

California Sportfishing Protection Alliance

"An Advocate for Fisheries, Habitat and Water Quality" 3536 Rainier Avenue, Stockton, CA 95204 T: 209-464-5067, F: 209-464-1028, E: deltakeep@aol.com, W: www.calsport.org

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Mr. Ken Landau, Assistant Executive Officer Mr. James Pedri, Assistant Executive Officer Mr. Ron Dykstra, Senior 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: Renewal of Waste Discharge Requirements (NPDES No. CA0077844) and Rescission of Cease and Desist Order (No. 93-068) for City of Portola Wastewater Treatment Plant, Plumas County

Dear Messrs. Landau, Pedri and Dykstra;

The California Sportfishing Protection Alliance (CSPA) has reviewed the proposed renewal of Waste Discharge Requirements (NPDES No. CA0077844) for City of Portola Wastewater Treatment Plant (Permit) 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 water quality and fisheries. CSPA members reside, boat, fish and recreate in and along waterways throughout the Central Valley, including Plumas County.

1. The proposed Permit contains an effluent Limitation for percent removal of BOD contrary to Federal Regulations 40 CFR 133.103 (Secondary Treatment Standards) and 40 CFR 122.44 (l)(1) (Antibacksliding).

The proposed Permit states that:

"All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order except for percent BOD removal. The percent BOD removal requirement in this Order is 65 percent as opposed 85 percent in the previous Order. The fact sheet

explains how this change complies with anti-backsliding requirements of the CWA." (Finding O)

"BOD percentage Removal- The discharger has experienced problems meeting the percentage removal effluent limitations for BOD. The <u>85</u> <u>percent BOD removal requirement was not met twice in 2004 (although the BOD values are suspect due to the potential laboratory error noted above), three times in 2005 and four times in 2006. For the last two discharge seasons, the Discharger has met the requirement for BOD percentage removal. Removal percentages during months that requirements were not met were generally around 80 percent, and there have been no violations of effluent BOD concentration limitations. The Discharger performed extensive work on their collection system in the late 1990s to reduce infiltration/inflow (I/I) in response to Cease and Desist Order No. 93-068.</u>

In part, the problem of effluent percentage BOD removals is also due to the fact that discharge occurs only during months in which I/I is more likely to dilute the influent, but the discharge consists of wastewater that has been received both during dry (low dilution) and wet (high dilution) months. Another situation that is contributing to the problem is the Discharger's receipt of septage. Septage is very high in BOD and total suspended solids. Although septage is discharged to the Facility, its pollutant contribution has not been taken into account when assessing influent pollutant loads and pollutant removal. This Order requires the Discharger to obtain monthly samples of septage for BOD and TSS analysis, and allows the Discharger to take into account the contribution of septage to the influent BOD and TSS load when calculating percentage removals. The Order also requires that the Discharger perform a study to determine if the amount of septage being accepted may be interfering with the plants performance.

Considering the work that was performed to comply with Cease and Desist Order 93-068, the ability of the discharger to incorporate waste mass loading from septage into percent removal requirements and/or to reduce septage receiving, and the modification of the Order requiring the discharger to obtain 65 percent removal of BOD, the new percentage removal limitation should be achievable." (Page F-6)

"2. Applicable Technology-Based Effluent Limitations. BOD5 and TSS. Federal Regulations, 40 CFR, Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD5 and TSS. A daily maximum effluent limitation for BOD5 and TSS is also included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. The Federal Clean Water Act, Section 301, requires

that not later than July 1, 1977, publicly owned wastewater treatment works meet effluent limitations based on secondary treatment or any more stringent limitation necessary to meet water quality standards. Federal Regulations, 40 CFR, Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for five-day BOD and TSS. BOD is a measure of the amount of oxygen necessary for the biochemical oxidation of organic matter, as well as ammonia in some cases. The secondary treatment standards for BOD and TSS are used as indicators of the effectiveness of the treatment processes. The principal design parameters for wastewater treatment plants are the daily BOD and TSS loading rates and the corresponding removal rate of the system. See Table F-3 for final technology-based effluent limitations required by this Order. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. 40 CFR 133.105 provides adjustment of these limitations where waste stabilization ponds are the principal processes used for secondary treatment. Pursuant to the regulations at 40 CFR Parts 133.105(a), (b), and 133.103, absent any adjustment, the BOD and TSS 30-day average discharge limits for such pond stabilization systems shall not exceed 45 mg/L, the 7-day average shall not exceed 65 mg/L, and the 30-day BOD and TSS percent removal shall not be less than 65 percent. This permit requires that the Discharger meet effluent limits of 30 mg/L average monthly effluent concentration for BOD and TSS as this has historically been the capability of the discharger. Effluent percentage removal for BOD and TSS is set at 65 percent." (Page F-13)

"3. Satisfaction of Anti-Backsliding Requirements. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order except for percent BOD removal. The percent BOD removal requirement in this Order is 65 percent as opposed to the previous Order, which was 85 percent. The CWA allows revision of effluent limitations only if such revision is subject to and consistent with a State's antidegradation policy. As the relaxation of the effluent percentage removal limitation will not result in the discharge of any additional pollutants, there will be no additional degradation of the receiving water, and this modification is in compliance with the state's antidegradation policy. The antibacksliding requirements also prohibit the reissued permits to contain effluent limitations which are less stringent than the current effluent limitation guidelines for that pollutant, or which would cause the receiving water to violate the applicable state water quality standard under Section 303 of the CWA. The relaxation of the percentage removal requirements complies with those prohibitions." (Page F-34)(Emphasis added)

Federal Regulation 40 CFR 133.101 (g) and 133.103 (c) states that minimum secondary treatment standards may be relaxed to "equivalent to secondary standards" if: (1) The BOD and SS effluent concentrations consistently achievable through proper operation and maintenance of the treatment works exceed the minimum level of the effluent quality set forth in 133.102(a) and 133.102(b), (2) a trickling filter or waste stabilization pond is used as the principal process, and (3) the treatment works provide a significant biological treatment of municipal wastewater.

Federal Regulation 40 CFR 133.103 (d)(3) states that for less concentrated influent wastewater for separate sewers the State Director is authorized to substitute a lower percent removal only if the less concentrated influent is not due to excessive inflow and infiltration (I/I).

Federal Regulation 122.44 (l)(2)(i) requires that renewed, reissued or modified NPDES permits may not contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit. Exceptions to the antibacksliding requirements are for material and substantial alterations to the permitted facility; new information is available; technical mistakes were made in the permit; events have occurred over which the permittee has no control, or; the permittee has installed the treatment facilities to meet the limitations, has properly operated the system and the facilities fail to meet the limitations.

- The facility is not eligible for relaxed percent removal limitations as the BOD and SS effluent concentrations consistently achievable through proper operation and maintenance of the treatment works <u>do not</u> exceed the minimum level of the effluent quality set forth in 133.102(a) and 133.102(b). "This permit requires that the Discharger meet effluent limits of 30 mg/L average monthly effluent concentration for BOD and TSS as this has historically been the capability of the discharger." (Page F-13)
- The facility is not eligible for relaxed percent removal limitations as identified problems are at least in part due to excessive inflow and infiltration (I/I). "In part, the problem of effluent percentage BOD removals is also due to the fact that discharge occurs only during months in which I/I is more likely to dilute the influent..." (Page F-6)
- The proposed Permit does not meet a single Antibacksliding requirement of 40 CFR 122.44. The proposed Permit only identifies the Antidegradation Policy as a means for relaxing NPDES Permit limitations (Page F-34) and ignores the exceptions of 40 CFR 122.44.

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; (\overline{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:

- (1) Reissued permits. (1) Except as provided in paragraph (1)(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
 (1)(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.

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

The proposed Permit grants a mixing zone allowance for ammonia, copper and electrical conductivity. With respect to the mixing zone the proposed permit contains the following on pages F-20 and F-21:

"Discharge to the Middle Fork of the Feather River is prohibited when river flow is less than 40 cfs; In addition, discharge is prohibited unless the complete mixing dilution in the River is 50:1 or greater.

A mixing model referred to in the Technical support document was consulted by the Discharger's Engineer to verify the mixing regime of the outfall and river. The model is applicable to point discharges where rapid vertical mixing occurs. According to the Technical support document, the model is based on Mixing in Inland and Coastal Waters by H.B. Fischer et al. (1979, Academic Press Inc.). The configuration of the River is complex at the discharge location. The discharge is just upstream of a railroad bridge that spans the Middle Fork of the Feather River. The Bridge Abutments separate the stream into two primary channels at the point of discharge, a middle channel and a western channel when the River is at approximately 40 cfs. The Discharger's engineer indicates this flow regime is typical even at substantially higher flows. There is also another channel to the east, which receives approximately 20% of the River flow, and passes by the effluent discharge location. Directly downstream of the effluent discharge, the stream turns approximately 45 degrees due to the adjacent topography and railroad bridge abutment, and also increases its velocity to approximately 3 feet per second. Both of these conditions should provide good mixing.

Use of this mixing model by the Discharger's engineer allows the assumption of a dilution of at least 40% of the ultimate dilution in the River at the edge of the acute toxicity mixing zone, approximate 100 feet downstream of the discharge, with a width of approximately 30 feet. The 20:1 dilution has been used for both the acute and chronic toxicity mixing zones, because of the specified method of discharge, which is based upon a volumetric percentage of the River flow. The toxicity mixing zone also

allows a zone of passage, and should not prove toxic to organisms floating through the mixing zone.

This Order requires the Discharger to install an effluent diffuser to obtain rapid mixing at the point of discharge to the Middle Fork of the Feather River. The Discharger must also, by a dilution study, show that the minimum dilution at the point of the outfall is 20:1 in a mixing zone that complies with the SIP, the Basin Plan, and the USEPA Technical support document."

Despite the statements in the proposed permit; it does not appear that a formal mixing zone analysis has been completed for this discharge. The proposed permit does not identify whether the discharge is completely mixed. A diffuser does not currently exist. A mixing zone study is required by the proposed Permit. The permit statements are replete with assumptions and estimates without firm numeric statements. The "mixing zone" granted in the proposed Permit appears to be solely based on the flow volumes of the effluent and the receiving stream; such an analysis does not meet the requirements of the SIP and/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 Central Valley Regional Water Quality Control Board's Basin Plan, page IV-16.00, requires the Regional Board use EPA's *Technical Support Document for Water Quality Based Toxics Control (TSD)* in assessing mixing zones. 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. 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. 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 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.

The proposed Permit's mixing zones have not addressed a single required item of the SIP. 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.

Few mixing zones are adequately evaluated to determine whether the modeling exercise was in fact relevant or accurate, or monitored over time to assess the impacts of the mixing zone on the aquatic environment. The sampling of receiving waters often consists of analyzing one or two points where the mixing zone boundary is supposed to be – finding no pollution at the mixing zone boundary is often considered proof that mixing has been "successful" when in fact the sampling protocol might have missed the plume altogether.

3. 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 Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP).

Proposed Permit, State Implementation Policy 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." The SIP is a state *Policy* and 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.

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. There has been no argument that domestic sewage contains toxic substances and presents a reasonable potential to cause toxicity if not properly treated and discharged. 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 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.

4. The proposed Permit fails to contain mass-based effluent limits for ammonia, copper and electrical conductivity as required by Federal Regulations 40 CFR 122.45(b).

Federal Regulation, 40 CFR 122.45 (b) requires that in the case of POTWs, permit Effluent Limitations, standards, or prohibitions shall be based on design flow. Concentration is not a basis for design flow. Mass limitations are concentration multiplied by the design flow and therefore meet the regulatory requirement.

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:
 - 1. For pH, temperature, radiation or other pollutants which cannot be expressed by mass;
 - 2. When applicable standards and limitations are expressed in terms of other units of measurement; or
 - 3. 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.

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.

5. The proposed Permit does not contain an Effluent Limitation for oil and grease 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 oil and grease in concentrations from home cooking and restaurants that present a reasonable potential to exceed the Basin Plan water quality objective for oil and grease (Basin Plan III-5.00). Confirmation sampling is not necessary to establish that domestic wastewater treatment systems contain oil and grease in concentrations that present a reasonable potential to exceed the water quality objective. It is not unusual for sewerage systems to allow groundwater cleanup systems, such as from leaking underground tanks, to discharge into the sanitary sewer. Groundwater polluted with petroleum hydrocarbons can also infiltrate into the collection system as easily as sewage exfiltrates. The Central Valley Regional Board has a long established history of including oil and grease limitations in NPDES permits at 15 mg/l as a daily maximum and 10 mg/l as a monthly average, which has established BPTC for POTWs.

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. 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 the preponderance of evidence clearly indicates the potential to cause or contribute to an exceedance of State water quality standards (even though the data may be sparse or absent) a limit MUST be included in the permit." Failure to include an effluent limitation for oil and grease in the proposed permit violates 40 CFR 122.44 and CWC 13377.

6. The proposed Permit allows for degradation of groundwater quality absent any Antidegradation Policy (Resolution 68-16) analysis or discussion and contrary to California Water Code (CWC) Sections 13146 and 13247.

The proposed Permit contains the following with respect to groundwater:

"B. Groundwater Limitations, 1. Release of waste constituents from any portion of the Facility shall not cause groundwater to: Contain any of the following constituents in concentrations greater than listed or greater than natural background quality, whichever is greater. Table 7. Groundwater Limitations

Constituent	Units	Limitation
Total Coliform Organisms	MPN/100 mL	<2.2
Electrical Conductivity @ 25°C1	umhos/cm	700
Total Dissolved Solids1	mg/L	450
Nitrite Nitrogen, Total (as N)	mg/L	1
Nitrate Nitrogen, Total (as N)	mg/L	10
Ammonia (as NH4)	mg/L	1.5

The proposed Permit allows groundwater to be <u>degraded to whichever is greater</u>: background water quality or water quality objectives. If one assumes that groundwater quality is pristine, which is a reasonable assumption in Portola along the Feather River; degradation beyond background is allowed to water quality standards or objectives. An allowance to degrade groundwater is granted without considering the parameters of the Antidegradation Policy. 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. Confirming that such an analysis has not taken place; Page 20 of the proposed Permit requires: "**BPTC Evaluation Tasks**. The Discharger shall propose a work plan and schedule for providing BPTC as required by Resolution 68-16. The technical report describing the work plan and schedule shall contain a preliminary evaluation of each component and propose a time schedule for completing the comprehensive technical evaluation."

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.

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/other sources, exceptions from otherwise applicable water quality objectives, etc. (State Antidegradation Guidance, pp. 7-10, Region IX Guidance, pp. 2-3).

Any antidegradation analysis must comport with implementation requirements in State Board Water Quality Order 86-17, State Antidegradation Guidance, APU 90-004 and Region IX Guidance. The conclusory, unsupported, undocumented statements in the Permit are no substitute for a defensible antidegradation analysis.

7. The proposed Permit contains an Effluent Limitation for electrical conductivity (EC) that will cause and contribute to exceedance of the Basin Plan water quality objective contrary to the California Water Code and Federal Regulations.

The proposed permit contains an Effluent Limitation for EC of 684 umhos/cm as a monthly average. The Basin Plan Table III-3 requires that EC not exceed 150 umhos/cm (90th percentile) in well-mixed waters of the Feather River.

In adopting the NPDES permit for Linda County Water District, R5-2006-0096, the Regional Board granted 100% of the remaining assimilative capacity for EC within the Feather River. Later, the Regional Board granted additional, non-existing, EC assimilative capacity within the Feather River to the city of Yuba City (R5-2007-0134). There is no available assimilative capacity for EC in the Feather River.

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 Control Plan (Basin Plan) for the Central Valley Region, Water Quality Objectives, Table III-3 requires that EC not exceed 150 umhos/cm (90th percentile) in well-mixed waters of the Feather River.

The beneficial uses of receiving streams may be degraded by salt concentrations in wastewater discharges and 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. 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." The Region 5 Permits does not protect the beneficial

uses of the receiving stream, the Sacramento River, and therefore does not comply with the requirements of Federal Regulations and the California Water Code.

8. 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)).

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, the actual ambient hardness of the <u>surface water shall be used</u> in those equations." (Emphasis added). The proposed Permit states that the <u>effluent</u> hardness and the downstream hardness were used to calculate Effluent Limitations for metals. The definition of *ambient* is "in the surrounding area", "encompassing on all sides". It has been the Region 5, Sacramento, NPDES Section, in referring to Basin Plan objectives for temperature, to define *ambient* as meaning upstream. It is reasonable to assume, after considering the definition of ambient, that EPA is referring to the hardness of the receiving stream before it is potentially impacted by an effluent discharge. It is also reasonable to make this assumption based on past interpretations and since EPA, in permit writers' guidance and other reference documents, generally assumes receiving streams have dilution, which would ultimately "encompass" the discharge. Ambient conditions are in-stream conditions unimpacted by the discharge.

The Federal Register, Volume 65, No. 97/Thursday, May 18th 2000 (31692), adopting the California Toxics Rule in confirming that the ambient hardness is the upstream hardness, absent the wastewater discharge, states that: "A hardness equation is most accurate when the relationship between hardness and the other important inorganic constituents, notably alkalinity and pH, are nearly identical in all of the dilution waters used in the toxicity tests and in the surface waters to which the equation is to be applied. If an effluent raises hardness but not alkalinity and/or pH, using the lower hardness of the downstream hardness might provide a lower level of protection than intended by the 1985 guidelines. If it appears that an effluent causes hardness to be inconsistent with alkalinity and/or pH the intended level of protection will usually be maintained or exceeded if either (1) data are available to demonstrate that alkalinity and/or pH do not affect the toxicity of the metal, or (2) the hardness used in the hardness equation is the hardness of upstream water that does not include the effluent. The level of protection intended by the 1985 guidelines can also be provided by using the WER procedure."

The most typical wastewater discharge situation is where the receiving water hardness is lower than the effluent hardness. Metals are more toxic in lower hardness water. Therefore in this case it must follow those metals would be more toxic in the receiving water than in the effluent. For example, if the receiving water hardness is 25 mg/l and the effluent hardness is 50 mg/l a corresponding chronic discharge limitation for copper based on the different hardness' would be 2.9 ug/l and 5.2 ug/l, respectively. Obviously, the limitation based on the ambient receiving water hardness is more restrictive. For this case however the Regional Board's argues that the higher effluent hardness or the downstream hardness is protective of all beneficial uses. Since the limitation based on the upstream ambient hardness is more restrictive; the Regional Board's

argument can only be made if in-stream mixing is considered. Mixing zones may be granted in accordance with extensive requirements contained in the SIP and the Basin Plan to establish Effluent Limitations. Mixing zones cannot be considered in conducting a reasonable potential analysis to determine whether a constituent will exceed a water quality standard or objective. The Regional Board's approach in using the effluent or downstream hardness to conduct a reasonable potential analysis and consequently establish effluent limitations can only be utilized if mixing is considered; otherwise the ambient (upstream) hardness results in significantly more restrictive limitations. A mixing zone allowance has not been discussed with regard to this issue and therefore does not comply with the SIP. Verification of the Regional Boards use of "mixing" in implementing their procedure can be found in text of Finding No. 4. The issue is that the Regional Board fails to comply with the regulatory requirement to use the ambient instream hardness for limiting hardness dependant metals under the CTR. Use of the effluent or the effluent receiving water mix simply does not meet the definition of the actual ambient hardness of the receiving stream.

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