Regional Water Quality Control Board
Central Valley Region
Board Meeting – 31 July/1 August 2008

Response to Written Comments for
The City of Rio Vista – Beach Wastewater Treatment Plant
Tentative Waste Discharge Requirements
14 July 2008

At a public hearing scheduled for 31 July/1 August 2008, the Regional Water Quality Control Board, Central Valley Region (Regional Water Board) will consider adoption of a renewed National Pollutant Discharge Elimination System (NPDES) permit and Time Schedule Order (TSO) for the City of Rio Vista Beach Wastewater Treatment Plant. A tentative NPDES permit and TSO were issued on 6 June 2008. This document contains Regional Water Board staff responses to written comments received from interested persons. Written comments from interested persons were required to be received by the Regional Water Board by 8 July 2008 for the tentative Orders in order to be included in the record. Comments were received by the deadline from the California Sportfishing Protection Alliance (CSPA). Written comments are summarized below, followed by Regional Water Board staff responses.

CSPA COMMENTS

CSPA COMMENT # 1: The proposed Permit Allows for a Taking of Endangered Species Contrary to the California Endangered Species Act (Fish and Game Code Sections 2050 to 2097) and the Federal Endangered Species Act (16 U.S.C.A. Sections 1531 to 1544).

> **Response:** Regional Water Board staff disagrees with CSPA's statements. The commenter's statements are speculative and not based on evidence in the record. CSPA fails to specify which of the endangered species that are present in the Delta may be affected by this discharge in this particular location and how they are likely to be affected.
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> The Order contains several mechanisms to ensure that the effluent discharge does not cause acute or chronic toxicity in the receiving water. The tentative Permit is protective of aquatic life beneficial uses. The proposed permit contains numeric effluent limitations for acute toxicity, narrative limitations for chronic toxicity, and a receiving water limitation for toxicity that states the discharge shall not cause "*Toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.*" The tentative Permit also contains water quality-based effluent limitations based on aquatic toxicity criteria, where applicable.
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> The Order requires whole effluent chronic toxicity testing, which identifies both acute and chronic effluent toxicity. If this testing shows that the discharge

demonstrates a pattern of toxicity, the Order requires the Discharger to conduct accelerated monitoring, investigate the causes of, and identify corrective actions to eliminate the toxicity.

CSPA contends that the proposed permit allows for toxic concentrations of aluminum, ammonia, and copper. The commenter also argues that the acute toxicity effluent limitations allow mortality, effluent limits for chronic toxicity should be required, and the proposed Order does not address additive toxicity.

Aluminum

A typographical error was made with regard to the units for the aluminum effluent limitations in the proposed Order. The units should be µg/L, rather than mg/L. The proposed Order has been modified accordingly. The proposed Order does not allow dilution for aluminum, because there is no assimilative capacity in the receiving water. This addresses CSPA's comment that assimilative capacity was assumed for meeting the acute criterion.

CSPA further argues that the chronic criterion (87 µg/L) recommend by the USEPA Ambient Water Quality Criteria for Aluminum should be applied for this discharge. The chronic criterion is based on studies conducted on waters with low pH (6.5 to 6.8 pH units) and hardness (<10 mg/L as $CaCO_3$), which are conditions not commonly observed in Central Valley receiving waters like the Sacramento River. Consequently, the criterion is likely overly protective for this application. For similar reasons, the Utah Department of Environmental Quality (Department) only applies the 87 µg/L chronic criterion for aluminum where the pH is less than 7.0 and the hardness is less than 50 mg/L as $CaCO_3$ in the receiving water after mixing. For conditions where the pH equals or exceeds 7.0 and the hardness is equal to or exceeds 50 mg/L as $CaCO_3$, the Department regulates aluminum based on the 750 µg/L acute criterion. Therefore, in the case of the Sacramento River where the pH is greater than 7 standard units, and the hardness is greater than 50 mg/L (as $CaCO_3$), it is unlikely that application of the stringent chronic criteria (87µg/L) is overly protective. Therefore, using best professional judgment, only the acute criterion (750 µg/L) was applied in the proposed Order.

Ammonia

CSPA comments that the effluent limitations for ammonia exceed the acute and chronic criteria recommended by USEPA's Ambient Water Quality Criteria for Ammonia. There is assimilative capacity for ammonia in the Sacramento River, therefore, dilution has been allowed for compliance with the acute and chronic aquatic life criteria. The mixing zone was established in accordance with the Basin Plan, the SIP, EPA's *Water Quality Standards Handbook*, *2d Edition* (updated July 2007) and EPA's *Technical Support Document for Water Quality-*

based Toxics Control. As discussed in Finding IV.C.2.c of this Fact Sheet (Assimilative Capacity/Mixing Zone), the mixing zone complies with all applicable requirements. The effluent limitations for ammonia are adequately protective of aquatic life. See response to CSPA Comment #2 for a more detailed response regarding the allowance of a mixing zone.

CSPA comments further about a June 2nd article in the Sacramento Bee that highlighted some recent findings by Dr. Richard Dugdale, a researcher at San Francisco State University, which suggested that ammonia levels in the Delta and Sacramento River may pose a threat to Delta species by interrupting the food chain. These results are preliminary and require additional studies, which are currently ongoing.

Primary production rates and standing chlorophyll levels in the Sacramento-San Joaquin Delta Estuary are among the lowest of all the major estuaries in the world and continue to decline. The reason(s) are unclear but decreasing primary production is cited as a possible cause of the decline of important Delta fish species, such as Delta smelt. Recent work by Drs. Dugdale and Wilkerson, San Francisco State University Romberg Tiburon Center, has shown that elevated ammonium concentrations reduce diatom (a type of algae that is important in the Bay and Delta) production rates in water samples collected from San Francisco and Suisun Bays by inhibiting nitrate uptake. It is not known whether the same effect is manifested in the Delta.

Also, it is not known whether the ammonium concentrations in the River inhibit freshwater diatom production and are a cause of low algal primary production in the freshwater portions of the Delta. The Regional Water Board contracted with Dr. Dugdale to conduct experiments with diatoms collected from the lower Sacramento River to determine whether ambient in-stream ammonium concentrations reduce growth rates. Staff will be evaluating existing information to determine the need for studies to determine fate and transport of ammonium down the Sacramento River and across the Delta to determine what factors contribute to ammonium concentrations in Suisun Bay.

Once the results of the follow-up screening studies are complete, further work will be needed to determine the relative importance of ammonium on the Delta food web and whether more stringent criteria for ammonia will be necessary for establishing effluent limitations in NPDES permits for protection of the aquatic life beneficial use.

Copper

CSPA comments that the effluent limitations for copper exceed the acute and chronic CTR aquatic life criteria. There is assimilative capacity for copper in the Sacramento River, therefore, dilution has been allowed for compliance with the

acute and chronic aquatic life criteria. The mixing zone was established in accordance with the Basin Plan, the SIP, EPA's *Water Quality Standards Handbook*, *2d Edition* (updated July 2007) and EPA's *Technical Support Document for Water Quality-based Toxics Control*. As discussed in Finding IV.C.2.c of this Fact Sheet (Assimilative Capacity/Mixing Zone), the mixing zone complies with all applicable requirements. The effluent limitations for copper are adequately protective of aquatic life. See response to CSPA Comment #2 for a more detailed response regarding the allowance of a mixing zone.

Whole Effluent Toxicity

CSPA comments that the proposed Order allows toxicity in the mixing zone, because the acute toxicity effluent limitation is not adequate, the proposed Order fails to include an effluent limitation for chronic toxicity, and additive toxicity was not addressed. See response to CSPA Comment #12 and #13 for responses regarding acute and chronic toxicity, respectively. See response to CSPA Comment #2 for the response regarding additive toxicity. As discussed further in response to CSPA Comment #12, the discharge will cause no acute toxicity, either within or outside the mixing zone.

Endangered Species Act

With respect to endangered species, CSPA's contention is misplaced for several reasons. First, compliance with the toxicity and aquatic life criteria are expected to prevent mortality. Nothing in the record suggests that discharging in compliance with the Order is likely to cause a take of protected species within the limited range of the discharge. CSPA's claim that there is a likely risk of a take is speculative and based on a news report of preliminary studies for the Delta as a whole. This is hearsay, but even if considered, does not support a conclusion that the levels of ammonia in the Facility's discharge is likely to cause any impairment.

Any obligation to acquire a take permit is the *Discharger's* obligation. The Water Board has no jurisdiction to authorize a take or regulate endangered species; only the Department of Fish and Game may do so. (Ca. Fish & Game Code, §§ 37, 39, 2080.1(c), 2081, 2081.1.)

Second, the Regional Water Board complied with endangered species-related notice requirements by providing notice of the Order to California Fish and Game, the National Marine Fisheries Service and U.S. Fish and Wildlife Service. NPDES regulations (40 C.F.R. §124.10(c)(1)(iii), (c)(1)(iv) and (e)) require the permitting agency to provide notice of the permit and draft permit documents. None of these agencies submitted comments or otherwise expressed concern about the Order. CSPA also argues the Regional Water Board should have initiated consultation with Fish and Game. The consultation requirement of

CESA was repealed effective 1 January 1999. CEQA consultation requirements, if any, are the sole obligation of the Discharger, as the lead agency.

Third, the structure of the NPDES program does not bring the permit within Section 7 of the ESA. Section 7 applies to actions by federal agencies. NPDES permits are issued under state law, pursuant to a program that EPA has certified as meeting the requirement of the Clean Water Act. This is an "in lieu" program. EPA did not "delegate" its authority to the state. There is no requirement in the approved program or the CWA that regional boards comply with other federal laws, such as the ESA, in adopting NPDES permits.[1] The funding assistance that the Water Boards receive from EPA are not substantial enough to deem the state to be acting as a federal agency for purposes of the ESA. (*See, e.g., National Wildlife Federation v. Coleman* (5th Cir. 1976) 529 F.2d 359 [90% federal funding, extensive federal involvement with project].)

Finally, Finding II.P of the Permit states:

> "This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The discharger is responsible for meeting all requirements of the applicable Endangered Species Act."

The Order explicitly provides that it does not authorize a take. Engaging in any take without obtaining necessary permits would go beyond the permitted operations of the facility.

CSPA COMMENT # 2: The proposed Permit Grants Mixing Zones contrary to the Requirements of the Basin Plan, the State's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California* (SIP), the Antidegradation Policy, Federal Antidegradation Regulations, the California

[1] In the Conference Report, prepared before the House and Senate voted on the Clean Water Act of 1977, the following discussion appears at page 104 with regard to section 404:

> The conferees wish to emphasize that such a state program is one which is established under State law and which functions in lieu of the Federal program. It is not a delegation of Federal authority. This is the point which has been widely misunderstood with regard to the permit program under section 402 of the Act. That section, after which the Conference substitute concerning State programs for the discharge of dredged or fill material is modeled, also provides for State programs which function in lieu of the Federal program and does not involve a delegation of Federal authority.

Constitution and the Clean Water Act. CSPA's comments were quite lengthy, but can be summarized as follows:

- The proposed Order failed to clearly define the size of the mixing zone and fails to require any confirmation sampling for compliance with the monitoring results.
- The CORMIX computer model is not adequate for tidally influenced rivers.
- The proposed Order failed to address the mixing zone requirements of the SIP.
- The proposed Order failed to consider additive toxicity.
- The allowance of a mixing zone is not in compliance with the state antidegradation policy (Resolution 68-16).

  Response: The mixing zones and dilution credits allowed in the proposed Order are in compliance with the SIP and are adequately protective of the beneficial uses of the receiving water.

  The outfall consists of an 18-inch diameter pipe, which discharges 77 feet from shore at an average depth of 18.5 feet. The Sacramento River at the point of discharge is approximately 2,300 feet wide. ECO:LOGIC Engineering conducted a dilution study using CORMIX computer modeling and developed a report titled "City of Rio Vista Main Wastewater Treatment Plant Dilution/Mixing Zone Study, Hydrodynamic Model of Wastwater Effluent Plume in the Sacramento River," dated 1 April 2004. The study demonstrated that within a mixing zone 250 feet (upstream and downstream) x 40 feet, the maximum effluent concentration was 4.76% (i.e. > 20:1 dilution). This was established as the acute and chronic mixing zone. This is a very small mixing zone as compared to the entire river width of 2,300 feet. To better monitor compliance at the edge of the mixing zone, the location of the upstream and downstream monitoring locations will be changed from 500 feet from the discharge point to 250 feet from the discharge point. An additional upstream receiving water monitoring station will be added that is outside the influence of the discharge and will be used to establish background water quality conditions.

  The Sacramento River in the vicinity of the discharge is tidally influenced, resulting in flow reversals. With flow reversals, some volume of river water is multiple dosed with the effluent as the river flows downstream past the discharge, reverses moving upstream past the discharge a second time, then again reverses direction and passes the discharge point a third time as it moves down the river. A particular volume of river water may move back and forth, past the discharge point many times due to tidal action, each time receiving an additional load of wastewater. CORMIX was not developed to account for multiple dosing that may occur in tidal zones. Therefore, a very conservative approach was employed by ECO:LOGIC Engineering to account for the multiple dosing affects. The study states the following:

> "Cormix is intended primarily for the modeling of steady-state operational conditions and one-time flow reversals. However, in the case of the Rio Vista Main WWTP discharge into the Sacramento River, it is estimated that under critical low river flow conditions a parcel of water could pass over the outfall up to about 13 times (over the course of about three days). This is because of the large magnitude of the tidally-induced flows compared to the net downstream river flows under critical low river flow conditions. Therefore, some accounting for these additional doses of effluent beyond the "one-time" flow reversal capabilities of the Cormix model was necessary to allow for proper modeling.
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> "Because of the timing, turbulence, and traverse of these multiple tidal flows, the earlier doses of effluent become dispersed over much of the river width while the last two doses at the final flow reversal will have dispersed very little beyond the river's area (cross-sectional) over the outfall. It is assumed that the 11 earlier doses preceding the final two effluent doses will have dispersed to a net/average effect of those earlier doses being uniformly dispersed in roughly one-third of the river cross section that includes the outfall. In other words, 11 doses of effluent (at effluent flows commensurate with low river flows) are diluted into one-third of the river flow, and this constitutes a "background percentage" of effluent already in the river water at the time of the most critical two effluent doses occurring at the final tidally induced flow reversal. This "background percentage" of effluent in the river flow from the first 11 doses of effluent is estimated to be 1.3 percent. An effluent concentration of 1.3 percent was, therefore, added to the results obtained from the Cormix model for the outfall."

This approach to account for multiple dosing is very conservative and likely over estimates the effluent concentrations in the river. The proposed permit has been modified to provide additional clarification on the establishment of mixing zones and dilution credits.

CSPA states that by only including chemical-specific water quality-based effluent limitations, the proposed Order failed to consider additive toxicity from multiple toxicants. Additive toxicity is addressed in the proposed permit through whole effluent toxicity monitoring, which accounts for the synergistic, antagonistic, and additive effects of all the chemical, physical, and biological components that adversely affect the physiological and biochemical functions of the test organisms. If the effluent exhibits a pattern of toxicity exceeding a monitoring trigger, the Discharger is required to conduct a toxicity reduction evaluation (TRE), in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent reoccurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity,

evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity.

The commenter cites Article 10, Section 2 of the California Constitution. That section applies to appropriation of water. Permitting a discharge is not an appropriation.

In granting a mixing zone, the SIP states that a mixing zone shall be as small as practicable, and meet the conditions provided in Section 1.4.2.2 as follows:

> *"A: A mixing zone shall not:*
> *(1) compromise the integrity of the entire water body;*
> *(2) cause acutely toxic conditions to aquatic life passing through the mixing zone;*
> *(3) restrict the passage of aquatic life;*
> *(4) adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;*
> *(5) produce undesirable or nuisance aquatic life;*
> *(6) result in floating debris, oil, or scum;*
> *(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 mixing zone from different outfalls; or*
> *(11) be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (Resolution No. 88-63), this SIP supersedes the provisions of that policy.*"

Regional Water Board staff has revised the Fact Sheet as follows to include explicit findings that the mixing zone meets each of the applicable requirements.

The mixing zone is as small as practicable, will not compromise the integrity of the entire water body, restrict the passage of aquatic life, dominate the waterbody or overlap existing mixing zones from different outfalls. The mixing zone is very small relative to the large size of the receiving water (less than 2% of the river width, only 40 feet wide by 250 feet in length). The mixing zone is approximately 9 miles from the nearest drinking water intake and does not overlap a mixing zone from a different outfall.

The discharge will not cause acutely toxic conditions to aquatic life passing through the mixing zone, because the proposed Order requires compliance with an acute toxicity effluent limitation and requires acute bioassays using 100%

effluent. Compliance with the acute toxicity effluent limitation assures the effluent is not acutely toxic.

The discharge will not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws, because the mixing zone is very small and acutely toxic conditions will not occur in the mixing zone.

The discharge will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum, produce objectionable color, odor, taste, or turbidity, cause objectionable bottom deposits, or cause nuisance, because the proposed Order requires end-of-pipe effluent limitations (e.g. for biochemical oxygen demand, total suspended solids, and settleable solids) and discharge prohibitions to prevent these conditions from occurring.

As suggested by the SIP, in determining the extent of or whether to allow a mixing zone and dilution credit, the Regional Water Board has considered the presence of pollutants in the discharge that are carcinogenic, mutagenic, teratogenic, persistent, bioaccumulative, or attractive to aquatic organisms, and concluded that the allowance of the mixing zone and dilution credit is adequately protective of the beneficial uses of the receiving water.

The mixing zone therefore complies with the SIP. The mixing zone also complies with the Basin Plan, which requires that the mixing zone not adversely impact beneficial uses. Beneficial uses will not be adversely affected for the same reasons discussed above. In determining the size of the mixing zone, the Regional Water Board has considered the procedures and guidelines in the EPA's Water Quality Standards Handbook, 2d Edition (updated July 2007), Section 5.1, and Section 2.2.2 of the Technical Support Document for Water Quality-based Toxics Control (TSD). The SIP incorporates the same guidelines. The mixing zone is limited to a small zone of initial dilution in the immediate vicinity of the discharge. The TSD indicates that this limitation achieves the objectives of preventing lethality to passing organisms and preventing significant human health risks.

For the comments regarding the proposed Order's compliance with State and Federal antidegradation requirements, see response to CSPA COMMENTS #3 and 10.

CSPA COMMENT # 3: 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). The proposed Permit fails to require BPTC by failing to require tertiary Treatment.

Response: Water Codes Section 13146 and 13247 require other state agencies to comply with water quality control plans when those agencies are discharging waste. Although these sections are not relevant here, staff concurs that the Regional Water Board must comply with state and federal antidegradation policies when issuing NPDES permits. However, the Permit complies with those policies.

The Permit is for an existing discharge with no increase in capacity or permitted flow. State Water Board and EPA guidelines do not require a new antidegradation analysis. (Memo to the State Water Resources Control Board from William Attwater, memo to Regional Board Executive Officers (10/7/87), p.5; *EPA Water Quality Handbook 2d*, § 4.5.) Nevertheless, the Fact Sheet evaluates pollutant by pollutant the impact to waters of the state and demonstrates that such discharges will not unreasonably degrade the waters of the state. No antidegradation analysis is required when the Regional Water Board reasonably concludes that degradation will not occur. (Attwater memo p. 3.)

The volume of this discharge (0.65 mgd) is very small when compared to the large receiving water body. A discharge of this size is not expected to cause measurable degradation. The complete mixing of the discharge at the edge of the mixing zone is consistent with this assumption.

As required by the Clean Water Act's technology-based standards for publicly owned treatment plants (POTWs), the Facility meets or exceeds secondary treatment standards as well as more stringent water-quality and performance-based effluent limitations.

Mixing zones do not violate state or federal antidegradation policies. (Attwater memo, p. 2; *EPA Water Quality Standards Handbook 2d.,* §§ 4.4, 4.4.4, and Appendix G (Questions and Answers), p. 2.) Water quality standards are not required to be met within mixing zones. An antidegradation analysis is not required for areas within a mixing zone, as long as the requirements of the mixing zone policy are met. (*American Wildlands v. Browner* (10th Cir. 2001) 260 F.3d 1192, 1195-1196, 1198.) Only a "simple" antidegradation analysis is required for a mixing zone under the State Water Board Guidance. A "simple" antidegradation analysis consists of a finding that the mixing zone will not be adverse to the purpose of the state and federal antidegradation policies. (Attwater memo, p. 2.) This finding has been added; see Response to Comment #10. As discussed in Response to Comment #2, above, the mixing zone meets all requirements of the Basin Plan and the SIP.

Based on the Department of Public Health's recommendation of 20:1 dilution, the Regional Water Board has not required tertiary treatment at other facilities that are similar to this discharge. Tertiary treatment is therefore not required to meet BPTC requirements at this facility at this time.

CSPA COMMENT # 4: 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). Nitrification to remove ammonia from domestic wastewater is widely used throughout the Central Valley and routinely required in the Central Valley Regional Board's NPDES Permits and constitutes BPTC.

Response: In general, see Response to CSPA Comment #3. Regarding evidence of ammonia impairment downstream of the discharge, see Response to CSPA Comment #1. Other facilities have installed nitrification facilities only when necessary to meet ammonia limits. The Discharger does not have to nitrify to meet the proposed Permit's ammonia limits, so nitrification is not required to meet BPTC requirements at this facility.

CSPA COMMENT # 5: Effluent Limitations for specific conductivity (EC) and aluminum 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 permits for POTWs establish Effluent Limitations as average weekly and average monthly unless impracticable. The proposed Permit establishes Effluent Limitations for EC and aluminum as an annual average contrary to the cited Federal Regulation. Establishing the Effluent Limitations for EC and aluminum in accordance with the Federal Regulation is not impracticable, to the contrary the Central Valley Regional Board has a long history of having done so. Proof of impracticability is properly a steep slope and the Regional Board has not presented any evidence that properly and legally limiting EC, iron and manganese is impracticable.

Limiting these constituents to be regulated on an annual, average will allow for peaks well above the secondary MCLs, agricultural goals, toxic levels and directly impacting beneficial uses and the numerous documented downstream domestic water users. There does not appear to be any reasoning or logic applied to the Regional Board staff's attempts to relax water quality objectives contrary to Federal Regulations. The permit must be amended to limit EC and aluminum in accordance with the cited Federal Regulation.

Response: For effluent limitations for total aluminum, which is based on the secondary MCL, the proposed Order includes an annual average effluent limitation. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. For secondary MCLs, Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Since water that meets these requirements on an annual average basis is suitable for drinking, it is impracticable to calculate average weekly and average monthly effluent limitations because such limits would be more stringent than necessary to protect the MUN use. The Fact Sheet of the proposed order has been modified to clarify the basis for establishing annual average effluent limits.

For electrical conductivity (EC), the effluent limitations included in the proposed Order are based on performance of the Facility and are more stringent than the water quality-based effluent limitations necessary to protect the beneficial uses of the receiving water. For EC, annual average performance-based effluent limitations are appropriate, due to fluctuations that can occur in the Discharger's effluent caused by changes in its water supply EC. Consequently, it is impracticable to calculate performance-based effluent limitations for EC on a shorter averaging period. Section IV.C.3.y.v. of the Fact Sheet of the proposed Order has been modified to provide additional clarification.

CSPA COMMENT # 6: The proposed Permit does not comply with the requirements of California Code of Regulations (CCR) Title 27 for the disposal of sludge which may have degraded groundwater quality contrary to the Antidegradation Policy, Resolution 68-16.

Response: Sludge is not disposed of onsite. It is dewatered onsite, and discharged at an offsite landfill. (Facility Description, p. 4; Provision IV.C.5.a.i.) The discharge of wastewater to land for solids removal is exempt from Title 27, pursuant to Section 20090(a), as stated in Finding III.E. 1 of the Fact Sheet. The proposed Permit includes land discharge requirements that satisfy Section 20090, including groundwater limitations (Section V.B), and prohibition of long-term storage of sludge (Special Provision VI.C.5.a.iii). It is only the *residual* sludge, which is discharged offsite, that is subject to Title 27.

An error was made in the description of the sludge drying processes at the Facility. Sludge is dewatered using a dry-vac treatment process (plate and frame press using chemical treatment and heat to produce a Class "A" biosolids) and has the ability to also use lined drying beds. The lined sludge drying beds include drains that direct subnatant back to the aeration basins. This sludge drying process is considered BPTC for this Facility. The proposed permit has been updated accordingly.

CSPA COMMENT # 7: The proposed Permit establishes Effluent Limitations for metals based on the hardness of the effluent as opposed to the ambient upstream receiving water hardness as required by Federal Regulations, the California Toxics Rule (CTR, 40 CFR 131.38(c)(4)).

Response: The proposed Order has established the criteria for hardness-dependent metals based on the reasonable worst-case effluent and receiving water hardness. Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, "floating" effluent limitations that are reflective of actual conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. Recent studies[2] indicate that using the receiving water lowest hardness for establishing water quality criteria is not the most protective for the receiving water. The Regional Water Board has evaluated these studies and concurs that for some parameters the beneficial uses of the receiving water are protected using the lowest hardness value of the effluent, while for some parameters, the use of both the lowest hardness value of the receiving water and the lowest hardness value of the effluent is protective. This approach was used to establish water quality-based effluent limitations for hardness-dependent metals in the proposed Order.

CSPA COMMENT # 8: The proposed Permit fails to contain mass-based effluent limits for Copper, Dibromochloromethane, Dichlorobromomethane, Iron, Lead, Manganese, Nitrate and Nitrite and contains improper mass limitations for BOD, TSS and Ammonia as required by Federal Regulations 40 CFR 122.45(b).

Response: 40 CFR SEC 122.25(f) states the following:

"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 appropriately 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] "Developing Protective Hardness-Based Metal Effluent Limitations", Robert W. Emerick, Ph.D., P.E. and John E. Pedri, P.E.

(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."

40 CFR section 122.25(f)(1)(ii) states that mass limitations are not required when applicable standards are expressed in terms of other units of measurement. The numerical effluent limitations for copper, dibromochloromethane, dichlorobromomethane, iron, lead, manganese, nitrate and nitrite in the proposed permit are based on water quality standards and objectives. These are expressed in terms of concentration. Pursuant to 40 CFR section 122.25(f)(1)(ii), expressing the effluent limitations in terms of concentration is expressly allowed and is in no way contrary to Federal Regulations.

CSPA states that the mass limitations for BOD, TSS, and ammonia have not been established in accordance with Federal regulations (40 CFR 122.45 (b)), which requires that POTW effluent limitations, standards, or prohibitions be based on design flow. The mass limitations for BOD, TSS, and ammonia have been established in the proposed Order based on the average dry weather flow design capacity during the dry season and based on the peak wet weather flow capacity during the wet season. Therefore, the mass limitations are in compliance with the Federal regulations.

CSPA COMMENT # 9: The proposed Permit Effluent Limitation for Ammonia directly conflicts with the Receiving Water Limitation prohibiting the discharge of biostimulatory substances. Ammonia as nitrogen is clearly a biostimulatory substance and the allowed discharge concentrations will cause and/or contribute to biostimulation within the receiving stream.

Response: There is significant dilution for the discharge into the receiving water. The completely mixed discharge has at all times at least a 1000:1 dilution. The proposed order includes water quality-based effluent limitations for ammonia for the protection of aquatic life (based on a 20:1 dilution credit), which results in effluent limitations that are orders of magnitude more stringent than would be necessary to protect against biostimulation. The proposed order is adequately protective of the Basin Plan's water quality objective for biostimulatory substances.

CSPA COMMENT # 10: The proposed Permit contains an inadequate antidegradation analysis that does not comply with the requirements of Section 101(a) of the Clean Water Act, Federal Regulations 40 CFR § 131.12, the State Board's Antidegradation Policy (Resolution 68-16) and California Water Code (CWC) Sections 13146 and 13247.

Response: See Response to Comments #3-4. With respect to the coliform violations, the proposed Permit does not authorize an increase over previous coliform limits and does not allow the Discharger to violate the limit. The Discharger is expected to take any necessary measures to eliminate ongoing violations and will be subject to enforcement action for failing to do so. These violations were the result of a previous contract operator's failure to properly operate the Facility. The Discharger has since changed contract operators and the Facility is being operated properly, resulting in a better effluent that has been consistently in compliance with the permit.

Consistent with the discussion in Response to CSPA Comment #3, the proposed Permit does not include an antidegradation analysis because none is required for a reissued permit with no increase in flow or mass, or relaxation of final effluent limitations. A simple antidegradation finding is required for addition of the mixing zone. Section IV.D.4 has been modified as follows:

4. Satisfaction of Antidegradation Policy

   The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. There is no increase in flow or mass of pollutants from this Facility. Therefore, the permitted surface water discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant due to the relatively small size of the discharge in relation to the size of the receiving water and the level of treatment of the effluent.

   This Order allows a mixing/dilution zone in accordance with the Basin Plan, the SIP, EPA's *Water Quality Standards Handbook*, *2d Edition* (updated July 2007) and EPA's *Technical Support Document for Water Quality-based Toxics Control*. As discussed in Finding IV.C.2.c of this Fact Sheet (Assimilative Capacity/Mixing Zone), the mixing zone complies with all applicable requirements. In addition, this Order includes more stringent performance-based requirements for total arsenic, dibromochloromethane, dichlorobromomethane, total lead, manganese, mercury, nitrate as nitrogen and salinity, than would be allowed under the mixing zone analysis alone. Therefore, the mixing zone will be not be adverse to the purpose of the state and federal antidegradation policies.

CSPA COMMENT # 11: The proposed Permit fails to include an Effluent Limitation for Boron and instead includes a requirement to conduct further studies contrary to US EPA's interpretation of Federal Regulation, 40 CFR 122.44(d). Boron was measured in the discharge at 1,200 ug/l. The California State Action Level for drinking water is 1,000

ug/l, the agricultural water quality goal is 700 ug/l and the drinking water suggested no-adverse response level is 600 ug/l. There is a clear reasonable potential for boron in the discharge to exceed water quality criteria, yet the proposed Permit fails to contain an Effluent Limitation contrary to 40 CFR 122.44.

Response: As discussed in the Fact Sheet (Section IV.C.3.i.) a single data point is insufficient information to determine if Reasonable Potential exists for boron. The Discharger is required to conduct additional monitoring, and as this additional data becomes available the Reasonable Potential analysis will be revisited, and the proposed Order will be reopened to establish effluent limits, if appropriate. As part of that process, the Regional Water Board will consider what goals are appropriate to establish numeric limits to ensure compliance with all narrative objectives.

CSPA COMMENT # 12: The proposed 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.

Response: The acute whole effluent toxicity limits establish thresholds to control acute toxicity in the effluent: survival in one test no less than 70% and a median of no less than 90% survival in three consecutive tests. Some in-test mortality can occur by chance. To account for this, the acute toxicity test acceptability criteria allow ten percent mortality (requires 90% survival) in the control. Thus, the acute toxicity limits allow for some test variability, but impose ceilings for exceptional events (i.e., 30% mortality or more), and for repeat events (i.e., median of three events exceeding mortality of 10%). These effluent limitations are consistent with U.S. EPA guidance. In its document titled "Guidance for NPDES Permit Issuance", dated February 1994, it states the following:

"*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc*."

The proposed Order protects aquatic life beneficial uses by implementing numerous measures to control individual toxic pollutants and whole effluent toxicity. Both the acute limits and receiving water limits are consistent with numerous NPDES permits issued by the Regional Water Board and throughout the State and are appropriate.

CSPA COMMENT # 13: The proposed Permit does not contain Effluent Limitations for chronic toxicity and therefore does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i) and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP).

Response: The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. In WQO 2003-012 the State Water Board directed its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits.*" The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process.

Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, the proposed Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 C.F.R. 122.44(k).