receiving water pH is greater than 7.0 and hardness is greater than 10 mg/L. These additional studies had similar results to the Discharger's Phase I WER study. Therefore, based on this new information provided in these reports, the results of Yuba City's Phase I WER Study estimating aluminum toxicity above 8,000 ug/L has been deemed sufficient to discount the use of the NAWQC chronic criterion of 87 ug/L."*

Clearly the Regional Board relied on the information in the Discharger's un-adopted, unapproved WER in developing the site-specific limitation for aluminum in the proposed Permit.

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 Basin Plan contains a narrative water quality objective for toxicity that states in part that "[a]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life" (narrative toxicity objective). 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. U.S. EPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum to prevent toxicity to freshwater aquatic life. The recommended ambient criteria four-day average (chronic) and one-hour average (acute) criteria for aluminum are 87 ug/l and 750 ug/l, respectively.

US EPA's 87 ug/l chronic criterion was developed using low pH and hardness testing. California Central Valley waters, the Sacramento River, at the Valley floor, have been sampled to have hardnesses as low as 39 mg/l CaCO<sub>3</sub> by the USGS in February 1996 for the *National Water Quality Assessment Program*. Contributory streams, especially foothill streams, have also been sampled and shown to contain even lower hardness levels. US EPA recognized in their ambient criteria development document, (Ambient Water Quality Criteria for Aluminum, EPA 440/5-86-008) that the pH was in the range 6.5 to 6.6 and that the hardness was below 20 mg/l. Typical values for pH and hardness in the Central Valley alone warrant use of the chronic ambient criteria for aluminum. Despite the hardness and pH values used in the development of the criteria; U.S. EPA's conclusions in their *Ambient Criteria for the Protection of Freshwater Aquatic Life* recommends that application of the ambient criteria as necessary to be protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria.

The Regional Board and their proposed Permit cites US EPA's *Ambient Criteria for the Protection of Freshwater Aquatic Life for Aluminum* (criteria) as not being representative or necessary because the chronic criteria were based on a low hardness and low pH. The Regional Board cites one section of the criteria development document but ignores the final recommendation to use the recommended criteria absent a site-specific objective for aluminum. The Regional Board's citation of the criteria development document is incomplete its review, for example the *criteria* development document (EPA 440/5-86-008) also cites that:

169 ug/l of aluminum caused a 24% reduction in the growth of young brook trout.

174 ug/l of aluminum killed 58% of the exposed striped bass.

Bioaccumulation factors ranged from 50 to 231 for young brook trout exposed to aluminum for 15 days.

Aluminum at 169 ug/l caused a 24% reduction in the weight of young brook trout.

US EPA recommends that understanding the *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* is necessary in order to understand the text, tables and calculations of a criteria document. The Regional Board's assessment of the use of low hardness and low pH clearly shows they did not heed EPA's advice in reviewing the criteria development procedures for water quality criteria or the final recommendations.

The Regional Board clearly cites in the proposed Permit Fact Sheet (pages F-36 and 37) that instead they relied on an unapproved and incomplete WER developed by the Discharger rather than utilize US EPA's properly developed and approved water quality criteria for aluminum. A prime example of a state utilizing good water quality standards development techniques for developing a site specific standard for aluminum is the state of Indiana where a final chronic criterion of 174 ug/l was established in 1997. In 2003, Canada adopted pH dependant freshwater aquatic life criteria for aluminum that ranges from 84 ug/l to 252 ug/l. Ignoring the final recommendation of the criteria misses the protective intermediate measures to protect against mortality and reductions to growth and reproduction.

Based on information included in analytical laboratory reports submitted by the Discharger, the Fact Sheet clearly shows that aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life, and, therefore to violate the Basin Plan's narrative toxicity objective.

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." US EPA has interpreted 40 CFR 122.44(d) in *Central Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting Program* (Factsheets and Outreach Materials, 08/16/2002) that although States will likely have unique implementation policies there are certain tenets that may not be waived by State procedures. These tenets include that "where valid, reliable, and representative effluent data or instream

background data are available they MUST be used in applicable reasonable potential and limits derivation calculations. Data may not be arbitrarily discarded or ignored.” 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. A water quality standard for Failure to include an effluent limitation for aluminum in the proposed permit violates 40 CFR 122.44 and CWC 13377.

Under the Clean Water Act (CWA), point source dischargers are required to obtain federal discharge (NPDES) permits and to comply with water quality based effluent limits (WQBELs) in NPDES permits sufficient to make progress toward the achievement of water quality standards or goals. The antibacksliding and antidegradation rules clearly spell out the interest of Congress in achieving the CWA’s goal of continued progress toward eliminating all pollutant discharges. Congress clearly chose an overriding environmental interest in clean water through discharge reduction, imposition of technological controls, and adoption of a rule against relaxation of limitations once they are established.

Upon permit reissuance, modification, or renewal, a discharger may seek a relaxation of permit limitations. However, according to the CWA, relaxation of a WQBEL is permissible only if the requirements of the antibacksliding rule are met. The antibacksliding regulations prohibit EPA from reissuing NPDES permits containing interim effluent limitations, standards or conditions less stringent than the final limits contained in the previous permit, with limited exceptions. These regulations also prohibit, with some exceptions, the reissuance of permits originally based on best professional judgment (BPJ) to incorporate the effluent guidelines promulgated under CWA §304(b), which would result in limits less stringent than those in the previous BPJ-based permit. Congress statutorily ratified the general prohibition against backsliding by enacting §§402(o) and 303(d)(4) under the 1987 Amendments to the CWA. The amendments preserve present pollution control levels achieved by dischargers by prohibiting the adoption of less stringent effluent limitations than those already contained in their discharge permits, except in certain narrowly defined circumstances.

When attempting to backslide from WQBELs under either the antidegradation rule or an exception to the antibacksliding rule, relaxed permit limits must not result in a violation of applicable water quality standards. The general prohibition against backsliding found in §402(o)(1) of the Act contains several exceptions. Specifically, under §402(o)(2), a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant *if*: (A) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation; (B)(i) information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (ii) the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section; (C) a less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no

reasonably available remedy [(e.g., Acts of God)]; (D) the permittee has received a permit modification under section 1311(c), 1311(g), 1311(h), 1311(i), 1311(k), 1311(n), or 1326(a) of this title; or (E) the permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit, and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

Even if a discharger can meet either the requirements of the antidegradation rule under §303(d)(4) or one of the statutory exceptions listed in §402(o)(2), there are still limitations as to how far a permit may be allowed to backslide. Section 402(o)(3) acts as a floor to restrict the extent to which BPJ and water quality-based permit limitations may be relaxed under the antibacksliding rule. Under this subsection, even if EPA allows a permit to backslide from its previous permit requirements, EPA may never allow the reissued permit to contain effluent limitations which are less stringent than the current effluent limitation guidelines for that pollutant, or which would cause the receiving waters to violate the applicable state water quality standard adopted under the authority of §303.49.

Federal regulations 40 CFR 122.44 (l)(1) have been adopted to implement the antibacksliding requirements of the CWA:

(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under Sec. 122.62.)

(2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

(i) Exceptions--A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if:

(A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;

(B)(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);

- (C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;
  - (D) The permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or
  - (E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).
- (ii) Limitations. In no event may a permit with respect to which paragraph (l)(2) of this section applies be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result in a violation of a water quality standard under section 303 applicable to such waters.

**3. Effluent Limitations for aluminum is improperly regulated as an annual average contrary to Federal Regulations 40 CFR 122.45 (d)(2) and common sense.**

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 an Effluent Limitation for aluminum as an annual average contrary to the cited Federal Regulation. Establishing the Effluent Limitations for aluminum 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; see the existing permit. Proof of impracticability is properly a steep slope and the Regional Board has not presented any evidence that properly and legally limiting aluminum is impracticable.

**4. The proposed Permit contains an allowance for a mixing zone that does not comply with the requirements of Federal Regulation 40 CFR Section 131.12 (a)(1) and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP) or the Basin Plan.**

“A mixing zone is an area where an effluent discharge undergoes initial dilution and is extended to cover the secondary mixing in the ambient waterbody. A mixing zone is an allocated impact zone where water quality criteria can be exceeded as long as acutely toxic conditions are prevented” according to EPA’s *Technical Support Document for Water Quality-based Toxics Control* (TSD) (USEPA, 1991), (Water quality criteria must be met at the edge of a mixing zone.) Mixing zones are regions within public waters adjacent to point source discharges where pollutants are diluted and dispersed at concentrations that routinely exceed human health and aquatic life water quality standards (the maximum levels of pollutants that can be tolerated without endangering people, aquatic life, and wildlife.) Mixing zone policies allow a discharger’s point of compliance with state and federal water quality standards to be moved from the “end of the pipe” to the outer boundaries of a dilution zone. The CWA was adopted to

minimize and eventually eliminate the release of pollutants into public waters because fish were dying and people were getting sick. The CWA requires water quality standards (WQS) be met in all waters to prohibit concentrations of pollutants at levels assumed to cause harm. Since WQS criteria are routinely exceeded in mixing zones it is likely that in some locations harm is occurring. The general public is rarely aware that local waters are being degraded within these mixing zones, the location of mixing zones within a waterbody, the nature and quantities of pollutants being diluted, the effects the pollutants might be having on human health or aquatic life, or the uses that may be harmed or eliminated by the discharge. Standing waist deep at a favorite fishing hole, a fisherman has no idea that he is in the middle of a mixing zone for pathogens for a sewage discharger that has not been required to adequately treat their waste.

In 1972, backed by overwhelming public support, Congress overrode President Nixon's veto and passed the Clean Water Act. Under the CWA, states are required to classify surface waters by *uses* – the beneficial purposes provided by the waterbody. For example, a waterbody may be designated as a drinking water source, or for supporting the growth and propagation of aquatic life, or for allowing contact recreation, or as a water source for industrial activities, or all of the above. States must then adopt *criteria* – numeric and narrative limits on pollution, sufficient to protect the uses assigned to the waterbody. *Uses + Criteria = Water Quality Standards (WQS)*. WQS are regulations adopted by each state to protect the waters under their jurisdiction. If a waterbody is classified for more than one use, the applicable WQS are the criteria that would protect the most sensitive use.

All wastewater dischargers to surface waters must apply for and receive a permit to discharge pollutants under the National Pollutant Discharge Elimination System (NPDES.) Every NPDES permit is required to list every pollutant the discharger anticipates will be released, and establish effluent limits for these pollutants to ensure the discharger will achieve WQS. NPDES permits also delineate relevant control measures, waste management procedures, and monitoring and reporting schedules.

It is during the process of assigning effluent limits in NPDES permits that variances such as mixing zones alter the permit limits for pollutants by multiplying the scientifically derived water quality criteria by dilution factors. The question of whether mixing zones are legal has never been argued in federal court.

Mixing zones are never mentioned or sanctioned in the CWA. To the contrary, the CWA appears to speak against such a notion:

“whenever...the discharges of pollutants from a point source...would interfere with the attainment or maintenance of that water quality...which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water, effluent limitations...shall be established which can reasonably be expected to contribute to the attainment or maintenance of such water quality.”

A plain reading of the above paragraph calls for the application of effluent limitations whenever necessary to assure that *WQS will be met in all waters*. Despite the language of the Clean Water Act; US EPA adopted 40 CFR 131.13, General policies, that allows States to, at their discretion, include in their State standards, policies generally affecting their application and implementation, such as mixing zones, low flows and variances. According to EPA, (EPA, Policy and Guidance on Mixing Zones, 63 Fed Reg. 36,788 (July 7, 1998)) as long as mixing zones do not eliminate beneficial uses in the whole waterbody, they do not violate federal regulation or law. California has mixing zone policies included in individual Water Quality Control Plans (Basin Plans) and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (2005) permitting pollutants to be diluted before being measured for compliance with the state's WQS.

Federal Antidegradation regulations at 40 CFR 131.12 require that states protect waters at their present level of quality and that all beneficial uses remain protected. The corresponding State Antidegradation Policy, Resolution 68-16, requires that any degradation of water quality not unreasonably affect present and anticipated beneficial uses. Resolution 68-16 further requires that: "Any activity which produces or may produce or increase 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."

- Pollution is defined in the California Water Code as an alteration of water quality to a degree which unreasonably affects beneficial uses. In California, Water Quality Control Plans (Basin Plans) contain water quality standards and objectives which are necessary to protect beneficial uses. The Basin Plan for California's Central Valley Regional Water Board states that: "According to Section 13050 of the California Water Code, Basin Plans consist of a designation or establishment for the waters within a specified area of beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives. State law also requires that Basin Plans conform to the policies set forth in the Water Code beginning with Section 13000 and any state policy for water quality control. Since beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards, the Basin Plans are regulatory references for meeting the state and federal requirements for water quality control (40 CFR 131.20)."
- Nuisance is defined in the California Water Code as anything which is injurious to health, indecent, offensive or an obstruction of the free use of property which affects an entire community and occurs as a result of the treatment or disposal of waste.

The Antidegradation Policy (Resolution 68-16) allows water quality to be lowered as long as beneficial uses are protected (pollution or nuisance will not occur), best practicable treatment and

control (BPTC) of the discharge is provided, and the degradation is in the best interest of the people of California. Water quality objectives were developed as the maximum concentration of a pollutant necessary to protect beneficial uses and levels above this concentration would be considered pollution. The Antidegradation Policy does not allow water quality standards and objectives to be exceeded. Mixing zone are regions within public waters adjacent to point source discharges where pollutants are diluted and dispersed at concentrations that routinely exceed water quality standards.

The Antidegradation Policy (Resolution 68-16) requires that best practicable treatment or control (BPTC) of the discharge be provided. Mixing zones have been allowed in lieu of treatment to meet water quality standards at the end-of-the-pipe prior to discharge. To comply with the Antidegradation Policy, the trade of receiving water beneficial uses for lower utility rates must be in the best interest of the people of the state and must also pass the test that the Discharger is providing BPTC. By routinely permitting excessive levels of pollutants to be legally discharged, mixing zones act as an economic disincentive to Dischargers who might otherwise have to design and implement better treatment mechanisms. Although the use of mixing zones may lead to individual, short-term cost savings for the discharger, significant long-term health and economic costs may be placed on the rest of society. An assessment of BPTC, and therefore compliance with the Antidegradation Policy, must assess whether treatment of the wastestream can be accomplished, is feasible, and not simply the additional costs of compliance with water quality standards. A BPTC case can be made for the benefits of prohibiting mixing zones and requiring technologies that provide superior waste treatment and reuse of the wastestream.

EPA's Water Quality Standards Handbook states that: "It is not always necessary to meet all water quality criteria within the discharge pipe to protect the integrity of the waterbody as a whole." The primary mixing area is commonly referred to as the zone of initial dilution, or ZID. Within the ZID acute aquatic life criteria are exceeded. To satisfy the CWA prohibition against the discharge of toxic pollutants in toxic amounts, regulators assume that if the ZID is small, significant numbers of aquatic organisms will not be present in the ZID long enough to encounter acutely toxic conditions. EPA recommends that a ZID not be located in an area populated by non-motile or sessile organisms, which presumably would be unable to leave the primary mixing area in time to avoid serious contamination.

Determining the impacts and risks to an ecosystem from mixing pollutants with receiving waters at levels that exceed WQS is extremely complex. The range of effects pollutants have on different organisms and the influence those organisms have on each other further compromises the ability of regulators to assess or ensure "acceptable" short and long-term impacts from the use of mixing zones. Few if any mixing zones are examined prior to the onset of discharging for the potential effects on impacted biota (as opposed to the physical and chemical fate of pollutants in the water column). Biological modeling is especially challenging – while severely toxic discharges may produce immediately observable effects, long-term impacts to the ecosystem can be far more difficult to ascertain. The effects of a mixing zone can be insidious; impacts to species diversity and abundance may be impossible to detect until it is too late for reversal or mitigation.

The *CALIFORNIA CONSTITUTION, ARTICLE 10, WATER, SEC. 2* states that: “It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. The right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water. Riparian rights in a stream or water course attach to, but to no more than so much of the flow thereof as may be required or used consistently with this section, for the purposes for which such lands are, or may be made adaptable, in view of such reasonable and beneficial uses; provided, however, that nothing herein contained shall be construed as depriving any riparian owner of the reasonable use of water of the stream to which the owner's land is riparian under reasonable methods of diversion and use, or as depriving any appropriator of water to which the appropriator is lawfully entitled. This section shall be self-executing, and the Legislature may also enact laws in the furtherance of the policy in this section contained.” The granting of a mixing zone is an unreasonable use of water when proper treatment of the wastestream can be accomplished to meet end-of-pipe limitations. Also contrary to the California Constitution, a mixing zone does not *serve the beneficial use*; to the contrary, beneficial uses are degraded within the mixing zone.

The State’s *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California (SIP)*, Section 1.4.2.2, contains requirements for a mixing zone study which must be analyzed before a mixing zone is allowed for a wastewater discharge. Properly adopted state Policy requirements are not optional. 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.

With regard to SIP requirement No. 1 that a mixing zone shall not compromise the integrity of the entire waterbody, the proposed Permit, page F-29 and Figure F-1, states that: “*At the 1Q10 flowrates of 1,000 cfs, the zone of initial dilution is within 8.0 feet of the diffuser based on the*

*initial mixing of the effluent with the receiving water created by the discharge momentum. In Figure F-1, the mixing zone for acute criteria is within the thickness of the line denoting the location of the diffuser. The mixing zone for chronic criteria extends from the diffuser to the lip of Shanghai Falls, denoted on Figure F-1 as a lightly shaded area. After the initial mixing created in most part by the discharge momentum, the mixing is much slower, thus requiring approximately 152 feet to be further diluted from 11:1 to 12:1. The mixing zone for human health criteria extends 1,200 feet which is two river widths downstream where the effluent has been demonstrated to be completely mixed.”* Figure F-1 shows that all Feather River flow travels through a constriction at Shanghai Falls. Shanghai Falls is a part of the designated mixing zone. Review of Figure F-1 shows that for the chronic and human health mixing zones the mixing zone comprises the width of the river.

SIP requirement No. 2 states that a mixing zone shall not cause acutely toxic conditions to aquatic life. U.S. EPA’s *Ambient Criteria for the Protection of Freshwater Aquatic Life* is the basis for water quality standards in the California Toxics Rule (40 CFR 131.38). The *Ambient Criteria* and the California Toxics Rule aquatic life based water quality standards are presented as one-hour and 4-day concentrations. The footnotes to 40 CFR 131.38 (b)(1) clearly state that for aquatic life the criteria maximum concentrations equals the maximum concentration of a pollutant to which aquatic life can be exposed for a short period of time without deleterious effects. It therefore follows that in designing and allowing a mixing zone aquatic life must move through waters containing elevated concentrations of pollutants in less than one hour to avoid acutely toxic conditions and in less than four days to avoid chronically toxic conditions. This mixing zone theory of travel times and toxicity is specified in US EPA’s *Technical Support Document for Water Quality Based Toxics Control* (TSD). The Basin Plan requires that in determining the size of a mixing zone, the Regional Board will consider the applicable procedures in EPA’s *Water Quality Standards Handbook* (WQSH) and the TSD.

The TSD, page 71 section 4.3.3, presents four methods for determining whether an allowance of an acute mixing zone would cause toxicity to passing aquatic organisms. The 4- alternative methods prescribed by the TSD for determining the toxicity to passing organisms are as follows:

1. Establish end of pipe limits at the criterion maximum concentration (CMC). This method does not allow for dilution.
2. Design the discharge for initial high velocity, greater than 3 m/s, with a mixing zone length no larger than 50-times the discharge length. (The discharge length equals the square root of a discharge port). The City’s wastewater diffuser does not qualify as high velocity and according to the City’s report the high velocity would cause erosion of the riverbed.
3. Show that the most restrictive of the following is met for each outfall:
  - The CMC is met within 10% of the distance from the edge of the outfall structure to the edge of the regulatory mixing zone in any spatial direction.

The City’s report assumes this distance to be 10% of 2.5 river widths

downstream (10% of 1,176 feet = 117 feet). As cited above, the most restrictive and realistic river width is approximately 80 feet. This results in  $2.5(80)(0.10) = 20$  feet.

- The CMC is met within a distance of 50-times the discharge length scale in any spatial direction.

The diffuser consists of 3-inch circular ports. The length scale is calculated by the City to be 0.222 feet. Fifty times the length scale is 11.1 feet.

- The CMC is met within a distance of 5-times the local water depth in any horizontal direction from any discharge outlet.

The critical water depth, of 0.82 feet, was calculated by the City using CORMIX, for which a 1Q10 flow rate of 1,060 cfs was used. Five times the local water depth is 4.1 feet, the critical distance.

4. Show that a drifting organism would not be exposed to 1-hour average concentrations exceeding the CMC. *Critical flow conditions should be replicated.* The TSD cites the Water Quality Criteria for the following equation to determine the time of exposure for aquatic organisms:

$\sum [T(n)/ET(x) \text{ at } C(n)] \leq 1$ , where T(n) is the exposure time an organism is in isopleth n, and ET(x) is the effect time.

The TSD recommends, on page 72, that the 4<sup>th</sup> alternative be evaluated using field tracer studies, or detailed analytical studies such as modeling estimations of concentration or dilution isopleths. The City's report on page 8/18 shows calculations for velocity of the effluent and receiving stream.

The City utilized the surface water velocity of the Feather River and states that this is the time it will take for an aquatic organism to drift through the mixing zone. The City's dilution report incorrectly assumes that the river velocity is the "drift" time for an aquatic organism to travel through the mixing zone. Even if aquatic life always traveled at the same speed as the river, that would only account for downstream migration. To the contrary, it is well documented in the record that aquatic life may spend very long periods of time in the pools above and below the instream waterfall, which establishes the area of the mixing zone. The Fact Sheet to Order No. R5-2006-0096, the NPDES permit for the Linda County Water District (LCWD) Wastewater Treatment Plant (WWTP), which lies directly across the river from Yuba City, included the following:

"The Discharger discharges treated wastewater to the Feather River at Shanghai Bend just upstream of Shanghai Falls. The *Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule*, (50 CFR Part 226.211), issued on 2 September 2005

and effective on 2 January 2006, designates the lower Feather River below Oroville Dam as critical habitat for Central Valley spring-run Chinook and Central Valley steelhead.

Regional Water Board staff consulted with the California Department of Fish and Game (DFG) regarding the fishery at Shanghai Bend and Shanghai Falls in the Feather River. A 17 November 2005 letter from DFG stated:

The Feather River in this area supports fall-, late fall-, and spring-run Chinook salmon, steelhead trout, striped bass, American shad and a variety of other game and non-game species. Spring-run Chinook salmon are federal and state listed threatened species and steelhead trout is a federal listed threatened species.

Because of the river configuration at Shanghai Bend, adult anadromous fish including fall-, late fall- and spring-run Chinook salmon, steelhead trout, striped bass, and American shad often congregate immediately below Shanghai Bend for extended durations during their upstream migration. During lower flow periods the problem is exasperated, and in fact some species (American shad and striped bass) appear to be essentially blocked (DFG unpublished data) immediately below Shanghai Bend.

Additionally, juveniles (including listed federal and state species) use the area for rearing and migration. The entire instream production of salmonids (fall-, late fall- and spring-run Chinook salmon, and steelhead trout) in the Feather River and Yuba River must pass Shanghai Bend. The Yuba River is basically the last large river in the Central Valley that is maintained solely by natural in-stream production of salmon and steelhead trout, and is essentially the only wild steelhead fishery remaining in the Central Valley.

Because of the extended periods that juvenile and adult fish spend in the Feather River at Shanghai Bend, they would be subject to extended exposure to any discharges. It is likely that such exposure will ultimately result in decrease population viability and survival of salmonids and other species, including federal and state listed species. We would recommend that because of the anadromous species (in particular listed species present) and the potential for extended exposure to the proposed discharge, that the allowance of a mixing zone is not appropriate.”

On 29 March 2005, DFG staff responded via email, in summary that: fish, specifically American Chad, Striped Bass, Chinook Salmon and Green Sturgeon are impacted by Shanghai Falls and tend to “hold a bit below the falls” and may remain below the falls for longer periods, particularly during low water years, thereby increasing exposure times, and that DFG would never support a project that discharges acutely toxic materials to a waterway that will likely soon be designated as critical habitat.

In June of 2003, the California Department of Water Resources (DWR) prepared a draft report *Juvenile Fishes of the Lower Feather River: Distribution, Emigration Patterns,*

*and Association with Environmental Variables* which states in the introduction that “The Feather River is significant because it is the largest tributary to the Sacramento River system, is home to two federally listed endangered species (Central Valley spring-run Chinook salmon and Central Valley steelhead *Orcorhynchus mykiss*)...”

In email communications dated 27 December 2004, when asked about the Shanghai area of the Feather River, DWR staff stated:

Adult salmon could certainly be present as early as Mid-April through the fall, although the majority will be present June-September. There is no evidence or reason for adult salmon to spend any length of time in this area. We have done some radio tracking studies in the Feather [River] recently but very few fish were monitored this low in the river. I would be potentially concerned about sturgeon adults (white and green) however. We have observed them at Shanghai in June. During low flows they may spend a large amount of time there.

Large number of juveniles will be moving through the area from January through March...

A letter dated 25 April 1973 from the Wildlife Conservation Board discusses the Shanghai Bend area of the Feather River, in part, as follows:

The affected portion of the Feather River is a well-known shad and striped bass fishing area and, in spite of the lack of public access, is heavily fished. At least ten percent of all the Feather River shad fishing occurs in the vicinity of the 108-acre Steele property. This use amounts to about 4,000 angler days per year... Other angler attractions include runs of 50 to 60 thousand adult king salmon, which pass through the Shanghai Bend area each year and fair to excellent populations of smallmouth bass and channel catfish, which attract fishermen on a year-round basis.”

Based on the available information it is reasonable to assume that fish will stay in the acute mixing zone beyond the one-hour time period prescribed by US EPA’s Ambient Criteria for the Protection of Freshwater Aquatic Life. It is also reasonable to assume, based on the information provided by DFG that fish will stay in the chronic mixing zone beyond the 4-day time period prescribed in the ambient criteria. It is therefore reasonable that the allowance of a mixing zone at this site will allow acute toxicity violating the SIP mixing zone requirements. It is also reasonable that the allowance of a mixing zone at this site will cause chronic toxicity and violation of the Basin Plan water quality objective for Toxicity that *all waters be maintained free of toxic substances in concentrations that produce detrimental physiological responses in aquatic life*. The potential of acute and chronic toxicity restricts the passage of aquatic life and will adversely impact what could be described as a biologically sensitive habitat. The allowance for a mixing zone as prescribed under the proposed Permit violates the first four requirements of the SIP.

Federal regulation 40 CFR Section 131.12 (a)(1) the Antidegradation Policy requires that: “Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.” The proposed Permit grants mixing zones above the drinking water maximum contaminant level (MCL) for human health criteria despite that municipal and domestic supply is a designated beneficial use of the receiving stream. The designated beneficial uses of drinking water and warm and cold water aquatic life are not protected within the specified reach of the stream contrary to 40 CFR 131.12.

**5. The proposed Permit Fails to Determine Reasonable Potential for Additive Toxicity within a mixing zone as required by the Basin Plan.**

The Basin Plan, at (IV-17.00), states the following:

*“Where multiple toxic pollutants exist together in water, the potential for toxicological interactions exists. On a case by case basis, the Regional Water Board will evaluate available receiving water and effluent data to determine whether there is reasonable potential for interactive toxicity. Pollutants which are carcinogens or which manifest their toxic effects on the same organ systems or through similar mechanisms will generally be considered to have potentially additive toxicity. The following formula will be used to assist the Regional Water Board in making determinations:*

$$\sum_{i=1}^n \frac{[\text{Concentration of Toxic Substance}]}{[\text{Toxicologic Limit for Substance in Water}]} < 1.0$$

*The concentration of each toxic substance is divided by its toxicologic limit. The resulting ratios are added for substances having similar toxicologic effects and, separately, for carcinogens. If such a sum of ratios is less than one, an additive toxicity problem is assumed not to exist. If the summation is equal to or greater than one, the combination of chemicals is assumed to present an unacceptable level of toxicological risk. For example, monitoring shows that ground water beneath a site has been degraded by three volatile organic chemicals, A, B, and C, in concentrations of 0.3, 0.4, and 0.04 ug/l, respectively. Toxicologic limits for these chemicals are 0.7, 3, and 0.06 ug/l, respectively. Individually, no chemical exceeds its toxicologic limit. However, an additive toxicity calculation shows:*

$$\frac{0.3}{0.7} + \frac{0.4}{3} + \frac{0.04}{0.06} = 1.2$$

*The sum of the ratios is greater than unity (>1.0); therefore the additive toxicity criterion has been violated. The concentrations of chemicals A, B, and C together present a potentially unacceptable level of toxicity.”*

***Additive Toxicity—Aquatic Toxicity from Heavy Metals***

The Order contains the following final effluent limitations for heavy metals:

Constituent	Units	AMEL <sup>1</sup>	MDEL <sup>2</sup>	CCC <sup>3,4</sup>	CMC <sup>4,5</sup>	CCC <sup>3,6</sup>	CMC <sup>3,6</sup>	MEC <sup>7</sup>
Copper <sup>8</sup>	ug/l	50	85	3.5	4.8	2.7	3.5	16 <sup>9</sup> /67 <sup>10</sup>
Lead <sup>8</sup>	ug/l		3.3	0.75	19	0.49	13	3.3 <sup>9</sup> /1.9 <sup>10</sup>
Zinc <sup>8</sup>	ug/l	661	984	46	46	34	34	110 <sup>9</sup> /120 <sup>10</sup>

Copper, lead, and zinc all act on aquatic organisms in the same fashion. Therefore, additive toxicity for these constituents must be considered.

Acute aquatic toxicity:

$$\left[ \frac{Conc_{Cu}}{CMC_{Cu}} \right] + \left[ \frac{Conc_{Pb}}{CMC_{Pb}} \right] + \left[ \frac{Conc_{Zn}}{CMC_{Zn}} \right] = \left[ \frac{4.8}{4.8} \right]_{Cu} + \left[ \frac{19}{19} \right]_{Pb} + \left[ \frac{46}{46} \right]_{Zn} = 3$$

Chronic aquatic toxicity:

$$\left[ \frac{Conc_{Cu}}{CMC_{Cu}} \right] + \left[ \frac{Conc_{Pb}}{CMC_{Pb}} \right] + \left[ \frac{Conc_{Zn}}{CMC_{Zn}} \right] = \left[ \frac{3.5}{3.5} \right]_{Cu} + \left[ \frac{0.75}{0.75} \right]_{Pb} + \left[ \frac{46}{46} \right]_{Zn} = 3$$

Order No. R5-2003-0089 found reasonable potential for cadmium, with an observed maximum effluent concentration of 6.4 ug/l for a sample collected 7 February 2002. In fact, Order No. R5-2003-0089 reported an average effluent cadmium concentration of 2.57 ug/l, based on the results of 29 sampling events. The criterion continuous concentration (CCC) for cadmium at a hardness of 32 mg/l is 1.0 ug/l, while the CCC for cadmium at a hardness of 23 mg/l is 0.78 ug/l. Cadmium concentrations in the Yuba City discharge will also contribute to additive toxicity.

Order No. R5-2003-0089 reported an observed maximum effluent total chromium concentration of 16 ug/l and an observed maximum upstream total chromium concentration of 7.2 ug/l. Chromium III is the most common valent state for chromium. Chromium III concentrations in the Yuba City discharge will also contribute to additive toxicity.

The Order reports an observed maximum effluent nickel concentration of 15 ug/l and an observed maximum upstream nickel concentration of 10 ug/l. The CCC for nickel at a hardness of 32 mg/l is 19 ug/l, while the CCC for nickel at a hardness of 23 mg/l is 15 ug/l. Nickel concentrations in the Yuba City discharge will also contribute to additive toxicity.

<sup>1</sup> Average monthly effluent limitation

<sup>2</sup> Maximum daily effluent limitation

<sup>3</sup> Criterion continuous concentration (4-day average); numeric standard that must not be exceeded beyond the edge of the constituent-specific chronic toxicity mixing zone

<sup>4</sup> Based on hardness of 32 mg/l (as CaCO<sub>3</sub>) used in Order

<sup>5</sup> Criterion maximum concentration (1-hour average); numeric standard that must not be exceeded beyond the edge of the constituent-specific acute toxicity mixing zone

<sup>6</sup> Based on hardness of 23 mg/l (as CaCO<sub>3</sub>) from 3 January 2006 (see Attachment G to tentative permit)

<sup>7</sup> Maximum effluent concentration

<sup>8</sup> Total recoverable

<sup>9</sup> From Order

<sup>10</sup> From R5-2003-0089

Order No. R5-2003-0089 reported an observed maximum effluent silver concentration of 0.35 ug/l. The maximum observed concentration was detected above the MDL of 0.12 ug/l, but below the quantification level. Silver concentrations in the Yuba City discharge will also contribute to additive toxicity.

The sum of the toxicity ratios for water in the Feather River, following complete mixing and beyond the boundary of any mixing zone, is greater than unity and, therefore, denotes an unacceptable risk of acute (lethal) aquatic toxicity within the Feather River. This alone is appalling, but the fact that Regional Board staff are proposing this for a stream designated as critical habitat and 303(d)-listed for unknown toxicity is both outrageous and unconscionable. Failure to correct the Order will likely result in a take of threatened or endangered species as a direct outcome of the additive toxicity allowed under the Order.

The Order must be revised to reduce the effluent limitations for heavy metals (i.e., cadmium, chromium III, copper, lead, nickel, silver, and zinc) to levels that, when additive toxicity for these aquatic life toxicants is considered, will not result in acute or chronic toxicity.

**6. The proposed Permit contains an inadequate antidegradation analysis that does not comply with the requirements of Section 101(a) of the Clean Water Act, Federal Regulations 40 CFR § 131.12, the State Board's Antidegradation Policy (Resolution 68-16) and California Water Code (CWC) Sections 13146 and 13247.**

The proposed permit relaxes discharge limitations and allows mixing zones for pollutants. Despite this relaxation there is no discussion of compliance with the Federal Antidegradation regulations or Board's Antidegradation Policy.

CWC Sections 13146 and 13247 require that the Board in carrying out activities which affect water quality shall comply with state policy for water quality control unless otherwise directed by statute, in which case they shall indicate to the State Board in writing their authority for not complying with such policy. The State Board has adopted the Antidegradation Policy (Resolution 68-16), which the Regional Board has incorporated into its Basin Plan. The Regional Board is required by the CWC to comply with the Antidegradation Policy.

Section 101(a) of the Clean Water Act (CWA), the basis for the antidegradation policy, states that the objective of the Act is to "restore and maintain the chemical, biological and physical integrity of the nation's waters." Section 303(d)(4) of the CWA carries this further, referring explicitly to the need for states to satisfy the antidegradation regulations at 40 CFR § 131.12 before taking action to lower water quality. These regulations (40 CFR § 131.12(a)) describe the federal antidegradation policy and dictate that states must adopt both a policy at least as stringent as the federal policy as well as implementing procedures.

California's antidegradation policy is composed of both the federal antidegradation policy and the State Board's Resolution 68-16 (State Water Resources Control Board, Water Quality Order 86-17, p. 20 (1986) ("Order 86-17"); Memorandum from Chief Counsel William Attwater, SWRCB to Regional Board Executive Officers, "federal Antidegradation Policy," pp. 2, 18 (Oct.

7, 1987) (“State Antidegradation Guidance”). As a state policy, with inclusion in the Water Quality Control Plan (Basin Plan), the antidegradation policy is binding on all of the Regional Boards (Water Quality Order 86-17, pp. 17-18).

Implementation of the state’s antidegradation policy is guided by the State Antidegradation Guidance, SWRCB Administrative Procedures Update 90-004, 2 July 1990 (“APU 90-004”) and USEPA Region IX, “Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12” (3 June 1987) (“Region IX Guidance”), as well as Water Quality Order 86-17.

The Regional Board must apply the antidegradation policy whenever it takes an action that will lower water quality (State Antidegradation Guidance, pp. 3, 5, 18, and Region IX Guidance, p. 1). Application of the policy does not depend on whether the action will actually impair beneficial uses (State Antidegradation Guidance, p. 6). Actions that trigger use of the antidegradation policy include issuance, re-issuance, and modification of NPDES and Section 404 permits and waste discharge requirements, waiver of waste discharge requirements, issuance of variances, relocation of discharges, issuance of cleanup and abatement orders, increases in discharges due to industrial production and/or municipal growth and/or other sources, exceptions from otherwise applicable water quality objectives, etc. (State Antidegradation Guidance, pp. 7-10, Region IX Guidance, pp. 2-3). Both the state and federal policies apply to point and nonpoint source pollution (State Antidegradation Guidance p. 6, Region IX Guidance, p. 4).

The State Board’s APU 90-004 specifies guidance to the Regional Boards for implementing the state and federal antidegradation policies and guidance. The guidance establishes a two-tiered process for addressing these policies and sets forth two levels of analysis: a simple analysis and a complete analysis. A simple analysis may be employed where a Regional Board determines that: 1) a reduction in water quality will be spatially localized or limited with respect to the waterbody, e.g. confined to the mixing zone; 2) a reduction in water quality is temporally limited; 3) a proposed action will produce minor effects which will not result in a significant reduction of water quality; and 4) a proposed activity has been approved in a General Plan and has been adequately subjected to the environmental and economic analysis required in an EIR. A complete antidegradation analysis is required if discharges would result in: 1) a substantial increase in mass emissions of a constituent; or 2) significant mortality, growth impairment, or reproductive impairment of resident species. Regional Boards are advised to apply stricter scrutiny to non-threshold constituents, i.e., carcinogens and other constituents that are deemed to present a risk of source magnitude at all non-zero concentrations. If a Regional Board cannot find that the above determinations can be reached, a complete analysis is required.

Even a minimal antidegradation analysis would require an examination of: 1) existing applicable water quality standards; 2) ambient conditions in receiving waters compared to standards; 3) incremental changes in constituent loading, both concentration and mass; 4) treatability; 5) best practicable treatment and control (BPTC); 6) comparison of the proposed increased loadings relative to other sources; 7) an assessment of the significance of changes in ambient water quality and 8) whether the waterbody was a ONRW. A minimal antidegradation analysis must also analyze whether: 1) such degradation is consistent with the maximum benefit to the people of the state; 2) the activity is necessary to accommodate important economic or social development in the area; 3) the highest statutory and regulatory requirements and best

management practices for pollution control are achieved; and 4) resulting water quality is adequate to protect and maintain existing beneficial uses. A BPTC technology analysis must be done on an individual constituent basis.

The antidegradation analysis in the proposed Permit is not simply deficient, it is literally nonexistent. The brief discussion of antidegradation requirements, in the Findings and Fact Sheet, consist only of skeletal, unsupported, undocumented conclusory statements totally lacking in factual analysis. NPDES permits must include any more stringent effluent limitation necessary to implement the Regional Board Basin Plan (Water Code 13377). The Tentative Permit fails to properly implement the Basin Plan's Antidegradation Policy. The discharge must be capable of achieving 100% compliance with Effluent and Receiving Water Limitations prior to allowing the new discharge.

7. **Monitoring requirements are inadequate in accordance with Federal regulations, 40 CFR §§ 122.44(i) and 122.48, which require that NPDES permits to include requirements to monitor sufficient to assure compliance with permit limitations and requirements, the mass or other measurement specified in the permit for each pollutant limited in the permit, and the volume of effluent discharged from each outfall.**

NPDES permits are required to include monitoring specifying the type, the interval, and the frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring. The frequency of monitoring is insufficient to assure compliance with Permit limitations.

The proposed permit includes numeric receiving water limitations for fecal coliform organisms, dissolved oxygen, pH, temperature, turbidity, and electrical conductivity and requires the discharge not to cause violations thereof. 40 CFR 122.41(i)(2) requires that NPDES permits include monitoring requirements to assure compliance with permit limitations for each pollutant listed in the permit. Table F-4 (p. F-12 of the Fact Sheet) of the proposed permit shows receiving water limitations for fecal coliform organisms, dissolved oxygen, pH, temperature, turbidity, and electrical conductivity and summarizes receiving water monitoring data for fecal coliform organisms, dissolved oxygen, pH, temperature, and electrical conductivity. Footnote 1 to Table F-4 states: "*Data is [sic] representative of monitoring at Monitoring Locations R-1 and R-2, however it cannot be conclusively determined that the discharge is the cause of any changes in receiving water conditions.*" The proposed permit includes receiving water monitoring requirements for fecal coliform organisms, dissolved oxygen, pH, temperature, turbidity, and electrical conductivity. The proposed permit includes effluent monitoring requirements for total coliform organisms, dissolved oxygen, pH, temperature, and electrical conductivity, but not for turbidity. To comply with federal regulations and assure that sufficient data are available to assess compliance with permit limitations for turbidity, the proposed permit must be revised to include effluent turbidity monitoring.

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 written in a cursive style with a large, prominent initial "B".

Bill Jennings, Executive Director  
California Sportfishing Protection Alliance