



## California Sportfishing Protection Alliance

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2 September 2009

Ms. Jeanine Townsend  
Clerk to the Board  
State Water Resources Control Board  
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VIA: Electronic Submission  
Hardcopy if Requested

RE: **Comments to A-1971, A-1971(a) and A-1971(b) – September 15, 2009 Board Workshop:** Petitions of California Sportfishing Protection, City of Stockton, San Luis & Delta-Mendota Water Authority and Westlands Water District Regarding Waste Discharge Requirements for City of Stockton, Central Valley Water Board

Dear Ms. Townsend and Board:

Thank you for the opportunity to comment on the proposed Order in the above referenced matter. We concur with the discussion in the Draft Order regarding electrical conductivity (EC) and mixing zones.

However, the specific items for remand should be strengthened to reflect the discussion in the body of the Draft Order. The Draft Order should clearly state that the Regional Board must include a final Effluent Limitation in the permit for EC based on the Bay-Delta Plan for the impaired receiving water.

The Draft Order should also be amended to clearly state that there is no basis for granting a mixing zone and final Effluent Limitations must be included in the Permit for chlorodibromomethane, dichlorobromomethane, manganese and nitrate plus nitrite without benefit of dilution.

Our specific comments are as follows:

- 1. The Draft Order fails to discuss that the Permit Does Not Meet the Requirements for an Exemption from California Code of Regulations (CCR) Title 27 Does not Meet the Requirements of the Board's Antidegradation Policy and Does Not Contain Discharge Limitations That Prevent Groundwater Degradation or Pollution in Violation of California Water Code Section 13377.**

The Draft Order fails to discuss the fact that the use of unlined ponds at the sewage treatment facility has degraded groundwater quality and therefore does not meet the "preconditions"

prescribed by CCR Title 27. The Discharger's wastewater treatment plant includes unlined facultative ponds and wetlands. "Groundwater monitoring results obtained within the Facility have at times exceeded the applicable water quality objectives for TDS and Nitrate" (page 24). The Groundwater data, Table F-13, shows that very few constituents have been monitored, however; the groundwater has been degraded by the discharge for TDS and EC. It is not necessary to determine unaffected background water quality to show degradation from the discharge. The Permit, *B Groundwater Limitations 2*, states that the limitations for the protection of groundwater do not become effective until after completion of tasks outlined in Provision VI.C.2.c. Provision VI.C.2.c allows 2.5 years to complete a study of background water quality after which an assessment of best practicable treatment and control of the discharge will be assessed under an undefined time schedule. It is reasonable to assume that the Discharger could use the 5-year life of the permit to conduct the studies required in Provision VI.C.2.c. There currently are no effective limitations in the Permit protective of groundwater quality. 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." Failure to include effective limitations for the protection of groundwater quality violates the requirements of CWC 13377.

CCR Title 27 §20090. SWRCB – allows for the following exemption (C15: §2511): The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as **the activity meets, and continues to meet, all preconditions listed:** (a) **Sewage**—Discharges of domestic sewage or treated effluent which are regulated by WDRs issued pursuant to Chapter 9, Division 3, Title 23 of this code, or for which WDRs have been waived, and which are **consistent with applicable water quality objectives**, and treatment or storage facilities associated with municipal wastewater treatment plants, **provided that residual sludges or solid waste from wastewater treatment facilities shall be discharged only in accordance with the applicable SWRCB-promulgated provisions of this division.** Region 5's Basin Plan, Water Quality Objectives For Ground Waters, The following objectives apply to all ground waters of the Sacramento and San Joaquin River Basins, as the objectives are relevant to the protection of designated beneficial uses. These objectives do not require improvement over naturally occurring background concentrations.

#### **Bacteria**

In ground waters used for domestic or municipal supply (MUN) the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 ml.

#### **Chemical Constituents**

Ground waters **shall not contain chemical constituents in concentrations that adversely affect beneficial uses.** At a minimum, ground waters designated for use as domestic or municipal supply (MUN) **shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations,** which are incorporated by reference

into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Tables 64449-A (Secondary Maximum Contaminant Levels- Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain lead in excess of 0.015 mg/l. To protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

### **Tastes and Odors**

Ground waters shall not contain taste- or odor producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

### **Toxicity**

Ground waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial use(s). This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.

Based on the Findings in the Permit it is clear that the Regional Board does not know if the discharge of domestic sewage at the City of Stockton meets, and continues to meet, all preconditions listed in Title 27; specifically whether the discharge is consistent with applicable water quality objectives. The discharge is not exempt from the requirements of CCR Title 27 since the “preconditions” required for an exemption cannot be established.

California Water Code Sections 13146 and 13247 require that the Board in carrying out activities which affect water quality shall comply with state policy and assure that Wastewater Dischargers are required to provide Best Practicable Treatment and Control (BPTC) of the discharge to assure pollution will not occur and that the highest water quality consistent with the maximum benefit to the people of the State will be maintained in accordance with the Antidegradation Policy (Resolution 68-16).

BAT and BPTC are terms applied with regulations on limiting pollutant discharges with regard to the abatement strategy. Similar terms are best available techniques, best practicable means or best practicable environmental option. The term constitutes a moving target on practices, since developing societal values and advancing treatment techniques may change what is currently regarded as achievable, best practicable and best available. A literal understanding will connect it with a “spare no expense” doctrine, which prescribes the acquisition of the best state of the art technology available, without regard for traditional cost-benefit analysis.

The Antidegradation Policy, State Water Resources Control Board Resolution No. 68-16, states that: “Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or

nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained.”

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. Waste Discharge Requirements must require that the treatments systems provide BPTC.

As stated above the Antidegradation Policy requires that any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that pollution will not occur. Pollution is defined in CWC Section 13050 as: “...an alteration of the quality of the waters of the state by waste to a degree which unreasonably affects either of the following: a) the waters for beneficial uses, b) facilities which serve these beneficial uses. Pollution may also include contamination, which is defined as an impairment of the quality of the waters of the state to a degree, which creates a hazard to the public health through poisoning or through the spread of disease. In short; the Regional Board is required to write waste discharge requirements that result in BPTC to assure that pollution will not occur and all beneficial uses are fully protected. The Permit does not meet the test required by the Antidegradation Policy.

**2. The Draft Order incorrectly discusses CSPA’s petition of the Permit, which improperly established the technology based CBOD limitations for tertiary treatment.**

The Draft Order incorrectly discusses CSPA’s petition with regard to CBOD. NPDES Permits are required to contain Effluent Limitations based on the design flow of the WWTP (40 CFR 122.45 (B)(1)). CBOD is unlikely the design parameter for the Stockton wastewater treatment plant. The plant was likely designed based on a potential discharge requirement to achieve an effluent concentration of 10 mg/l BOD, not CBOD. The difference in the CBOD and BOD limitations results in a significantly increased oxygen demand on an oxygen impaired receiving water. If the Regional Board can show, to the contrary, that the WWTP was designed to meet a 10 mg/l CBOD concentration we will withdraw our petition regarding this issue. The Permit incorrectly establishes an Effluent Limitation for CBOD at 10 mg/l based on the technological ability of a tertiary wastewater treatment plant. The capabilities of a tertiary treatment system are based on BOD at 10 mg/l, not CBOD. Federal Regulations for secondary 40 CFR 133.102 and equivalent to secondary treatment 40 CFR 133.105 allow for the substitution of BOD for CBOD, but at a reduced rate. For example a secondary BOD limitation of 30 mg/l converts to a 25 mg/l limitation for CBOD (40 CFR 133.102). In the CBOD test the nitrification reaction is suppressed chemically. Since the City of Stockton only partially nitrifies large errors could occur in the CBOD tests. BOD and CBOD are a measure of oxygen demanding substances. Depressed dissolved oxygen levels in the Deep Water Ship Channel resulted in a TMDL.

However, waste load allocations have not been assigned. The Permit grants Stockton overly generous oxygen demanding substance allowance in assessing the capability of a tertiary treatment system to achieve only 10 mg/l CBOD. If the CBOD limitation were properly reduced to 8 mg/l; at a flow rate of 55 million gallons per day (mgd) the resulting reduction in CBOD would be 3,672 lbs/day. Federal Regulation 40 CFR 122.44 (d) requires that permits are required to contain limitations more stringent than technology based limitations where necessary to achieve applicable water quality standards and to achieve compliance in WQLSs.

**3. The Draft Order fails to discuss that the 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.**

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).

In particular, the Permit does not address the Antidegradation Policy requirements with regard to the following permit allowances:

- The Permit establishes an Effluent Limitation for CBOD at 10 mg/l based on the technological ability of a tertiary wastewater treatment plant. The capabilities of a tertiary treatment system are based on BOD at 10 mg/l, not CBOD. Federal Regulations for secondary 40 CFR 133.102 and equivalent to secondary treatment 40 CFR 133.105 allow for the substitution of BOD for CBOD, but at a reduced rate. For example a secondary BOD limitation of 30 mg/l converts to a 25 mg/l limitation for CBOD (40 CFR 133.102). In the CBOD test the nitrification reaction is suppressed chemically. Since the City of Stockton only partially nitrifies large errors could occur in the CBOD tests. BOD and CBOD are a measure of oxygen demanding substances. Depressed dissolved oxygen levels in the Deep Water Ship Channel led to the development of a TMDL. However, waste load allocations have not been assigned. The Permit grants Stockton overly generous oxygen demanding substance allowance in assessing the capability of a tertiary treatment system to achieve only 10 mg/l CBOD. If the CBOD limitation were properly reduced to 8 mg/l; at a flow rate of 55 million gallons per day (mgd) the resulting reduction in CBOD would be 3,672 lbs/day. Federal Regulation 40 CFR 122.44 (d) requires that permits are required to contain limitations more stringent than technology based limitations where necessary to achieve applicable water quality standards and to achieve compliance in WQLSs.
- The Permit establishes for nitrate plus nitrite at 40 mg/l. At a flow rate of 55 mgd this equates to a mass of 18,360 lbs/day. Nitrogen is an oxygen demanding substance and the base for nitrate and nitrite. The impacts of allowing this level of nitrogen are not discussed in terms of the Antidegradation Policy. Denitrification, treatment to remove nitrate, is a common treatment technology and could be considered to be best practicable treatment and control of the discharge, as is required by the Antidegradation Policy. The level of 40 mg/l for nitrate plus nitrite is well above the drinking water MCL, a Basin Plan Chemical Constituents water quality objective, of 10 mg/l.
- The Permit, Finding H, properly cites that the receiving stream, the San Joaquin River is a *Water Quality Limited Segment* (WQLSs) for unknown toxicity. The Permit, Findings G and H, also properly cites that Federal Regulation 40 CFR 122.44 (d) requires that permit are required to contain limitations more stringent than technology based limitations where necessary to achieve applicable water quality standards and to achieve compliance in WQLSs. Permit Finding H is incorrect however in citing that toxicity limitations are included in the Permit. The Permit, *C Special Provisions 2 Special*

*Studies, Technical Reports and Additional Monitoring Requirements, a, Chronic Whole Effluent Toxicity*, requires: “For compliance with the Basin Plan’s narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity testing...” Sampling does not limit the discharge and does not constitute a limitation. Contrary to the Findings in the Permit there are not limitations for toxicity although required by Federal Regulations 40 CFR 122.44 (d) to achieve compliance with WQLSs for unknown toxicity in the receiving stream.

- The Discharger’s wastewater treatment plant includes unlined facultative ponds and wetlands. “Groundwater monitoring results obtained within the Facility has at times exceeded the applicable water quality objectives for TDS and Nitrate” (page 24). The Groundwater data, Table F-13, shows that very few constituents have been monitored, however; the groundwater has been degraded by the discharge for TDS and EC. It is not necessary to determine unaffected background water quality to show degradation from the discharge. The Permit, *B Groundwater Limitations 2*, states that the limitations for the protection of groundwater do not become effective until after completion of tasks outlined in Provision VI.C.2.c. Provision VI.C.2.c allows 2.5 years to complete a study of background water quality after which an assessment of best practicable treatment and control of the discharge will be assessed under an undefined time schedule. It is reasonable to assume that the Discharger could use the 5-year life of the permit to conduct the studies required in Provision VI.C.2.c. There currently are no effective limitations in the Permit protective of groundwater quality. The Antidegradation Policy discussion in the Permit does not discuss groundwater impacts from the discharge or whether percolation of sewage constitutes BPTC. This discussion should also include an explanation of how the Regional Board has allowed an exemption from CCR Title 27 requirements when it is precondition to be in full compliance with the Basin Plan.

The antidegradation analysis in the 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 Permit fails to properly implement the Basin Plan’s Antidegradation Policy.

**4. The Draft Order discusses Effluent Limitations for specific conductivity (EC) but fails to address that EC was 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 Permit establishes Effluent Limitations for EC as an annual average contrary to the cited Federal Regulation. Establishing the Effluent Limitations for EC in accordance with the Federal Regulation is not impracticable; to the contrary the Central Valley Regional Board has a long history of having done so. Proof of impracticability is properly a steep slope and the Regional Board has not presented any evidence that properly and legally limiting EC is impracticable.

**5. The Draft Order discusses moving discharge limitations for turbidity but fails to discuss that the Permit contains Effluent Limitations less stringent than the existing permit contrary to the Antidegradation requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1) and the applicability of mandatory minimum penalties.**

CSPA understands the State Board's Draft Order discussion regarding moving the limitation for turbidity from the "effluent limitations" section of the permit is not in conflict with technology-based requirements. This does not discuss the limited exemptions allowed for backsliding. Since the only possible reason for moving the limitation is to avoid mandatory minimum penalties as prescribed by the legislature; the Draft Order should also discuss CWC Section 13385 which states in part that: (c) For the purposes of this section, paragraph (2) of subdivision (f) of Section 13385, and subdivisions (h), (i), and (j) of Section 13385 only, "effluent limitation" means a numeric restriction or a numerically expressed narrative restriction, on the quantity, discharge rate, concentration, or toxicity units of a pollutant or pollutants that may be discharged from an authorized location. An effluent limitation may be final or interim, and may be expressed as a prohibition. An effluent limitation, for those purposes, does not include a receiving water limitation, a compliance schedule, or a best management practice. This Section of the California Water Code indicates that regardless of the location in the permit, the limitation for turbidity must be considered when assessing mandatory minimum penalties.

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 antidegradation 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 antidegradation rule are met. The antidegradation 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 antidegradation 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.

The Permit Fact Sheet, pages F-36, 37 and 38 discuss Pathogens. Page F-37 in the last paragraph states that the previous Order established Effluent Limitations for turbidity. Turbidity limitations are maintained in the Permit but have been moved to Section 5f Special Provisions, page 30, they are no longer Effluent Limitations. The Fact Sheet Pathogen discussion states that infectious agents in sewage are bacteria, parasites and viruses and that tertiary treatment is necessary to effectively remove these agents. This discussion also states that turbidity limitations were originally established: "...to ensure that the treatment system was functioning properly and could meet the limits for total coliform organisms. This discussion is incorrect. First; coliform

organism limitations are also an indicator parameter of the effectiveness of tertiary treatment. The coliform limitations in the proposed and past Permit are significantly lower than the Basin Plan Water Quality Objective and are based on the level of treatment recommended by the California Department of Public Health (DPH). Second; both the coliform limitations and turbidity are recommended by DPH as necessary to protect recreational and irrigated agricultural beneficial uses of the receiving water. Turbidity has no lesser standing than coliform organisms in the DPH recommendation. 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. There are no limitations for viruses and parasites in the Permit, which the Regional Board has indicated, are necessary to protect the contact recreation and irrigated agricultural uses of the receiving water. Both coliform and turbidity limitations are treatment effectiveness indicators that the levels of bacteria viruses and parasites are adequately removed to protect the beneficial uses. Special Provisions are not Effluent Limitations as required by the Federal Regulations. The turbidity Effluent Limitations must be restored in accordance with the Clean Water Act and Federal regulations 40 CFR 122.44 (l)(1).

**6. The Draft Order fails to discuss that the 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 surface water shall be used in those equations.” (Emphasis added). The proposed Permit states that the effluent 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 18<sup>th</sup> 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.”

On March 24, 2000 the US Fish and Wildlife Service (Service) and the National Marine Fisheries Service (NMFS) issued a biological opinion on the effects of the final promulgation of the CTR on listed species and critical habitats in California in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; Act). The biological opinion was issued to the U.S. Environmental Protection Agency, Region 9, with regard to the “Final Rule for the Promulgation of Water Quality Standards: Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California” (CTR)”. The document represented the Services’ final biological opinion on the effects of the final promulgation of the CTR on listed species and critical habitats in California in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; Act).

On Page 13 (C) and repeated on pages 216 and 232 of the biological opinion it is required that:

“By June of 2003, EPA, in cooperation with the Services, will develop a revised criteria calculation model based on best available science for deriving aquatic life criteria on the basis of hardness (calcium and magnesium), pH, alkalinity, and dissolved organic carbon (DOC) for metals.”

The biological opinion contains the following discussion, beginning on page 205, regarding the use of hardness in developing limitations for toxic metals:

“The CTR should more clearly identify what is actually to be measured in a site water to determine a site-specific hardness value. Is the measure of hardness referred to in the CTR equations a measure of the water hardness due to calcium and magnesium ions only? If hardness computations were specified to be derived from data obtained in site water calcium and magnesium determinations alone, confusion could be avoided and more accurate results obtained (APHA 1985). Site hardness values would thus not include contributions from other multivalent cations (e.g., iron, aluminum, manganese), would not rise above calcium + magnesium hardness values, or result in greater-than-intended site criteria when used in formulas. In this Biological opinion, what the Services refer to as hardness is the water hardness due to calcium + magnesium ions only.

The CTR should clearly state that to obtain a site hardness value, samples should be collected upstream of the effluent source(s). Clearly stating this requirement in the CTR would avoid the computation of greater-than-intended site criteria in cases where samples were collected downstream of effluents that raise ambient hardness, but not other important water qualities that affect metal toxicity (e.g., pH, alkalinity, dissolved organic carbon, calcium, sodium, chloride, etc.). Clearly, it is inappropriate to use downstream site water quality variables for input into criteria formulas because they may be greatly altered by the effluent under regulation. Alterations in receiving water chemistry by a discharger (e.g., abrupt elevation of hardness, changes in pH, exhaustion of alkalinity,

abrupt increases in organic matter etc.) should not result, through application of hardness in criteria formulas, in increased allowable discharges of toxic metals. If the use of downstream site water quality variables were allowed, discharges that alter the existing, naturally-occurring water composition would be encouraged rather than discouraged. Discharges should not change water chemistry even if the alterations do not result in toxicity, because the aquatic communities present in a water body may prefer the unaltered environment over the discharge-affected environment. Biological criteria may be necessary to detect adverse ecological effects downstream of discharges, whether or not toxicity is expressed.

The CTR proposes criteria formulas that use site water hardness as the only input variable. In contrast, over twenty years ago Howarth and Sprague (1978) cautioned against a broad use of water hardness as a “shorthand” for water qualities that affect copper toxicity. In that study, they observed a clear effect of pH in addition to hardness. Since that time, several studies of the toxicity of metals in test waters of various compositions have been performed and the results do not confer a singular role to hardness in ameliorating metals toxicity. In recognition of this fact, most current studies carefully vary test water characteristics like pH, calcium, alkalinity, dissolved organic carbon, chloride, sodium, suspended solids, and others while observing the responses of test organisms. It is likely that understanding metal toxicity in waters of various chemical makeups is not possible without the use of a geochemical model that is more elaborate than a regression formula. It may also be that simple toxicity tests (using mortality, growth, or reproductive endpoints) are not capable of discriminating the role of hardness or other water chemistry characteristics in modulating metals toxicity (Erickson *et al.* 1996). Gill surface interaction models have provided a useful framework for the study of acute metals toxicity in fish (Pagenkopf 1983; Playle *et al.* 1992; Playle *et al.* 1993a; Playle *et al.* 1993b; Janes and Playle 1995; Playle 1998), as have studies that observe physiological (e.g. ion fluxes) or biochemical (e.g. enzyme inhibition) responses (Lauren and McDonald 1986; Lauren and McDonald 1987a; Lauren and McDonald 1987b; Reid and McDonald 1988; Verbost *et al.* 1989; Bury *et al.* 1999a; Bury *et al.* 1999b). Even the earliest gill models accounted for the effects of pH on metal speciation and the effects of alkalinity on inorganic complexation, in addition to the competitive effects due to hardness ions (Pagenkopf 1983). Current gill models make use of sophisticated, computer-based, geochemical programs to more accurately account for modulating effects in waters of different chemical makeup (Playle 1998). These programs have aided in the interpretation of physiological or biochemical responses in fish and in investigations that combine their measurement with gill metal burdens and traditional toxicity endpoints.

The Services recognize and acknowledge that hardness of water and the hardness acclimation status of a fish will modify toxicity and toxic response. However the use of hardness alone as a universal surrogate for all water quality parameters that may modify toxicity, while perhaps convenient, will clearly leave gaps in protection when hardness does not correlate with other water quality parameters such as DOC, pH, Cl- or alkalinity and will not provide the combination of comprehensive protection and site specificity that a multivariate water quality model could provide. In our review of the best available

scientific literature the Services have found no conclusive evidence that water hardness, by itself, in either laboratory or natural water, is a consistent, accurate predictor of the aquatic toxicity of all metals in all conditions.

The proposed Permit goes into great detail citing the Federal Regulation requiring the receiving water hardness be used to establish Effluent Limitations. The comparative Effluent Limitation values presented to defend the unsupported statements regarding which is more protective. Once again the public is subject to a bureaucrat “knowing better” and simply choosing to ignore very clear regulatory requirements. The Regional Board staff has chosen to deliberately ignore Federal Regulations placing themselves above the law. There are procedures for changing regulations if peer reviewed science indicates the need to do so, none of which have been followed. The Permit failure to include Effluent Limitations for metals based on the actual ambient hardness of the surface water is contrary to the cited Federal Regulation and must be amended to comply with the cited regulatory requirement.

**7. The draft Order fails to discuss that the Permit fails to contain protective Effluent Limitations for aluminum in accordance with Federal Regulations 40 CFR 122.44, US EPA’s interpretation of the regulation, and California Water Code, Section 13377.**

Aluminum in the effluent has been measured and the Regional Board has found that there is a reasonable potential to exceed water quality standards. Aluminum has been shown to be toxic to freshwater aquatic life. Freshwater Aquatic habitat is a beneficial use of the receiving stream. 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). U.S. EPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. The recommended four-day average (chronic) and one-hour average (acute) criteria for aluminum are 87 mg/l and 750 mg/l, respectively. The permit contains effluent Limitations that ignore the chronic criteria for aluminum and is therefore not protective of the beneficial uses of the receiving stream.

Based on information included in analytical laboratory reports submitted by the Discharger, 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 based on the chronic criteria in the Permit violates 40 CFR 122.44 and CWC 13377.

**8. The Draft Order fails to discuss that the Permit Contains an Inadequate Reasonable Potential Analysis by Using Incorrect Statistical Multipliers**

Federal regulations, 40 CFR § 122.44(d)(1)(ii), state “when determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, **the variability of the pollutant or pollutant parameter in the effluent**, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.” Emphasis added.

Attachment G: The reasonable potential analysis fails to consider the statistical variability of data and laboratory analyses as explicitly required by the federal regulations. The Permit utilizes the simple method of whether the existing maximum effluent concentration has exceeded the water quality standard instead of the required multiplier factors necessary to properly evaluate reasonable potential. The procedures for computing variability are detailed in Chapter 3, pages 52-55, of USEPA’s *Technical Support Document For Water Quality-based Toxics Control*.

The reasonable potential analyses are flawed and must be recalculated. The fact that the SIP illegally ignores this fundamental requirement does not exempt the Regional Board from its obligation to consider statistical variability in compliance with federal regulations.

Sincerely,



Bill Jennings, Executive Director  
California Sportfishing Protection Alliance

Cc: Service List  
Interested Parties