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For Petitioner California Sportfishing Protection Alliance

VIA: Electronic Submission
Hardcopy to Follow

BEFORE THE STATE WATER RESOURCES CONTROL BOARD

In the Matter of Waste Discharge Requirements For Town of Discovery Bay County Sanitation District Wastewater Treatment Plant; California Regional Water Quality Control Board – Central Valley Region Order No. R5-2008-0179; NPDES No. CA0078590	**PETITION FOR REVIEW**

PETITION FOR REVIEW

Pursuant to Section 13320 of California Water Code and Section 2050 of Title 23 of the California Code of Regulations (CCR), California Sportfishing Protection Alliance ("CSPA" or "petitioner") petitions the State Water Resources Control Board (State Board) to review and vacate the final decision of the California Regional Water Quality Control Board for the Central Valley Region ("Regional Board") in adopting Waste Discharge Requirements (NPDES No. CA0078590) for Town of Discovery Bay Wastewater Treatment Plant, on 4 December 2008. See Order No. R5-2008-0179. The issues raised in this petition were raised in timely written comments.

1. NAME AND ADDRESS OF THE PETITIONERS:

California Sportfishing Protection Alliance
3536 Rainier Avenue
Stockton, California 95204
Attention: Bill Jennings, Executive Director

2. THE SPECIFIC ACTION OR INACTION OF THE REGIONAL BOARD WHICH THE STATE BOARD IS REQUESTED TO REVIEW AND A COPY OF ANY ORDER OR RESOLUTION OF THE REGIONAL BOARD WHICH IS REFERRED TO IN THE PETITION:

Petitioner seeks review of Order No. R5-2008-0179, Waste Discharge Requirements (NPDES No. CA0078590) for the Town of Discovery Bay Wastewater Treatment Plant. A copy of the adopted Order is attached as Attachment No. 1.

3. THE DATE ON WHICH THE REGIONAL BOARD ACTED OR REFUSED TO ACT OR ON WHICH THE REGIONAL BOARD WAS REQUESTED TO ACT:

4 December 2008

4. A FULL AND COMPLETE STATEMENT OF THE REASONS THE ACTION OR FAILURE TO ACT WAS INAPPROPRIATE OR IMPROPER:

CSPA submitted a detailed comment letter on 23 October 2008. That letter and the following comments set forth in detail the reasons and points and authorities why CSPA believes the Order fails to comport with statutory and regulatory requirements. The specific reasons the adopted Orders are improper are:

A. The Wastewater Treatment Plant Utilizes Ultraviolet Light for Disinfection Despite Potential Interference Which Could Result in Inadequate Disinfection and Virus Inactivation

The secondary wastewater treatment plant (WWTP) utilized UV light for disinfection and contains Effluent Limitations for total suspended solids (TSS) at 50 mg/l as a daily maximum; iron at 300 ug/l as an annual average, and; showed a reasonable potential to exceed water quality objectives for manganese. TSS, iron and manganese are strong absorbers of UV radiation, which can result in shielding and inadequate disinfection (Metcalf & Eddy, Wastewater Engineering, fourth edition). Coliform bacteria are an indicator organism. A UV system performance validation test quantifying the inactivation of a virus surrogate or bioassay testing for adequate inactivation of target microorganisms is a reasonable requirement to determine whether the system is capable of protecting the beneficial uses of the receiving stream. The Permit discusses

UV disinfection and contains maintenance requirements but does not require an assessment of virus inactivation or an assessment of whether the system is capable of protecting the beneficial uses of the receiving stream. At a minimum, the Permit should require the Discharger consult with experts at the California Department of Public Health regarding the adequacy of the UV system to provide proper disinfection. 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."

B. The Permit Fails to Include Limitations that are Protective of the Municipal and Domestic Beneficial Uses of the Receiving Stream Contrary to Federal Regulations 40 CFR 122.4, 122.44(d) and the California Water Code, Section 13377

The Permit contains Findings that municipal and domestic supply (MUN) are beneficial uses of the receiving stream as designated in the Sacramento San Joaquin River Basins Water Quality Control Plan (Basin Plan). The Permit does not discuss protection of the MUN beneficial use of the receiving stream; specifically for pathogens. 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. 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. 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."

In requiring secondary treatment the Permit states that recommendations of the California Department of Public Health (PDH; formerly the Department of Health Services) generally recommend that it is necessary to treat wastewater to a secondary level and provide 20:1 dilution in order to protect the public health for contact recreational activities or the irrigation of food crops." The Permit does not discuss protection of the MUN beneficial use of the surface water.

Direct ingestion is a more sensitive use of water than contact recreation uses or eating food crops irrigated with treated sewage. In 1987 DPH issued the Uniform Guidelines for the Disinfection of Wastewater (Uniform Guidelines) as recommendations to the Regional Water Quality Control Boards regarding disinfection requirements for wastewater discharges to surface waters. The Uniform Guidelines recommend a "no discharge" of treated domestic wastewater to freshwater streams used for domestic water supply. Where is not possible to prevent a wastewater discharge: the Uniform Guidelines recommend that no discharge be allowed unless a minimum of a twenty-to-one in stream dilution is available. The DPH has reiterated the recommendations of the Uniform Guidelines to the Central Valley Regional Board on numerous occasions: specifically a 1 July 2003 letter to the Executive Officer (Thomas Pinkos); a 28 September 2000 Memoranduim to regional and district engineers from Jeff Stone; and cite specific recommendations for the City of Jackson's wastewater discharge. A discharge of tertiary, not secondary, treated domestic wastewater to a stream is protective of the domestic and municipal beneficial uses of the receiving stream only if a minimum of a twenty to one dilution ratio is available. In late revisions to the Permit Regional Board staff added language, after close of the public comments period, which incorrectly states that DPH does not recommend that tertiary treatment is necessary to protect the domestic beneficial uses of the receiving stream. Regional Board staff continuously site an absence of drinking water intakes; instead of discussing the beneficial uses of the receiving stream. The receiving stream is designated as having a municipal drinking water beneficial use; the presence or absence of a drinking water intake does not impact whether the beneficial use is being protected. Petitioner did not have an opportunity to view the revised basis for the Permit modification prior to the Regional Board hearing.

Federal Regulation 40 CFR 122.4 states that no permit shall be issued for any discharge when the conditions of the permit do not provide for compliance with the applicable requirements of the CWA and are inconsistent with a plan or plan amendment. The Permit does not protect the drinking water beneficial use of the receiving stream as is required by Federal Regulations 40 CFR 122.4, 122.44(d) and the California Water Code, Section 13377 and in accordance with these requirements cannot be issued.

C. The Permit Fails to Include Limitations that are Protective of the Contact Recreation and Irrigated Agriculture Beneficial Uses of the Receiving Stream Contrary to Federal Regulations 40 CFR 122.4, 122.44(d) and the California Water Code, Section 13377

In requiring secondary treatment the Permit states that recommendations of the California Department of Public Health (PDH; formerly the Department of Health Services) generally recommend that it is necessary to treat wastewater to a secondary level and provide 20:1 dilution in order to protect the public health for contact recreational activities or the irrigation of food crops." Essentially, tertiary treatment is required to protect contact recreation and food crop irrigation unless a 20-to-1 dilution is available. Based on this recommendation the Permit allows a mixing zone for pathogens. However, the Permit does not:

- Include any requirement that wastewater may only be discharged when the requisite dilution is available.
- Include any assessment that assimilative capacity is available for pathogens. With the reported beach closures in California and documented storm water discharges containing high bacteria counts; it is reasonable to assume that instream dilution may not always exist for pathogens.
- Include any information that the Basin Plan requirements for a mixing zone were assessed or followed. Specifically, the size of the mixing zone is not discussed and the point of compliance within the receiving stream is not specified.

There is no information in the Permit that supports the allowance for a mixing zone for pathogens or documentation that the contact recreation and food crop irrigation beneficial uses are protected. Federal Regulation 40 CFR 122.4 states that no permit shall be issued for any discharge when the conditions of the permit do not provide for compliance with the applicable requirements of the CWA and are inconsistent with a plan or plan amendment. The Permit does not protect the drinking water beneficial use of the receiving stream as is required by Federal Regulations 40 CFR 122.4, 122.44(d) and the California Water Code, Section 13377 and in accordance with these requirements cannot be issued.

D. The Permit does not comply with the requirements of California Code of Regulations (CCR) Title 27 for the disposal of sludge and has possibly degraded groundwater quality contrary to the Antidegradation Policy, Resolution 68-16

While domestic wastewater may be exempted from Title 27, under certain circumstances, sludge is not exempt. CCR Title 27, Table 2.1, requires undewatered sewage sludge to be disposed at a Class II surface impoundment and dewatered sludge to be disposed at a Class III landfill. Obviously, the use of unlined or clay lined sludge lagoons with "onsite storage" does not meet the requirements of Title 27. The Board's Antidegradation Policy, Resolution 68-16, requires the application of best practicable treatment and control (BPTC) of the discharge. The disposal and storage of sludge to unlined lagoons at a minimum threatens to degrade groundwater. The Permit does not discuss the conditions of onsite storage and does not discuss the existing groundwater quality data. The wastewater industry standard is to mechanically dewater sludge with immediate removal to a proper disposal area, typically a landfill. Dewatering sludge with removal to a landfill is BPTC. The Permit does not comply with CCR Title 27 and the Antidegradation Policy for the disposal of sludge and must be amended accordingly.

E. The 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 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). Grease plugs are likely the most common source of sanitary sewer spills across the country. 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 Permit violates 40 CFR 122.44 and CWC 13377.

F. The Permit fails to contain mass-based effluent limits for copper, nitrate and iron 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:
- (i) For pH, temperature, radiation or other pollutants which cannot be expressed by mass;
- (ii) When applicable standards and limitations are expressed in terms of other units of measurement; or
- (iii) If in establishing permit limitations on a case-by-case basis under 125.3, limitations expressed in terms of mass are infeasible because the mass of the pollutant discharged cannot be related to a measure of operation (for example, discharges of TSS from certain mining operations), and permit conditions ensure that dilution will not be used as a substitute for treatment.

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

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

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

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

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

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

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

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

G. 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 Permit states that the effluent instream hardness was used to calculate Effluent Limitations for metals. Ambient is defined as surrounding, not "in the middle of".

The Regional Board staff have 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.

H. The Permit Contains an Inadequate Reasonable Potential By Using Incorrect Statistical Multipliers and likely does not contain Effluent Limitations which would be required using legal means

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.

The reasonable potential analyses for all CTR constituents is not presented in the Permit however the analyses present fail to consider the statistical variability of data and laboratory analyses as explicitly required by the federal regulations. 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 for CTR constituents 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.

I. The Permit fails to present any information to show compliance with Mixing Zone Requirements of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California (SIP) and the Basin Plan and in many instances simply does not comply with the regulatory requirements

The Permit allows for mixing zones. The mixing zone discussion, page F-15, is comprised of a single short paragraph and does not address the numerous regulatory requirements for granting mixing zones. "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. There are drinking water intakes, and proposed intakes, downstream of the wastewater discharge which could be impacted prior to the pollutants from the discharge are completely mixed. The TSD, Section 4.4, requires that if complete mix does not occur in a short distance mixing zone monitoring and modeling must be undertaken.

The 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 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 Permit's mixing zone discussion does not address a single required item of the SIP. There is no discussion of whether the wastestream is completely mixed utilizing the definition 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 Permit. The "edge of the mixing zone" has not been defined.

- 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.) In accordance with the Permit, Copper with the mixing zone allowance may be discharged up to 70 ug/l as a daily maximum. Using the lowest receiving water hardness of 32.3 mg/l; the California Toxics Rule (CTR) criteria is 4.8 ug/l as a 1-hour average. The CRT criteria establish an acute toxicity ceiling; acute toxicity can be expected above this concentration. There will be acute toxicity within the mixing zone. There is no discussion of the size of this zone of death. There is no discussion of the travel time for aquatic organisms; however, the Permit does state that the assumed receiving water velocity was zero. The receiving water is impaired (303(d) listed) for unknown toxicity. The allowance to discharge copper in acutely toxic concentrations allows the impaired receiving stream to be further degraded and is contrary to the recommendations of the TSD and the requirements of the SIP.

- According to the Fact Sheet, Ammonia, the acute criterion for ammonia is 2.14 mg/l prior to allowing mixing. The Permit Effluent Limitation for ammonia is 30 mg/l as a daily maximum. 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.) There will be acute toxicity within the mixing zone. There is no discussion of the size of this zone of death. There is no discussion of the travel time for aquatic organisms; however, the Permit does state that the assumed receiving water velocity was zero. The receiving water is impaired (303(d) listed) for unknown toxicity. The allowance to discharge ammonia in acutely toxic concentrations allows the impaired receiving stream to be further degraded and is contrary to the recommendations of the TSD and the requirements of the SIP.

- Nitrate is allowed to be discharged at up to 126 mg/l as a daily maximum and 73 mg/l as a monthly average under the Permit. Nitrate is generally discharged into a domestic wastewater treatment plant in the form of ammonia which is intentionally converted in a process called nitrification. Nitrate is a subset of ammonia; it would be rare for nitrate levels to exceed original ammonia concentrations. According to Metcalf & Eddy, Wastewater Engineering, Fourth Edition, a widely respected engineering text, a high strength wastewater will have ammonia concentrations up to 45 mg/l and there should be no influent nitrate. According to the literature values; the discharger would have to add ammonia or nitrate to the wastestream to ever reach the allowed discharge concentration. Nitrate concentrations above 10 mg/l exceed the drinking water maximum contaminant level (MCL). There is no discussion of the distance of drinking water impairment. There is no discussion of biostimulation, nitrogen compounds are nutrients; biostimulatory substances are limited by Basin Plan water quality objectives.

- The nitrogen compounds and the resulting biostimulation will impact dissolved oxygen concentrations within the receiving stream. While the Permit discusses limiting BOD as an oxygen demanding substance; there is no such discussion for nitrogen compounds. Failure to discuss nitrogenous oxygen demand to a receiving stream that is impaired for dissolved oxygen is appalling.

- The mixing zone allowance for pathogens is discussed in detail in above comments of this document.

- The Permit contains an Effluent Limitation for temperature: "The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20o F" and a Receiving Water Limitation which requires that the discharge shall not cause: "A surface water temperature rise greater than 4° F above the natural temperature of the receiving water at any time or place". A discharge in compliance with the temperature Effluent Limitation at 20° F above the receiving water temperature will violate the receiving water Limitation of 4° F. The mixing zone allowance for temperature does not discuss how compliance with the Receiving Water Limitation will be achieved under the allowed effluent parameter for temperature.

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.

J. Effluent Limitations for specific conductivity (EC) and iron are 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 and iron as an annual average contrary to the cited Federal Regulation. Establishing the Effluent Limitations for EC and iron 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 and iron is impracticable.

The secondary drinking water MCL for iron is based on its discoloring properties. Discoloration from iron occurs instantaneously. A limitation for iron based on an annual average is not protective of the Basin Plan Color water quality objective.

K. The Permit contains an Effluent Limitation for acute toxicity that allows mortality to aquatic life that exceeds the Basin Plan water quality objective and does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i) or the Clean Water Act

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

The Permit requires that the Discharger conduct acute toxicity tests and states that compliance with the toxicity objective will be determined by analysis of indicator organisms. However, the Tentative Permit contains a discharge limitation that allows 30% mortality (70% survival) of fish species in any given toxicity test. Surely, mortality is a detrimental physiological response to aquatic life. In receiving streams where dilution may be available 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. The allowance of 30% mortality will result in acute toxicity within the ZID. Before the discharge can be allowed a complete mixing zone analysis is required in accordance with the Basin Plan and the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) to show that discharge limitations prevent toxicity; such an analysis has not been completed. 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 SIP and the Regional Board is required to the Policy.

US EPA's *Technical Support Document for Water Quality-based Toxics Control* states, on page 104, that:

> "When setting a whole effluent toxicity limit to protect against acute effects, some permitting authorities use an end-of-pipe approach. Typically these limits are established as an LC50>100% effluent at the end of the pipe. These limits are routinely set without any consideration as to the fate of the effluent and the concentrations of toxicant(s) after the discharge enters the receiving water. Limits derived in this way are not water quality based limits and suffer from significant deficiencies since the toxicity of a pollutant depends mostly upon concentration, duration of exposure, and repetitiveness of the exposure. This is especially true in effluent dominated waters. For example, an effluent that has an LC50=100% contains enough toxicity to be lethal up to 50% of the test organisms. If the effluent is discharged to a low flow receiving waterbody that provides no more than a three fold dilution at the critical flow, significant mortality can occur in the receiving water. Furthermore, such a limit could not assure protection against chronic effects in the receiving waterbody. Chronic effects could occur if the dilution in the receiving water multiplied by the acute to chronic ratio is greater than 100 percent. Therefore, in effluent dominated situations, limits set using this approach may be severely underprotective. In contrast, whole effluent toxicity limits set using this approach in very high receiving water flow conditions may be overly restrictive."

Following US EPA's rationale the limitations of allowing 70% survival (30% mortality) in acute toxicity tests, as is the case in the cited LC50, will result in the allowance of toxic discharges to ephemeral streams, which is representative of the receiving waters at Davis. While the State and Regional Board's method of prescribing an effluent limitation of 70% percent survival may be protective in waterbodies with significant dilution; such a limitation should be subject to a complete mixing zone analysis. For an ephemeral receiving stream a mixing zone analysis would not be applicable under worst case dry stream conditions. The Order should be revised to require the Regional Board to prohibit acute toxicity (100% survival as compared to the laboratory control) in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i).

With regard to WET testing variability; US EPA's Technical Support Document for Water Quality-based Toxics Control states, on page 11, that:

> "In summary, whole effluent toxicity testing can represent practical tests that estimate potential receiving water impacts. Permit limits that are developed correctly from whole effluent toxicity tests should protect biota if the discharged effluent meets the limits. <u>It is important not confuse permit limit variability with toxicity test variability</u>" (emphasis added)

The Permit must be revised to prohibit acute toxicity, require 100% survival in toxicity tests, in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i), the CWA, the SIP, the CWC and the Basin Plan.

L. The Permit does not contain an Effluent Limitation 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). Federal Regulation, 40 CFR 124.6 (e), requires that all draft permits shall be accompanied by a statement of basis, shall be based on the administrative record, shall be publically noticed and made available for public comment. Federal Regulations 40 CFR 124.10 requires notification that a draft permit has been prepared and that at least 30 days are allowed for public comment. Federal Regulations 40 CFR 124.14 contains requirements for reopening the public comment period including reissuance of a draft permit. Significant changes were made to the Permit after closure of the public comment period; a chronic toxicity limitation was removed making the permit substantially less stringent. Since significant changes were made following the close of the public comment period a statement of basis for these specific items was not made available for 30-days and proper public comment was denied

The Permit Table F-8 shows the Discharger has established a pattern of chronic toxicity in the discharge and routinely exceeded the 1 TUc trigger in the existing NPDES permit (Order No. R5-2003-0067). Rather than require compliance, identification and elimination of the toxicity, or take proper enforcement action, the Regional Board staff proposes instead to relax the trigger to 10 TUc. Recall the receiving stream is impaired (303(d)) listed for unknown toxicity.

The 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 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.

Permit is quite simply wrong; by failing to include effluent limitations prohibiting chronic toxicity the Permit does not "...implement the SIP". The Regional Board has commented time and again that no chronic toxicity effluent limitations are being included in NPDES permit until the State Board adopts a numeric limitation. The Regional Board explanation does not excuse the Permit's failure to comply with Federal Regulations, the SIP, the Basin Plan and the CWC. The Regional Board's Basin Plan, as cited above, already states that: "...waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses..." Accordingly, the 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.

M. The Permit fails to contain an Effluent Limitation for electrical conductivity (EC) that is protective of the beneficial uses of the receiving stream and meets water quality objectives as required by the regulations. The Effluent Limitation for EC in the Permit will be eliminated subject to an illegal "pay to pollute" requirement. The proposed "pay to

pollute" requirement establishes an illegal tax (or fee) beyond the authority of the Regional Board

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, page III-3.00, contains a Chemical Constituents Objective that includes Title 22 Drinking Water Maximum Contaminant Levels (MCLs) by reference. The Title 22 MCLs for EC are 900 µmhos/cm (recommended level), 1,600 µmhos/cm (upper level) and 2,200 µmhos/cm (short term maximum).

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

For EC, Ayers R.S. and D.W. Westcott, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985), levels above 700 µmhos/cm will reduce crop yield for sensitive plants. The University of California, Davis Campus, Agricultural Extension Service, published a paper, dated 7 January 1974, stating that there will not be problems to crops associated with salt if the EC remains below 750 µmhos/cm.

The wastewater discharge average EC level is 1921 µmhos/cm and the maximum observed EC was 2280 µmhos/cm. Clearly the discharge exceeds the MCLs for EC presenting a reasonable potential to exceed the water quality objective. The Permit contains an interim effluent limitation for EC of 2,100 µmhos/cm as an annual average. The proposed EC limitation clearly exceeds the agricultural water quality goal and the MCL for EC. The proposed Order fails to establish an effluent limitation for EC that are protective of the Chemical Constituents water quality objective. The City's wastewater discharge increases concentrations of EC to unacceptable concentrations adversely affecting the agricultural beneficial use. The wastewater discharge not only presents a reasonable potential, but actually causes, violation of the Chemical Constituent Water Quality Objective in the Basin Plan. The available literature regarding safe levels of EC for irrigated agriculture mandate that an Effluent Limitation for EC is necessary to protect the beneficial use of the receiving stream in accordance with the Basin Plan and Federal

Regulations. Failure to establish effluent limitations for EC that are protective of the Chemical Constituents water quality objective blatantly violates the law.

Federal Regulation, 40 CFR 122.44, which mandates an effluent limitation, be established if a discharge exceeds a water quality objective. MCLs are incorporated into the Basin Plan by reference. Federal Regulations, 40 CFR 122.44(d), requires that limits must be included in permits where pollutants will cause, have reasonable potential to cause, or contribute to an exceedance of the State's water quality standards. 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 calculations indicate reasonable potential, a specific numeric limit MUST be included in the permit. Additional "studies" or data collection efforts may not be substituted for enforceable permit limits where "reasonable potential" has been determined."

The proposal for the Discharger to participate financially in the development of the Central Valley Salinity Management Plan allows a discharger to pay to pollute. There is no legal or technical basis for such a proposal. It is not within the legal or technical realm of the Regional Board and especially the Executive Officer to allow a Discharger to discharge waste above water quality standards provided they pay to fill the Executive Officers coffers. Such a proposal does not protect water quality. The proposal is an illegal tax or fee. The Regional Board does not have the authority to create and levee new taxes. Such fees are not addressed in the State Board's Resolution 2006-0064 which adopted emergency regulations revising fee schedules in accordance with Title 23 of the CCR and is an illegal fee. The proposal to participate financially in the development of the Central Valley Salinity Management Plan could be considered a conflict of interest since the Regional Board or the Executive Officer exploits an official capacity for the financial benefit of the Board.

N. The Permit contains no Effluent Limitations for chloride, settleable solids, and total dissolved solids which are present in the existing NPDES Permit contrary to the Antibacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1)

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

reduction, imposition of technological controls, and adoption of a rule against relaxation of limitations once they are established.

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

When attempting to backslide from WQBELs under either the antidegradation rule or an exception to the antibacksliding rule, relaxed permit limits must not result in a violation of applicable water quality standards. The general prohibition against backsliding found in §402(o)(1) of the Act contains several exceptions. Specifically, under §402(o)(2), a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant if: (A) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation; (B)(i) information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (ii) the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section; (C) a less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy [(e.g., Acts of God)]; (D) the permittee has received a permit modification under section 1311(c), 1311(g), 1311(h), 1311(i), 1311(k), 1311(n), or 1326(a) of this title; or (E) the permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit, and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

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

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

> (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under Sec. 122.62.)
>
> (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.
>
> (i) Exceptions--A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if:
>
> (A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;
>
> (B)(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);
>
> (C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;
>
> (D) The permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or
>
> (E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the

previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

(ii) Limitations. In no event may a permit with respect to which paragraph (l)(2) of this section applies be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result in a violation of a water quality standard under section 303 applicable to such waters.

The existing NPDES permit (R5-2003-0067) for this facility contains Effluent Limitations for chloride, settleable solids (SS) and total dissolved solids (TDS). The most important physical characteristic of wastewater is its total solids content. SS are an approximate measure of the quantity of sludge that will be removed by sedimentation. Low, medium and high strength wastewaters will generally contain 5 ml/l, 10 ml/l and 20 ml/l of SS, respectively. Knowledge of SS parameters is critical for proper wastewater treatment plant design, evaluating sludge quantities, operation and troubleshooting. Excessive SS in the effluent discharge are typically indicative of process upset or overloading of the system. Failure to limit and monitor for SS limits the regulators ability to assess facility operations and determine compliance. Settleable matter is a water quality objective in the Basin Plan. Failure to include an Effluent Limitations for SS threatens to allow violation of the settleable matter receiving water limitation. We applaud the operators if indeed they did not violate the SS limitation during the life of the existing permit; this does not however remove the reasonable potential to cause exceedances in the future during system upsets or overloading; this also does not constitute "new" information as is required under the antibacksliding regulations.

The Permit states that limitations for TDS and chloride are not necessary since limits for EC will be protective of all salts. The Regional Board has not established the relationship between these constituents in the Permit. Typically the salts are related, however an analysis of which constituent is limiting must be conducted; the characteristics of each wastewater stream will be different depending on the industrial loads, the character of the community and variability in the potable water supply. The Permit takes liberty without conducting the proper, or any, scientific analysis; this also does not constitute "new" information as is required under the antibacksliding regulations.

O. The Permit fails to contain an Effluent Limitation 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 as high as 490 µg/l. 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 argument has been repeatedly made that US EPA's 87 ug/l chronic criterion was developed using low pH and hardness testing and should not be used. The state of Idaho is cited as not using the chronic criterion for aluminum; however Idaho is not required to comply with the Basin Plan's narrative toxicity objective. We are also not certain that the characterization of Idaho as the leader in water quality is either a correct assumption or relevant. As is stated in EPA's development document, (Ambient Water Quality Criteria for Aluminum, EPA 440/5-86-008) the pH was in the range 6.5 to 6.6. The hardness was below 20 mg/l; however the Permit does not contain a discharge limitation for hardness and numerous effluents and receiving waters within the Central Valley experience hardnesses at or below this level. Despite the Regional Board's contention that Valley waters have elevated hardness, the Sacramento River, at the Valley floor, has been sampled to have hardnesses as low as 39 mg/l CaCO3 by the USGS in February 1996 for the National Water Quality Assessment Program. A hardness of 39 mg/l is "low" as is a pH of 6.5; both of which are allowable under the Permit. Simply based on these facts; the discharge presents a reasonable potential to exceed water quality criteria. Despite the hardness and pH values used in the development of the criteria; the simple fact is that U.S. EPA recommends that application of the ambient criteria as necessary to be protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria.

The drinking water maximum contaminant level (MCL), which is included as a Basin Plan Water Quality Chemical Constituents Objective, for aluminum is 1,000 as a primary MCL and 200 µg/l as a secondary MCL. The effluent data has exceeded the MCL and the ambient criteria.

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 and chemical constituents water quality objectives.

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." US EPA has interpreted 40 CFR 122.44(d) in Central

Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting Program (Factsheets and Outreach Materials, 08/16/2002) that although States will likely have unique implementation policies there are certain tenets that may not be waived by State procedures. These tenets include that "where valid, reliable, and representative effluent data or instream background data are available they MUST be used in applicable reasonable potential and limits derivation calculations. Data may not be arbitrarily discarded or ignored." The California Water Code (CWC), Section 13377 states in part that: "...the state board or the regional boards shall...issue waste discharge requirements... which apply and ensure compliance with ...water quality control plans, or for the protection of beneficial uses..." Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. A water quality standard for Failure to include an effluent limitation for aluminum in the Permit violates 40 CFR 122.44 and CWC 13377.

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

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." The Water Quality Standard for manganese is 50 µg/l as specifically designated in the Basin Plan for the Delta (Table III-1). The wastewater discharge maximum observed manganese was 123 ug/l. Clearly the discharge exceeds the water quality objective. The proposed Order fails to establish an effluent limitation for manganese.

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

Q. 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