

STAFF RESPONSE TO COMMENTS

**Regional Water Quality Control Board
Central Valley Region
Board Meeting – 9 December 2010**

**Response to Written Comments for
Sacramento Regional County Sanitation District
Sacramento Regional Wastewater Treatment Plant
Tentative Waste Discharge Requirements**

TABLE OF CONTENTS

Sacramento Regional County Sanitation District (SRCSD)	4
Water Agencies	105
California Sportfishing Protection Alliance (CSPA)	139
State and Federal Legislators	159
Water Agencies, Districts and Associations	168
Association of California Water Agencies (ACWA)	168
Calleguas Water District (Calleguas)	168
Cocamonga Water District (CWD)	169
Irvine Ranch Water District (IRWD)	170
Las Virgenes Municipal Water District (LVMWD)	170
Municipal Water District Of Orange County (MWDOC)	171
Santa Ana Watershed Project Authority (SAWPA)	172
Southern California Water Committee (SCWC)	172
Westlands Water District (Westlands) and San Luis and Delta-Mendota Water Authority (Authority)	173
Western Municipal Water District (WMWD)	175
Three Valleys Municipal Water District (TVMWD)	176
Sacramento County Water Agency	177
Farmers and Associations	178
Agricultural Council of California; California Cotton Ginners and Growers Associations; California Farm Bureau Federation; California Poultry Federation; Western Growers (ACC, et al)	178
California Farm Water Coalition	178
Doug Anderson Farms	178
Waymire Family Farms (Waymire)	179
Valley Industry and Commerce Association (VICA)	180
Kings County Farm Bureau	180
Cities, Sanitation Districts and Associations	181
Central Valley Clean Water Association (CVCWA)	181
Tri-Tac and California Association of Sanitation Agencies (CASA)	185
Central Contra Costa Sanitary District (CCCSD)	186
City of Davis	188
Delta Diablo Sanitation District	188
Ironhouse Sanitary District	189
Partnership for Sound Science in Environmental Policy	189
City of Roseville	190
City of Folsom	190
City of Vacaville	193
City of West Sacramento	194
City of Rancho Cordova	195
Rancho Cordova Chamber of Commerce	196
Atlantic Consultants	196
Sacramento County Taxpayer’s League	197
Sacramento Hispanic Chamber of Commerce	198
Sacramento County Municipal Services Agency	198
Sacramento Area Council of Governments (SACOG)	199
City of Corona	199
City of Sacramento	200
State and Federal Agencies	201
United States Fish and Wildlife Service (USFWS)	201
United States Environmental Protection Agency Region IX (USEPA)	204
National Oceanic And Atmospheric Administration - National Marine Fisheries Service (NMFS)	210
Delta Stewardship Council	211
Department of Fish and Game	212
Department of Water Resources	213
Bureau of Reclamation	216

Environmental Society	219
Coalition for a Sustainable Delta	219
California-Nevada Chapter, American Fisheries Society	220
Families Protecting the Valley	221
Business Rate Payers	222
Summarized Residential Rate Payers Comments	232

At a public hearing scheduled for 9 December 2010, 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 Sacramento Regional Wastewater Treatment Plant. A tentative NPDES permit and TSO were issued on 3 September 2010. This document contains Regional Water Board staff responses to written comments received from interested persons.

Written comments on the proposed Orders were required to be received by the Central Valley Water Board by 8 September 2010 in order to receive full consideration. Due to 8 September 2010 being a furlough day, comments were allowed to be received by 11 September 2010. Numerous comments were received by the deadline (see Table of Contents). In addition to comments from the Discharger, comments were received by state and federal legislators, state and federal agencies, water agencies, cities, counties, sanitation districts and other discharger groups, farmers and farmer associations, individual businesses, environmental groups, tax payer groups, and 102 letters were received from individual rate payers within the SRCSD service area.

Written comments are summarized below, followed by Regional Water Board staff responses. To review the detailed comments, please refer to following website:

http://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/sac_reg_co_sd/index.shtml

Sacramento Regional County Sanitation District (SRCSD)

General Comments - The Sacramento Regional County Sanitation District (District) expresses concern that the tentative permit limitations are the result of predetermined outcomes based on the political interests of others. The limitations are not based on science. The permit relies on “best treatment and control” (BPTC) as a basis for several terms of the tentative permit and typifies the outcome-oriented approach. The tentative permit selectively compares the District with other not similarly situated dischargers with respect to costs and treatment levels. The Sacramento River volume is 50 times greater than effluent discharge. The costs to comply with the tentative permit are a burden to residents of all economic classes.

Response: Comments noted and addressed in detail with the corresponding detailed comment.

SRCSD Comment #1: Disinfection requirements (pathogens) – failure to conduct analysis required by the Water Code Section 13241.

Response: The Water Board’s 13241 findings are supportable and the permit properly considers each of the factors. Water Code section 13263, subdivision (a) states in pertinent part that the waste discharge requirements shall take into consideration the provisions of Section 13241. The provisions noted in Water Code section 13241 are: (1) past, present, and probable future beneficial uses of water; (2) environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto; (3) water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area; (4) economic considerations; (5) the need to develop housing within the region; and (6) the need to develop and use recycled water.

Despite the fact that the Regional Board has made 13241 findings, the Regional Board notes that if numeric effluent limits are “more stringent” than required under federal law, the Regional Board may take into account the economic effects of doing so. (*City of Burbank v. State Water Resources Control Board* (2005) 35 Cal.4th 613, 625.) The Regional Board also notes that because the proposed permit does not establish water quality objectives, but merely implements existing water quality objectives from its Basin Plan that no consideration of the Water Code section 13241 factors is necessarily mandated. (See, e.g., *San Joaquin River Exchange Contractors Water Authority v. State Water Resources Control Board* (2010) 183 Cal.App.4th 1110, 1120.)

Here, in an abundance of caution, the Regional Board has taken the economic effects of doing so into consideration, including the costs to comply with the proposed permit and associated economic costs as provided in the District’s anti-degradation analysis, Building Industry Association (BIA) study, the study submitted by the Water Agencies¹, and the University of Pacific (UOP) study. As noted elsewhere, the proposed tertiary filtration requirements for SRCSD are not more stringent than the limits for any treatment plant needing tertiary filtration and all other large wastewater treatment plants in the Delta (Lodi, Manteca, Stockton, and Tracy) have tertiary filtration to remove pathogens.

The following Water Code Section 13241 analysis, shown in italics below, has been added to the proposed permit:

¹ The Water Agencies include the following; Alameda County Water District, Alameda County Flood Control and Water Conservation District, Zone 7, Contra Costa Water District, Kern County Water Agency, Metropolitan Water District of Southern California, San Luis & Delta Mendota Water Authority, Santa Clara Valley Water District, State & Federal Contractors Water Agency, State Water Contractors, and Westlands Water District

This Order contains effluent limitations and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Regional Water Board has considered the following factors in CWC section 13241:

- (1) The past, present and probable future beneficial uses of the Sacramento River and Delta include municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial process water supply, industrial service supply, body contact water recreation, other non-body contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, wildlife habitat, and navigation.*
- (2) The environmental characteristics of the hydrographic unit, including the quality of the available water, will be improved by the requirement to provide tertiary treatment for this wastewater discharge. Tertiary treatment will allow for the reuse of the diluted wastewater for food crop irrigation and contact recreation activities that would otherwise be unsafe according to recommendations from DPH.*
- (3) Fishable and swimmable water quality conditions can be reasonably achieved through the coordinated control of all factors that affect water quality in the area.*
- (4) The economic impact of requiring an increased level of treatment has been considered. The Discharger and others has estimated that the increased level of treatment will cost approximately between \$500 million to \$1.3 billion. The loss of beneficial uses within downstream waters, without the tertiary treatment requirement, which includes prohibiting the irrigation of food crops and prohibiting public access for contact recreational purposes, would have a detrimental economic impact. In addition to pathogen removal to protect irrigation and recreation, tertiary treatment may also aid in meeting discharge limitations for other pollutants, such as heavy metals, reducing the need for advanced treatment specific for those pollutants.*

- (5) *The requirement to provide tertiary treatment for this discharge will not adversely impact the need for housing in the area any more than for other adjacent communities. The potential for developing housing in the area will be facilitated by improved water quality, which protects the contact recreation and irrigation uses of the receiving water. DPH recommends that, in order to protect the public health, diluted wastewater effluent must be treated to a tertiary level for contact recreational and food crop irrigation uses. Without tertiary treatment, the downstream waters could not be safely utilized for contact recreation or the irrigation of food crops.*
- (6) *It is the Regional Water Board's policy, (Basin Plan, page IV-12.00, Policy 2) to encourage the reuse of wastewater. The Regional Water Board requires dischargers to evaluate how reuse or land disposal of wastewater can be optimized. The need to develop and use recycled water is facilitated by providing a tertiary level of wastewater treatment that will allow for a greater variety of uses in accordance with CCR, Title 22.*
- (7) *The Regional Water Board has considered the factors specified in CWC section 13263, including considering the provisions in CWC section 13241, in adopting the disinfection and filtration requirements under Title 22 criteria. The Regional Water Board finds, on balance, that these requirements are necessary to protect the beneficial uses of the Sacramento River and Delta, including water contact recreation and irrigation uses.*

A Section 13241 socioeconomic analysis is based on those costs to meet requirements more stringent than federal technology requirements for secondary treatment. Thus the tertiary costs to meet Title 22 (or equivalent) requirements are included in the analysis. The District, BIA, UOP, and the Water Agencies all submitted different versions of socioeconomic analyses. The District's analysis is based on the construction of nitrification/denitrification and filtration for 218 mgd. This is not the appropriate costs for a 13241 analysis because the District no longer plans to expand its facility; nitrification/denitrification treatment processes are necessary to meet adopted water quality objectives and the 13241 analysis is for treatment more stringent than requirements for water quality objectives. In this case, only the costs for filtration should be used. Similarly, the BIA analysis included the District's estimated costs for nitrification/denitrification and filtration. The UOP analysis used only

nitrification/denitrification costs that are not related to the 13241 analysis. The Water Agencies also included all treatment costs in its analysis, but used lower estimated construction costs. If the construction costs vary, so will the socioeconomic analysis. The table below shows the dramatic differences in the costs for microfiltration.

Treatment	District's Estimate Carollo ^a	Trussell ^b	PG Environmental ^c	Treatment Feasibility ^d	Pilot Study ^e	2007 Budget ^f	Mercury Costs ^g
Microfiltration (MF)	4,390,000			2,100,000	1,400,000	1,400,000	1,900,000
Mixed Media			3,300,000				
MF+Ozone		2,120,000					
UV	450,000						
Cost/mgd	4,840,000	2,120,000	3,300,000				

a-Carollo Engineers-Clarification of base construction costs & construction cost factors - Dated August 25, 2010

b-Trussell Technologies Inc - 1 October 2010 letter to Adam Kear, MWDC from R. Shane Trussell

c-PG Environmental Memorandum to Kathleen Harder from PG Environmental, LLC dated August 18, 2010 (total costs using mixed media filtration)

d-- Carollo Engineers - NPDES Permit No. CA 0077682-Provision E.6-Treatment Feasibility Studies

e - SRCSD-Membrane Pilot Testing-Presentation before Central Valley Clean Water Association –2007

f SRCSD 2006-07 Final Budget

g- Mercury Offset Feasibility Workshop No. 2- 12/10/2002 - Fact Sheet - Treatment Feasibility Study Information

Note: The District and PG Env use a peaking factor of 1.43 based on SRCSD influent flows from 1994 - 2002; Trussell peaking factor from Carollo Engineers Capacity Rating Rept of 1.33 based on data from 1994 - 2004.

Therefore, the total costs of construction will vary accordingly.

The District's estimates for compliance with the proposed permit are identified under the first column, labeled District's Carollo Engineers Estimate. The last three columns are also District estimates for other microfiltration projects. The Water Agencies' estimated costs are by Trussell Technologies and PG Environmental estimated costs were requested by Central Valley Water Board staff. Given the dramatic range in filtration costs by the District (Carollo 1st column) and the other cost estimates, Central Valley Water Board staff question the District's higher estimated costs for the following reasons:

- The filtration costs for all other estimates appear to be relatively similar.
- The District's own estimates from a pilot microfiltration project were not used.

- The District used the City of Davis' wastewater treatment plant filtration preliminary design estimate. The filtration costs for the Davis Wastewater Treatment Plant are not appropriate because it does not use similar wastewater treatment technologies as the District. In fact, there is not a more dissimilar facility to use to estimate costs for the District, because the City of Davis uses a land-based treatment system (lagoons and overland treatment), while the District uses pure oxygen activated sludge. The two treatment systems are very different.

The total upgrade costs proposed by the District also included a peaking factor based on data from 1994-2002, which is too large, thus artificially increasing the estimate. The peaking factor used for its estimates is 7% greater than the current peaking factor, because the peaking factor has lowered in recent years due to aggressive inflow and infiltration corrections completed by the District.

The socioeconomic analysis conducted by the District did not include other socioeconomic costs to downstream users, such as the Water Agencies representing drinking water and agricultural uses, the commercial and recreational fishermen and any other recreational users. UOP in their analysis included costs to farmers and commercial fishermen for loss of income and jobs due to Delta pumping restrictions to protect endangered species. UOP estimated the loss of agricultural and salmon fishery jobs and income due to flow restrictions to protect endangered species. The loss is 3800 jobs and \$270 million in income. Although, the SRWTP discharge has not been directly tied to the only cause of the decline of aquatic life in the Delta, it is likely a contributor to the decline as a stressor.

Each economic analysis came to different conclusions. The District's analysis concludes the incremental increase in water quality from 218 mgd to 181 mgd does not merit the substantial treatment costs. However, this analysis is moot, since the District is not expanding its plant. Regardless, the analysis did not appropriately compare the water quality increases to the advance treatment for the entire treatment plant capacity. The comparison should be the difference between the existing effluent quality at 181 mgd versus effluent quality with filtration. Eliminating pathogens from the discharge, as well as, other constituents of concern that will be removed by a filtered effluent will result in significant water quality increases.

The Building Industry Association analysis paints a dire economic scenario for housing and commercial costs due to significantly increased connection fees. The District's connection fees would be the highest in

the State based on the 2007-2008 wastewater user fees¹. However, numerous surrounding communities have upgraded and expanded their treatment facilities and in some cases built completely new facilities without similar substantial increases in connection fees. Also puzzling is the fact the wastewater treatment plant was funded by the Clean Water Grant program that paid for nearly 90% of the existing treatment facility. Thus there is no current debt service to include in the connection fee.

The Water Agencies submitted a socioeconomic analysis based on EPA's March 1995 Interim Economic Guidance for Water Quality Standards Workbook. A two part test showed the cost for nitrification/denitrification and filtration is affordable for the Sacramento area².

Central Valley Water Board staff has reviewed the relative per capita costs of upgrades by other communities compared to SRCSD's cost estimate. Such cost comparisons are not exact because not all upgrade projects are equivalent, but the comparison showed that SRCSD's estimate was in the mid-range of per capita costs, and that these other communities that have completed the plant upgrades and are operating the upgraded systems, without irreparable economic harm. Even if the \$2 billion costs projected by SRCSD are correct, the increased sewage treatment rate to \$60 per month for each household is not out of line for sewer bills. Many communities discharging to surface waters pay this amount or substantially more for sewer service. For example, households in the Folsom Lake Service Area pay approximately \$100 per month for sewage treatment and households in the North Auburn Service Area pay \$67 per month for sewage treatment. Residents in Cascade Shores, a remote community in Nevada County that serves about 84 households, pay \$166.25 per month to cover the costs of their NPDES discharge that is treated through a newly constructed advanced treatment facility to meet requirements similar to those proposed for SRCSD. On the other hand, larger communities in the Sacramento/Delta area that have already upgraded their treatment facilities to advanced treatment also similar to that in the proposed NPDES Permit have sewer fees substantially less than the monthly fees projected by SRCSD, including Stockton (\$22.75/month), Roseville (\$27.90/month), Tracy (\$31.00/month), and Lodi (\$38.84/month).

After reviewing all the socioeconomic data submitted by several parties, the Central Valley Water Board staff concluded that on balance, these

¹ State Water Resources Control Board,
http://www.waterboards.ca.gov/publications_forms/publications/general/docs/wastewatersurvey0708.pdf

² Water Agencies Comment letter dated 8 October 2010, pages 89-97.

requirements are necessary to protect the beneficial uses of Sacramento River and Sacramento-San Joaquin Delta, including water contact recreation and irrigation uses, as well as, the improved water quality resulting from a filtered effluent will have the added advantage of protecting and enhancing aquatic life beneficial uses.

SRCSO Comment #2: Disinfection requirements (pathogens) – Analysis of tentative permit discussion on disinfection and reasonable protection of beneficial uses is unclear and inconsistent in the basis for the proposed effluent limitations for coliform and turbidity. The adopted water quality standard is on page III-3.00 of the Basin Plan, yet there is no reasonable potential analysis related to that or any other standard.

Setting aside the lack of direct use, the Tentative Permit does not acknowledge that there are other reclamation criteria applicable where recycled water does not come into direct contact with food or people. (See, e.g., *id.*, §§ 60304(b) & (d), 60301.225.) Instead, it implies that the only criteria that exist are the requirements for tertiary effluent, which are only applicable to recycled water that comes into direct contact with food crops eaten fresh or to impoundments of recycled water for recreation. (*Id.* at § 60304(a)(1).) These circumstances are not present or remotely close to present. The reclamation regulations thus have no application or relevance here.

The statement in the Tentative Permit (p. F-75) that “any increased risk . . . is not protective” of beneficial uses ignores the provisions of Water Code sections 13000, 13001, 13241, and 13263. (Nor has any change in risk at all been identified with respect to any actual use of water for irrigation of food crops eaten fresh or for municipal use.) Moreover, the Tentative Permit does not propose limits to prevent increase in risk; it proposes limits for effluent water quality far superior to the quality of the receiving water.

The Tentative Permit ultimately makes a conclusion that the “[r]equirements of Title 22 will be adequate to meet the 1 in 10,000 risk and 1 log removal recommended by DPH.” This risk level is not met upstream of the SRWTP, and far exceeds the recommended risk levels from the U.S. EPA and those that apply to bathing beaches. DPH has provided no support for its proposed risk level and therefore the Regional Board’s reliance on this level in any way has no basis or evidentiary support, and further it does not consider the provisions of the Water Code.

Dr. Charles Gerba prepared the preliminary risk assessment report and a revised report titled “Estimated Risk of Illness from Swimming in the Sacramento River” (Estimated Risk Report) which was submitted to the Regional Board in February

2010 using conservative assumptions. In no case did the risks exceed those currently recommended by the U.S. EPA for contact recreation.

Furthermore, Dr. Gerba estimated *Giardia* inactivation based on a literature value for *Cryptosporidium* inactivation, as there is no data reported on *Giardia* viability in wastewater effluents. However, *Giardia* is much more susceptible to inactivation by free chlorine and chloramines than *Cryptosporidium*¹ and therefore would experience greater inactivation by chloramines in the SRWTP effluent before discharge. Using an analysis with assumptions more realistic than the conservative assumptions in the Estimated Risk Report, the Sacramento River downstream of the SRWTP outfall would definitely approach, and may achieve, the 1:10,000 risk level recommended by DPH. Dr. Gerba provides further analysis and conclusions in accompanying material, which constitutes additional comment and evidence.

The Tentative Permit makes one reference to use of the Delta for water supplies, but supplies no facts or logic suggesting such use is not adequately protected. For example, *Giardia* and *Cryptosporidium* are not detected frequently in State Water Project waters according to the 2006 State Water Project Sanitary Survey. The source of waters for all of the drinking water treatment plants analyzed was classified as Bin 1 (no additional treatment required under Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)).

Response: Due to site-specific circumstances of the discharge to the Delta being a major drinking water supply and a high number of direct contact at point of discharge and downstream, Central Valley Water Board staff sought a recommendation of the California Department of Public Health (DPH) regarding the appropriate level of treatment needed to protect the beneficial uses of the receiving water. DPH recommended that the SRCSD conduct a health risk assessment study for its discharge. The SRCSD contracted with Dr. Charles Gerba from the University of Arizona to conduct a health risk assessment. The Study concluded that there is an increase in *Cryptosporidium* and *Giardia* concentrations as a result of the wastewater discharge, with (under conservative conditions) an increased risk of illness of downstream water recreationists from *Cryptosporidium* and *Giardia* of 1.6 to 3.7 times. In its 15 June 2010 letter, DPH recommends that the Discharger provide additional treatment sufficient to reduce the additional risk of infection posed by exposure to the discharge, and that the pathogen concentrations be reduced until the level of health risk is no more than 1 infection per 10,000 exposures to the river water. SRCSD argues that the DPH recommendation is overly

¹ U.S. EPA. 1991. Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems using Surface Water Sources. U.S. Environmental Protection Agency, Washington, DC.

stringent, and that most natural waters do not meet this level of protection of infection. SRCSD recommends, instead, that the USEPA Beach Standard¹ for freshwater recreational exposure of 8 illnesses per 1000 exposures, be used as the level of human health protection. SRCSD additionally states that the discharge does not create a health risk greater than the USEPA Beach Standard.

The USEPA Beach Standard is not an appropriate or applicable standard for the discharge of treated sewage, a controllable source of pathogens. In the Forward of the Beach Standards, the then Director of the USEPA Criteria and Standards Division states: “The bacteriological water quality criteria recommended in this document are based on an estimate of bacterial indicator counts and gastrointestinal illness rates that are currently being accepted, albeit unknowingly, in many circumstances, by the States.” The Beach Standard of 8 illnesses for 1000 exposures is not a policy of USEPA nor does it state that this is an acceptable rate of illness. It is instead a recognition that there is a health risk associated with recreational use of freshwaters, even when those waters in and of themselves are considered to be free of health risk. Wildlife, non-point source discharges, and the recreationists themselves, all contribute pathogens to the freshwaters used for recreation. If a controllable sewage treatment plant discharge is allowed to add pathogens to a receiving water such that the health risk is at the USEPA Beach Standard, the uncontrollable sources and contribution of pathogens from wildlife, non-point source pollution, and the recreationalists, will cause the overall health risk to exceed the 8 illness per 1000 exposures. If the Beach Standard is applied to the SRCSD discharge, under the most critical river conditions, the SRCSD discharge would cause nearly 1 of every 100 people ingesting river water during recreation to become ill from pathogens in the SRCSD discharge, which is in addition to any contribution of health risk from other sources.

The health risk study conducted by SRCSD focused on pathogen impacts from body contact recreation because that was determined, through consultation with DPH, that recreational contact with the Sacramento River has the highest degree of water contact and risk of illness. If contact recreation is fully protected from pathogen risk, other beneficial uses will also be protected. There are other beneficial uses that can be impacted by pathogens in the SRCSD discharge.

- Agricultural irrigation beneficial use. Some crops, such as strawberries and carrots, can transmit pathogens in the irrigation water to human consumers. Irrigation water intakes in the immediate vicinity

¹ “Ambient Water Quality Criteria for Bacteria – 1986” EPA 440/5-84-002, January 1986

of the discharge are not an issue because the irrigation water is drawn from the sides of the river outside of the SRCSD mixing zone, so those agricultural irrigation diversions contain no SRCSD wastewater. Any agricultural diversion more than a mile or so downstream of the discharge point will contain some amount of SRCSD discharge and the pathogens in the discharge. For any agricultural irrigation with water containing SRCSD discharge, there is an increased pathogen loading onto the crops due the SRCSD discharge. No specific study was conducted to quantify this health risk. However, tertiary filtration to remove pathogens will eliminate this increased health risk.

- Drinking Water (MUN) beneficial use. The Sacramento River and Delta downstream of the SRCSD discharge are used extensively for municipal and domestic drinking water supply. The raw water supply for these drinking water systems contains increased concentrations of pathogens as the result of SRCSD's existing discharge, although the health risk caused by the increased pathogen concentrations has not been studied. Municipal drinking water intakes that provide full drinking water treatment required by State and Federal regulations should be able to remove the increased pathogens without a health risk to the consumers. However, there are small drinking water systems throughout the Delta that are not legally required to meet these State and Federal regulations, and so may not have treatment systems that can dependably remove the pathogens. Additionally, there can be incidental drinking of raw Delta water by the public.

SRCS D Comment #3: The tentative permit ignores the DPH 20:1 dilution guideline and historic permitting practice. In a letter to the Regional Board dated 8 April 1999, DPH indicated it would consider wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1 to be adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 mL as a seven-day median and if the effluent coliform concentration does not exceed 240 MPN/100 mL more than once in any thirty day period. DPH has reiterated this advice in a letter dated July 1, 2003. The District has reviewed 56 recent Region 5 permits, including 22 from 2007, 19 from 2008, 10 from 2009, and 5 from 2010. Of the 18 allowing more than 20:1 dilution, 16 contained total coliform effluent limits of 23 MPN/100 mL as a 7-day median (or higher). Two contained total coliform effluent limits of 2.2 MPN/100 mL as a 7-day median. In other words, 16 of 18 permits issued to similarly situated dischargers in the 2007-2010 period *did not* include the limits imposed here for coliform and related constituents.

The two exceptions involved different circumstances. The only exceptions involved circumstances not present here. “Similarly situated dischargers” are not required to meet Title 22 tertiary limits, and the Regional Board should apply a total coliform effluent limit of 23 MPN/100 mL as a seven-day median.

Response: The Central Valley Water Board generally follows a November 1980 general recommendation by the Department of Public Health (DPH) on the appropriate levels of disinfection for protection of body-contact recreation in waters downstream of a sewage treatment plant discharge. The general DPH recommendation allows a discharge of secondary treatment with chlorination when there is a minimum of 20-to-1 dilution (river to discharge), and suggests tertiary filtration when less than 20-to-1 dilution is available. The DPH recommendations are a “rule of thumb” and are not regulation. Site-specific disinfection recommendations are often sought from DPH in preparing NPDES permits. Whether using a site-specific recommendation or the general recommendation from DPH, the Central Valley Water Board must make its own determination of the level of disinfection. The Board has adopted permits that are both more and less stringent than the general 20-to-1 rule of thumb. The following are recent Board-adopted NPDES permits in which tertiary filtration and upgraded coliform effluent limitations are required although 20-to-1 dilution is available:

- Ironhouse Sanitary District Wastewater Treatment Plant (WWTP) (Order R5-2008-0057)
- City of Angels WWTP (Order R5-2007-0031 and R5-2009-0074)
- City of Jackson WWTP (Order R5-2007-0133), and
- Bear Valley Water District (Order No. R5-2005-0139).

Following site-specific studies and site-specific recommendations from DPH, the NPDES permit for the City of Vacaville Wastewater Treatment Plant (Order R5-2008-0055-01) seasonally allows secondary treatment with chlorination discharge with essentially no dilution.

Even when the 20-to-1 “rule of thumb” is followed, the available dilution often far exceeds a 20-to-1 river to discharge flow ratio. The dilution ratio for the District’s discharge is typically greater than 20-to-1, but can be at times less than 20:1. The following is a list of all municipal sewage treatment plant discharges to the Sacramento River downstream of Shasta Dam and the associated average dilution ratios (river-to-effluent). As noted, some of these treatment facilities have a tertiary filtration process preceding the disinfection process, which reduces the pathogen concentrations, although the filtration systems themselves are not designed and operated to produce a pathogen-free effluent (i.e. Title 22, or equivalent, filtration system).

<u>Facility</u>	<u>Permitted Flow</u>	<u>Average Dilution</u>
Sacramento Regional CSD WWTP (no filtration)	181 mgd	50-to-1
City of Redding Stillwater WWTP (filtered)	4 mgd	1200-to-1
City of Redding Clear Creek WWTP (filtered)	8.8 mgd	600-to-1
City of Corning WWTP (no filtration)	1.4 mgd	4100-to-1
City of Anderson WWTP (filtered)	1.4 mgd	2400-to-1
City of Rio Vista Beach WWTP (no filtration)	0.65 mgd	10,000-to-1
City of Chico WWTP (no filtration)	12 mgd	400-to-1
City of Red Bluff WWTP (filtered)	2.5 mgd	2600-to-1

Due to site-specific circumstances of the discharge to the Delta being a major drinking water supply and a high number of direct contact at point of discharge and downstream, Central Valley Water Board staff sought a recommendation of DPH rather than rely on the 1980 recommendation.

SRCS D Comment #4: The Regional Board can not adopt the proposed limitations without compliance with Water Code section 13263(a), which requires consideration of beneficial uses to be protected, water quality objectives reasonably required for that purpose, other water discharges, and the provisions of section 13241 of the Water Code.

The tentative permit is not objective or balanced in its characterizations for the extent of recreational user days and agricultural irrigation.

Implementing full Title 22 tertiary treatment at SRWTP would significantly reduce the incentive and ability to recycle water, by diverting potential resources away from recycled water projects to a major filtration and disinfection treatment project.

The specific factors listed in Water Code sections 13241(a)-(f) are not exclusive. (Wat. Code, § 13241 [factors “shall include, but not necessarily be limited to . . . [factors in § 13241(a)-(f)].”].) For example, energy demands associated with new treatment processes (and associated greenhouse gas emissions) must be considered to satisfy the Regional Board’s obligations under sections 13241 and 13263 of the Water Code.

Response: See responses to SRCS D Comment #2 and #3.

SRCSO Comment #5: Filtration is not Best Practical Treatment and Control (BPTC) for the Sacramento Regional Wastewater Treatment Plant. The SRWTP is not similarly situated to POTWs that implement tertiary treatment.

Response: See responses to SRCSO Comments # 3 and #37 - #39..

SRCSO Comment #6: Page F-75 of the Tentative Permit states that tertiary filtration will or may reduce discharge of other water quality constituents to an unspecified degree. The Regional Board has, of course, authority to require WQBELs where appropriate (and the Tentative Permit proposes WQBELs for some of the described water quality constituents). The Regional Board may not dictate how the District achieves compliance. The general reference to potential effects of filtration does not support the requirement. With respect to BOD and dissolved oxygen specifically, the District has proposed that the SRWTP be regulated to limit discharge of oxygen-demanding substances. The Tentative Permit makes no demonstration that reductions in the listed constituents will provide an important incremental benefit in terms of compliance with objectives or protection of beneficial uses.

Response: As discussed in responses to SRCSO Comment #2 and #3, and in the Fact Sheet of the proposed Order, Title 22 (or equivalent) filtration is reasonable and necessary to protect the beneficial uses of the receiving water. Sufficient findings have been made to demonstrate the need for these requirements. However, an additional benefit of providing tertiary filtration is the higher quality water that will also protect aquatic life and may be used for water reclamation. These are additional benefits of tertiary filtration, not reasons for requiring the level of treatment.

The District's request for a "floating BOD and ammonia limitation" is discussed in response to SRCSO Comments #8, #16 and #51.

SRCSO Comment #7: The District recommends the adoption of Disinfection Alternative 1 from the Tentative Permit Options. As well as BOD and TSS provisions consistent with the current permit.

Response: These permit alternatives are available for Board consideration, however, Central Valley Water Board staff recommend the Title 22 or equivalent filtration requirements as presented in the tentative permit for the reasons discussed in response to SRCSO Comments #1-#3 and the Fact Sheet of the proposed Order.

SRCSO Comment #8: The Evidence Identified in the Tentative Permit Does Not Substantiate the Hypothesis That Ammonia Impacts Pelagic Organism Decline (POD) Species - Attachment K (Attachment J in agenda version of the permit) offers 3 potential connections between ammonia in SRWTP effluent and the

pelagic organism decline (POD): (1) inhibition of diatom primary production in the Sacramento River, Suisun Bay, and the Delta; (2) causation of acute and/or chronic toxicity to delta smelt and *P. forbesi*, an important food organism for larval and juvenile fish; and (3) contribution to a shift in the algal community from “nutritious species of diatoms” to “less desirable forms like *Microcystis* (blue-green algae).” None of the studies completed on these topics justify full nitrification at the SRWTP. In fact, several of the studies that have been completed have essentially eliminated concern in one of these areas (e.g., ammonia toxicity to Delta fish species).

Response: The SRWTP is the primary source of ammonia to the Delta¹. Sufficient evidence is provided in the tentative permit that ammonia levels from the SRWTP are discharged at levels that have been shown to have a negative effect on the copepod *P. forbesi* and on the algal community in both Suisun Bay and the Delta. The ammonia limits in the tentative permit were developed to meet the 1999 U.S. EPA ammonia criteria at the end-of-pipe without dilution. These proposed ammonia reductions are incidentally comparable to reductions needed to restore baseline algal primary production rates in both Suisun Bay and the Delta (see Table 1, below). These conclusions assume that the fate and transport of ammonia will remain similar in the Delta and that no new sources of ammonia will be discharged to the system after adoption of the revised permit. Increasing algal primary production rates in the Bay-Delta will likely increase fishery yields.

Table 1- Summary of reported ammonia effect concentrations and the associated ammonia exceedance factors for various locations in the Sacramento-San Joaquin River Delta. For comparison, the tentative permit requires a 20-fold ammonia reduction in the daily maximum concentration (45 to 2.2 mg N/L ammonia) and a 13-fold reduction in the average monthly concentration (24 to 1.8 mg N/L ammonia).

Organism	Location	NH ₃ Effect (mg N/L)	Ambient NH ₃ (mg N/L) ^{1/}		Exceedance Factor ^{2/}		Reference
			Max	Mean	Max	Mean	
<i>Pseudodiaptomus forbesi</i>	Sacramento R @ Hood	Reduce Reproduction and Nauplii survival ^{3/}	0.71	0.46	2X	1.3X	Dr Swee Teh
Diatoms	Sacramento R @ Chipps Is	Reduces nitrate uptake ^{4/}	0.16	0.10	11X	7X	Dugdale <i>et al.</i> , 2007; Wilkerson <i>et al.</i> , 2006
		Shutdown nitrate uptake ^{5/}	0.16	0.10	3X	2X	
Diatoms	Sacramento R between RioVista & Pt Sacramento	Reduces nitrate uptake ^{4/}	0.01-0.32	0.08-0.19	1-21X	5X-13X	
		Shutdown nitrate uptake ^{5/}	0.01-0.32	0.08-0.19	1-6X	1-3X	

¹ Jassby, A. 2008. Phytoplankton in the upper San Francisco Estuary: recent biomass trends, their causes and their trophic significance. San Francisco Estuary & Watershed Science, Feb 2008.

^{1/} The maximum and mean ambient ammonia concentration is the highest monthly and annual average value measured at the site between March 2009 and February 2010 by Regional Board staff (Foe *et al.*, 2010)

^{2/} Calculated by dividing the measured ambient ammonia concentration by the reported effect level

^{3/} 0.36 mg N/l

^{4/} 0.015 mg N/l

^{5/} 0.056 mg N/l

SRCS D Comment #9: The Tentative Permit Identifies Significant Uncertainty Associated with Supposed Ammonia Impacts on the Delta Food Web

Response: Central Valley Water Board staff concur that all the questions to the Delta Food Web have not been answered. Regardless, there is ample evidence that the discharge is causing impacts to the beneficial uses of the Sacramento River and the Sacramento-San Joaquin Delta. See response to SRCS D Comment #8 and #12.

SRCS D Comment #10: Independent Reviews and Reports Do Not Conclude That Ammonia Has Contributed to the POD - The theories regarding ammonia's potential role in the Delta (or San Francisco Estuary (SFE)) ecosystem, and the strength of evidence emerging from the research activities, have been subjected to repeated analysis during the last 3 years through independent review panels, focused workshops, and agency reports. Significantly, none of the independent or agency reviews have reached a determination that ammonia has contributed to the POD.

Response: See response to SRCS D Comment #8 and #12.

SRCS D Comment #11: Evidence in the Record Demonstrates That Ammonia Is Not Causing Acute or Chronic Toxicity to Delta Fish - In Attachment K (Attachment J in agenda version of the permit), the Tentative Permit references an opinion expressed by Werner et al. (2008, 2009) that repeated excursions of pH above 8.0 in the Delta equate to a potential for chronic toxicity for delta smelt. This gross generalization is not evaluated using ambient data in Werner et al. (*ibid.*), and does not constitute a valid basis for inferring chronic toxicity in the estuary. Because total ammonia concentrations and water temperature vary widely within pH strata across the estuary, ambient pH alone is an inappropriate basis for gauging whether un-ionized ammonia concentrations are of concern. Plots of pH versus un-ionized ammonia for both the brackish estuary and the freshwater Delta for the years 2000-2010 (SRCS D (2010))¹ indicate that un-ionized ammonia concentrations span the full range of ambient values (low to high) when pH >8.0.

¹ Sacramento Regional County Sanitation District Comments on Draft "Nutrient Concentration and Biological Effects in the Sacramento-San Joaquin Delta, Central Valley Regional Water Quality Control Board, May 2010. Letter submitted to Chris Foe, Central Valley Regional Water Quality Control Board, June 14, 2010 (SRCS D (2010).)

Response: Central Valley Water Board staff concur that ammonia levels after mixing with the receiving water are not sufficiently elevated to cause toxicity to Delta smelt.

SRCSO Comment #12: Hypothesized Benefits of Ammonia Reduction in Terms of Increased Diatom Biomass in Suisun Bay Are So Uncertain As to Make a Requirement for Full Nitrification Unreasonable

Response: Central Valley Water Board staff do not concur. See response to SRCSO Comment #8. The Sacramento-San Joaquin Delta Estuary has one of the lowest primary production rates of any major estuary in the world. Lack of primary production is one factor hypothesized to explain the low fish production in the estuary and may also contribute to the Pelagic Organism Decline¹. Recent studies by the Dugdale laboratory at the Romberg Tiburon Center demonstrate that ammonia concentrations are suppressing nitrogen uptake and algal primary production in both Suisun Bay and the Delta². The San Francisco Regional Water Quality Control Board is responsible for regulating water quality in Suisun Bay. The Executive Officer from the San Francisco Water Board has informed staff from the Central Valley Water Board that ammonia levels in Suisun Bay may be impairing aquatic life beneficial uses by having a detrimental effect on primary production and algal species composition and request that the Central Valley Regional Board take all reasonable and feasible measures to reduce ammonia loads as soon as possible³. Evidence for ammonia impairment of algal primary production in the Delta was reported for the first time at the 6th Biennial Bay-Delta Science Conference by Dr Parker⁴. Dr Parker stated that “a U-shaped pattern of primary production and chlorophyll was observed ... with a maximum in the river above the SRWTP and again to the west in San Pablo Bay, essentially a mirror image of the distribution of ammonia concentrations”. These results are consistent with the earlier observations for Suisun Bay that ammonia concentrations suppress algal primary production and standing chlorophyll levels and extend the findings to the freshwater Delta. Dr. Dugdale’s laboratory report that ammonia begins to suppress nitrate assimilation and

¹ Sommer, T., C. Armor, R. Baxter, L. Brown, M. Chotkowski, S. Culberson, F. Feyrer, M. Gingras, B. Herbold, W. Kimmerer, A. Mueller-Solger, M. Nobriga, and K. Souza. 2007. The collapse of pelagic fishes in the upper San Francisco Estuary. *Fisheries* 32(6):270-277.

² Wilkerson, F. R. Dugdale, V. Hogue, and A. Marchi, 2006. Phytoplankton blooms and nitrogen productivity in San Francisco Bay. *Estuaries and Coasts* 29(3):401-416.

Dugdale, R. f. Wilkerson, V. Hogue, and A. Marchi. 2007. The role of ammonium and nitrate in spring bloom development in San Francisco Bay. *Estuarine, Coastal and Shelf Science*, 73:17-29

Machi, A. 2010. Spring 2010 Phytoplankton Blooms in Northern San Francisco Estuary: Influences of Climate and Nutrients. Presented at the 6th Biennial Bay-Delta Science Conference held in Sacramento California on 27-29 September 2010.

³ June 4, 2010 letter from Mr. Bruce Wolfe to Ms. Kathy Harder

⁴ A. Parker, R. Dugdale, F. Wilkerson, A. Marchi, 2010. Biogeochemical Processing of Anthropogenic Ammonium in the Sacramento River and the northern San Francisco Estuary: Consequences for Pelagic Organism Decline Species. Presented at the 6th Biennial Bay-Delta Science Conference held in Sacramento California on 27-29 September 2010

primary production rates at 0.014 mg-N/l with complete shutdown by 0.056 mg-N/l⁴. Regional Board staff monitored ammonia concentrations monthly at Chipps Island, about 2 miles upstream of Suisun Bay, and at multiple locations in the Delta for a year between March 2009 and February 2010². Ambient ammonia concentrations in 2009 and 2010 would need to be reduced by a factor of 2 to 7 at Chipps Island and by a factor of 1 to 21 in the main channel of the Sacramento River between Rio Vista and Chipps Island to eliminate the suppression of nitrogen uptake and primary production (See Table-1 SRCSD comment #8). For comparison, the proposed ammonia permit limits would reduce the maximum daily concentration 20-fold (45¹ to 2.2 mg N/L) and the average monthly value 13-fold (24² to 1.8 mg N/L). These values are comparable to the decreases needed for the Delta and for Suisun Bay to eliminate the ammonia impairment of nitrogen uptake and primary production by the phytoplankton community.

The District does not appear to dispute the fact that ammonia concentrations are suppressing nitrogen uptake and primary production in Suisun Bay. Instead, the District attempts to minimize the problem by stating that other factors, like *Corbula* grazing and historic low primary production rates in spring and early summer in Suisun Bay also contribute to low phytoplankton concentration.

SRCS D Comment #13: The Evidence Identified in the Tentative Permit Does Not Support That Ammonia Causes a Decrease in Chlorophyll-a or Changes the Phytoplankton Composition Downstream from the SRWTP

Response: Central Valley Water Board staff concur that studies have shown that the discharge does not cause a decrease in ambient chlorophyll levels immediately below the diffuser. The Central Valley Nutrient Report, July 2010, shows a decrease in chlorophyll-a both above and below the SRWTP discharge. This indicates that on face value that ammonia could not be the reason the decrease in chlorophyll-a. However, the cause of the decline continues to be unknown and ammonia in the discharge can not be ruled out.

SRCS D Comment #14: The Tentative Permit Does Not Present Evidence That a Shift in Phytoplankton Composition in the Estuary Represents a Degradation of Food Resources at the Bottom of the Food Web

Response: See response to SRCSD Comment #8 and #12.

¹ 5-year daily maximum value.

² 5-year monthly average value

SRCSO Comment #15: The Copepod Toxicity Tests Referenced in the Tentative Permit Are an Improper Basis for Requiring Full Nitrification

Response: Central Valley Water Board staff do not concur. Thirty-day full-life cycle tests were conducted with *P. forbesi* to evaluate the possibility of chronic instream ammonia toxicity. Dr. Teh reported at the August Interagency Ecological Program Contaminant Work Team meeting that *P. forbesi* reproduction and nauplii survival were negatively affected at ammonia concentrations as low as 0.36 mg-N/L. Ammonia concentrations of this magnitude were measured by Regional Board staff in 2009 and 2010 as far as 30 miles below the SRWTP¹ discharge. Additional follow up experiments have recently been performed that confirm the initial *P. forbesi* findings².

SRCSO Comment #16: Partial Nitrification Would Reduce Ambient Ammonia Concentrations.

Response: Partial nitrification would not be protective of the beneficial uses of the Sacramento River and Sacramento-San Joaquin Delta. See response to SRCSO Comments #8, #16 and #51.

SRCSO Comment #17: The District's Low Dissolved Oxygen Prevention Assessment (LDOPA) Report Properly Sets Forth UOD Limits for Protection of Beneficial Uses.

Response: See response to SRCSO Comments #8, #16 and #51.

¹ Foe, C., A Ballard, and S. Fong, 2010. Nutrient Concentrations and Biological Effects in the Sacramento-San Joaquin Delta, Regional Board report, 87 p

² Letter from Dr. Swee Teh to the Central Valley Water Board, dated XXX.

SRCSO Comment #18: Ammonia Mixing Zones Described in Dilution Alternatives 2 and 3 Are Protective of Beneficial Uses, Meet All SIP and U.S. EPA NPDES Permitting Requirements, and Should Be Utilized in This Permit in the Derivation of Water Quality-Based Effluent Limitations for Ammonia

Response: Central Valley Water Board staff do not concur. There exists ample evidence that an acute or chronic mixing zone for ammonia does not meet the mixing zone requirements of the SIP. The SIP requires, in part, that mixing zones do not;

- (1) compromise the integrity of the entire water body;
- (2) adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws; and
- (3) produce undesirable or nuisance aquatic life;

The allowance of acute or chronic mixing zones for ammonia do not meet these requirements, because ammonia discharges from the Facility have been shown to be negatively affecting the receiving water far downstream of the discharge within the Delta, not just the areas defined by the requested mixing zones (see responses to SRCSO Comment #8, #12, and #15). The allowance of the requested mixing zones for ammonia would compromise the integrity of the entire water body, adversely impact biologically sensitive or critical habitats, and produce undesirable or nuisance aquatic life.

Furthermore, the discharge of ammonia is degrading the Sacramento River and the Delta. To be in compliance with the State Water Board's Antidegradation Policy (Resolution 68-16) best practicable treatment or control (BPTC) of the discharge is required. Wastewater treatment technologies are available and commonly used for ammonia removal. In the proposed permit it was determined that full nitrification of the wastewater to remove ammonia is BPTC for this discharge. (see response to SRCSO Comments #37 - #39)

SRCSO Comment #19: NDMA Arguments Are Not Substantial and Should Not Affect the Decision to Approve the Proposed Acute and Chronic Mixing Zones for Ammonia

Response: The NDMA arguments augment the need for full nitrification. Additionally, elevated levels of ammonium and dissolved organic nitrogen in receiving waters can lead to the formation of nitrosamines during the treatment of drinking water. The California Department of Water Resources found over the last year and a half, water quality monitoring

downstream of SRCSD's discharge has detected elevated levels of precursors associated with NDMA. Full nitrification will eliminate one of the precursors (ammonia) for nitrosamines from source water.

SRCSD Comment #20: Draft U.S. EPA 2009 Ammonia Criteria Are Not Appropriate for Use in the Development of Effluent Limits in This Permit. The Tentative Permit and Attachment K (Attachment J in agenda version of the permit) collectively reference the *Draft 2009 Update Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater* (Draft Ammonia Criteria) as one reason for denying dilution credits and requiring full nitrification. U.S. EPA cautioned that the Draft Ammonia Criteria must be published by U.S. EPA and adopted by the states into their water quality standards “. . . before the value is adopted, legally binding and useful in permits.” (Email Exchange Between Kathleen Cole Harder, Regional Board, and Lisa Foersom Huff, U.S. EPA (Aug. 2, 2010).)

Even if the Draft Ammonia Criteria were applicable, it does not provide a sufficient reason to deny a dilution credit to discharges from the SRWTP. (See section V, post.) The Regional Board approved the District's model and mixing zones for chronic criteria. (Letter to SRCSD, see section V, post; Tentative Permit at p. F-35.) The Draft Ammonia Criteria is a chronic criterion. (Tentative Permit at p. K-3.) Further, in a year-long nutrient study conducted by the Regional Board, “[a]mbient concentrations never exceeded the criteria.” (Tentative Permit at p. K-3.) Thus, assimilative capacity for ammonia is available even if the more stringent Draft Ammonia Criteria is inappropriately used.

The District notes and agrees with the statements in the Tentative Permit that it is appropriate to use U.S. EPA's 1999 Update of Ambient Water Quality Criteria for Ammonia (1999 Ammonia Criteria) to interpret the narrative toxicity objective. As indicated in Attachment K (Attachment J in agenda version of the permit), “when the approved mixing zones are considered, [the SRWTP's discharge] is in compliance with current USEPA acute and chronic ammonia criteria.” (Tentative Permit at p. 1.) Conversely, it is inappropriate to use the Draft Ammonia Criteria as a basis for denying dilution credits or mixing zones for ammonia because it is not approved by U.S. EPA.

Further, it is important to properly characterize the Draft Ammonia Criteria and their relevance for evaluating impacts on POD species. Specifically, the Draft Ammonia Criteria are more stringent than the adopted 1999 Ammonia Criteria due to the consideration of ammonia toxicity to sensitive freshwater mussels. In fact, the Draft Ammonia Criteria are proposed to be bifurcated into separate categories, depending on the presence or absence of sensitive freshwater mussels species in a water body. The “without mussels present” criteria, which are driven by the protection of sensitive fish species, are no more stringent than the 1999 Ammonia Criteria, which are currently driven by the protection of

sensitive fish species such as rainbow trout and salmonids. In other words, with respect to the protection of Delta POD fish species, there is little difference between the 1999 Ammonia Criteria and the Draft Ammonia Criteria. Therefore, evaluations of ammonia toxicity to Delta fish using the 1999 Ammonia Criteria will continue to provide meaningful and pertinent conclusions going forward, regardless of the status of the finalization and adoption of the Draft Ammonia Criteria.

Response: The new ammonia criteria is one of several reasons that mixing zones and dilution have been denied for ammonia (see responses to SRCSD Comment #8, #12, #15, and #18). The USEPA is on track to adopt the 2009 Ammonia Criteria in March 2011¹. In order for the criteria to be adopted the science must be completed and peer reviewed. The science for protection of freshwater mussels supports more stringent requirements than the existing 1999 ammonia criteria for salmonids, which has been used to develop the water quality-based effluent limits for ammonia in the proposed Order. Although the email from USEPA states that the 2009 criteria must be published and adopted by the states to be legally binding and useful in permits, this is not entirely correct. The Basin Plan includes a narrative toxicity objective states: “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at III-8.00.) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. Therefore, the new USEPA ammonia criteria could be used to interpret the Basin Plan’s Narrative Toxicity Objective.

Central Valley Water Board staff concurs that the 2009 draft ammonia criteria are more stringent than the 1999 ammonia criteria due to ammonia toxicity to freshwater mussels. Since freshwater mussels reside in the Sacramento watershed, these criteria will be applicable to the SRWTP discharge.

SRCSD Comment #21: No Substantial Evidence Exists That Would Support That Additive or Synergistic Effects Occur at Relevant Ambient Concentrations Downstream from the SRWTP Discharge. Teh’s 2008 study reported high toxicity to *E. affinis* in water collected from the Sacramento River at Hood eight miles downstream from the SRWTP discharge. However, the cause of toxicity was not confirmed in this study and statistical correlations with ammonia and toxicity were weak. Considering the lack of statistical correlation and the

¹ Email to Kathleen Harder from Lisa Huff, USEPA dated November 3, 2010.

demonstrated impacts to copepods caused by low conductivity, Teh's 2008¹ study results do not support the premise for which is it used in Attachment K (Attachment J in agenda version of the permit).

The Werner study reported possible synergistic or additive toxicity with ammonia and effluent based on tests with whole effluent or high percentages of effluent. However, possible effluent effects could only be found if concentrations of ammonia or effluent exceeded those that are actually present in the Sacramento River below the SRWTP discharge. In contrast, the percentages of effluent that occur in the Sacramento River below the SRWTP discharge are typically less than 3% the vast majority of the time² and never exceed 7%. Repeat testing in 2010 on 4 other test periods did not show any toxicity to delta smelt ranging up to 28% effluent. Considering the additional information, Dr. Werner's studies fail to support the hypothesis that SRWTP effluent produces additive or synergistic toxicity.

Response: Central Valley Water Board staff do not concur. Clearly synergist and/or additive effects occur in the effluent as demonstrated by the numerous acute toxicity bioassay failures. The District has not yet identified the cause of toxicity by examining single constituents. Therefore, synergist and/or additive effects must be the cause of the District's toxicity. This synergistic and/or additive impact is further demonstrated by Dr. Teh and Dr. Werner's experiments. The fact that the cause of toxicity in Dr. Teh's study was not determined lends credence that multiple constituents could be the cause.

Dr. Werner's earlier experiments did indicate that unknown constituents other than ammonia were in the District's effluent, regardless of the concentration in the receiving water. Future experiments did not show the same result, however, this does not negate the earlier findings. Attachment J includes all the growing evidence that ammonia is a problem in the Sacramento River and Sacramento-San Joaquin Delta.

¹ Teh, S., et al. Toxic effects of surface water in the upper San Francisco Estuary on *Eurytemora affinis*. Final Report. (2008)

² Based on 7-day running averages for Sacramento River flow between 1998-2009, the 99.5th percentile percent effluent is 2.8%. (See M. Mysliwicz, Larry Walker Associates, unpublished data.)

SRCS D Comment #22: Full Nitrification Is Not Justified Via Resolution
No. 68-16

Response: See response to SRCS D Comment #37-39. Central Valley Water Board staff believes that full nitrification is justified via Resolution No. 68-16.

SRCS D Comment #23: Scientific Evidence Has Not Been Presented in the Tentative Permit to Justify the Proposed Denitrification Requirements on the Basis of Protecting Aquatic Life Uses in the Delta. The cost of full nitrification is \$780 million. No information was presented or referenced regarding the positive or negative impact of reducing nitrate. Denitrification of SRWTP effluent would reduce existing N:P ratios in the Sacramento River and Suisun Bay, with unknown consequences. Assertions that current N:P ratios in the SFE have driven observed changes in phytoplankton composition are pure speculation.

The Tentative Permit implies that Parker et al. (2010) and Glibert (2010) provide some kind of meaningful evidence that would support the hypothesis that current ammonia:nitrate or N:P ratios in the SFE provide a competitive disadvantage to diatoms and a competitive advantage to blue-green algae and flagellates. (Tentative Permit at p. K-6.) However, neither citation refers to direct evidence that nutrient ratios explain changes in phytoplankton composition in the SFE.

Finally, as discussed in section II.A.4-5, the Tentative Permit does not acknowledge other physical and biological factors which can shift phytoplankton composition in estuaries, nor does it provide evidence that the shift in phytoplankton composition is harming populations of copepods that are prey for POD fishes, or that it has any other significant trophic effects.

Potential negative ramifications of lower N:P ratios, or removing nitrate from a nitrified effluent, do not appear to have been considered in development of the Tentative Permit. Because there is evidence from Parker et al. (2010) that Sacramento River phytoplankton are nitrogen-limited upstream from the SRWTP (see section II.A.4), it is reasonable to question whether primary productivity in the Sacramento River would increase following implementation of a full nitrification-denitrification requirement.

Given (1) the absence of direct evidence in the Tentative Permit that lowering N:P ratios would provide any benefits to the food web, (2) the lack of consideration of possible negative impacts of lowering N:P ratios, (3) the currently low subsidy of phytoplankton biomass provided to the brackish Delta from the freshwater Delta, (4) the possibility that a nitrified discharge would alleviate observed N-limitation for Sacramento River phytoplankton entering the freshwater Delta, and (5) that a tacit goal of the Tentative Permit is to increase

access of diatoms to nitrate downstream from the SRWTP, the requirement for denitrification seems somewhat contradictory and has not been justified by ecosystem-related arguments in the Tentative Permit.

Response: The District's cost to denitrify at \$780 million is misleading. The District's estimated cost included the cost to nitrify (convert ammonia to nitrates). The true estimated cost to denitrify is only \$170 million.

Reducing ammonia only from the discharge will not reduce the total nitrogen load to the Sacramento River and the Sacramento-San Joaquin Delta. The 14 tons of ammonia currently discharged will convert to approximately 14 tons of nitrates discharged. The total nitrogen discharged by the District increases the total nitrogen in the river by at least 11 times.

Increased nitrogen loads create the following problems:

- Too much algae- that increases total organic carbon which is a precursor for the creation of trihalomethanes (disinfection by product), the algae clogs water treatment filters.
- Taste and odor in domestic water supply – Algae creates taste and odor problems
- The excess nitrogen may be affecting the Redfield ratio and changing the aquatic community

Beneficial uses of the Sacramento River and the Sacramento-San Joaquin Delta include municipal and domestic water supply. The Basin Plan includes both numeric and narrative objectives to protect drinking water beneficial uses. The primary maximum contaminant limit (MCL) for nitrate is 10 mg/L (as N). The USEPA Health Advisory for nitrate is 10 mg/L (as N) for exposure 10 days or less. Additionally, the Basin Plan requires:

- Water shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
- Water shall not contain taste or odor producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or fish flesh or other edible products or aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

Excessive algal growth in the Delta results in increased concentrations of total organic carbon (TOC). This in addition to the substantial load of 12 tons of TOC discharged daily in the SRWTP effluent. Elevated total organic carbon negatively impacts municipal drinking water suppliers, because it may result in the creation of harmful byproducts during chlorination, if the total organic carbon is not removed through prior treatment steps. High algae levels in source water can also impact water treatment plants, because algae can clog filters and reduce the efficiency of filtration.

Some species of bluegreen algae are associated with the production of compounds such as geosmin and 2-methylisoborneol (MIB) that impart objectionable odors and tastes to waters, even at very low concentrations. Taste and odor problems may be resolved with algaecides. But the predominant algaecides are copper-based, which creates solid waste disposal problems as well as aquatic toxicity issues. Other species of blue green algae, in particular *Anabaena flos-aquae*, *Microcystis aeruginosa*, and *Aphanizomenon flos-aquae*, produce neurotoxins that are toxic to humans, fish, and wildlife. These species of algae have also been reported in the Delta according to the Department of Public Health.

Although there are no state or federal numerical standards for nutrients, the USEPA has developed recommended nutrient levels for total nitrogen and total phosphorous that indicate levels of these nutrients that can create a high risks for eutrophication. USEPA's Aggregate Ecoregion 1¹ that includes the Delta are 0.055 mg/L for total phosphorus and 0.66 mg/L for total nitrogen². These recommended levels generally represent nutrient levels that protect against the adverse effects of nutrient over-enrichment. EPA has developed these recommendations as starting points for States and authorized Tribes to develop more refined nutrient criteria. At this time there are no state or federal numeric water quality standards for nutrients to limit biostimulation for use in NPDES permitting. The following table compares the USEPA recommended nutrient concentrations and the average and maximum effluent and river concentrations.

¹ Ecoregion 1 includes both the Willamette Valley in Oregon and the Central Valley in California.

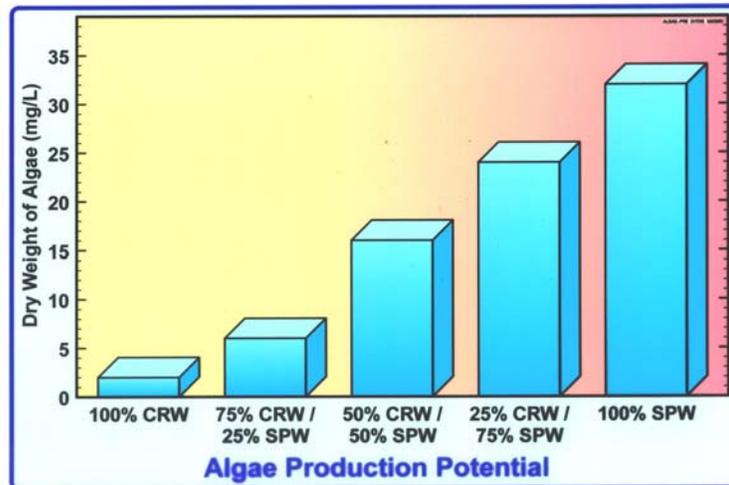
² Nutrient Criteria Development; Notice of Ecoregional Nutrient Criteria, January 6, 2003 (Volume 68, Number 3)

Nutrient Recommendations, Effluent Concentrations & Sacramento River Concentrations

	EPA Recommendation Median	Average Effluent Concentration	Maximum Effluent Concentration	Average Upstream Sacramento River Conc	Maximum Upstream Sacramento River Conc
Total Phosphorus mg/L	0.055	2.3	3.3	0.11	2.8
Total Nitrogen mg/L as N	0.66	24.3	33	0.65	1.4

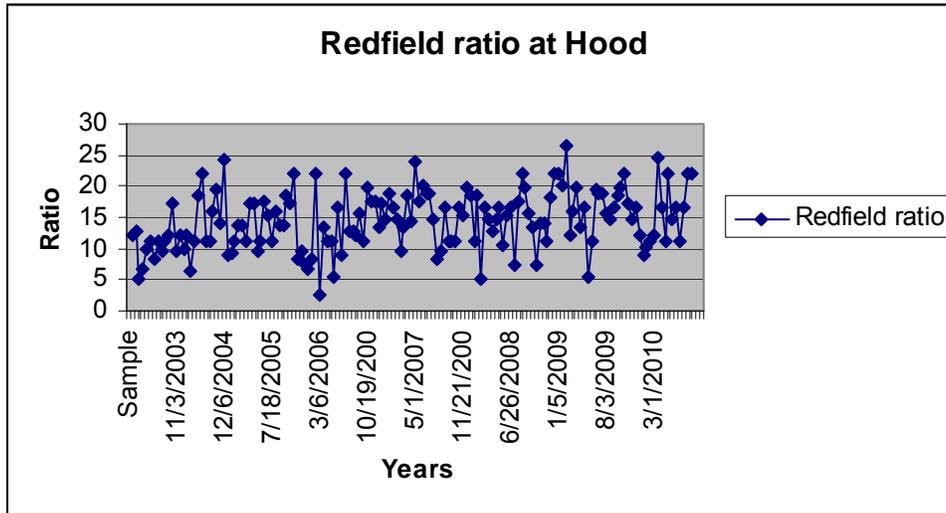
When evaluating the impact of nutrients on beneficial uses due to eutrophication, nutrient loading is not the only factor to consider. This is because algal productivity depends on several additional factors such as morphology, light availability, flooding frequency, biological community structure, etc. The Delta is light limited, which reduces algal productivity. However, when drinking water agencies transfer Delta water to storage reservoirs or water conveyance facilities (e.g., California Aqueduct) that are not light limited, algal blooms have been known to occur. The figure below illustrates the dramatic difference between State Water Project and Colorado River water with respect to algal growth.

EFFECT OF STATE PROJECT WATER ON POTENTIAL ALGAL PRODUCTIVITY IN COLORADO RIVER WATER



Source: Metropolitan Water District of Southern California – Water Agencies October 21, 2005 Summary of Drinking Water Quality Issues (SPW=Delta Water; CRW=Colorado River Water)

At this time there is no science to support what Redfield ratio would be appropriate for the Sacramento River and the Sacramento-San Joaquin Delta. Dr. Engle’s calculation of an average Redfield ratio from 2002 - 2007 is not a good measure that Suisun Bay is at the classic Redfield ratio of 16 and the data for the calculation is limited in that it did not include data prior to the SRWTP discharge or data for the last several critical drought years. You can’t average ratios, especially when there is a range from 4.36 – 34.28 and the ratios are different at different times of the year. What may be important is how often the ratio is below or above the classic “16”. What is evident is that the ratio is increasing as shown at Hood.



DWR - MWQI data 2002 – 2010

Regardless, there is no consensus what the appropriate Redfield ratio should be for the Delta.

Specifically addressing the District’s comments the requirement for denitrification seems somewhat contradictory and has not been justified by ecosystem-related arguments:

- a) the absence of direct evidence in the Tentative Permit that lowering N:P ratios would provide any benefits to the food web

Response: Evidence that the aquatic community downstream of the discharge has changed over the last decade is accepted by the scientific community¹. Correlations that the community change may be due to excessive nitrogen discharged have been suggested². Also, lack of nitrogen has been suggested as to why there is low primary productivity in

¹ Werner and all

² Glibert

the Sacramento River and the Sacramento-San Joaquin Delta¹. However, the evidence of nutrient impacts to the State Water Project water the nitrate limitation is appropriate.

- b) The lack of consideration of possible negative impacts of lowering N:P ratios

Response: The District did not provide any evidence that the lowering of the N:P ratio will have negative impacts. Upon further review the total Kjeldahl nitrogen and total phosphorus data upstream and downstream of the discharge as well as the SRWTP effluent, it appears that the Redfield ratio may be influenced not only by excessive nitrogen, but also excessive phosphorus in the discharge which would also cause lowering of the N:P ratio. When the State Water Resources Control Board completes the procedures for developing nutrient criteria, the permit will be reopened to include both nitrogen and phosphorus limitations.

- c) The currently low subsidy of phytoplankton biomass provided to the brackish Delta from the freshwater Delta

Response: The tentative permit is to restrict constituents discharged to the river and Delta, not feed the biomass.

- d) The possibility that a nitrified discharge would alleviate observed N-limitation for the Sacramento River phytoplankton entering the freshwater Delta

Response: The tentative permit is to restrict constituents discharged to the river and Delta, not feed the biomass.

- e) That a tacit goal of the Tentative Permit is to increase access of diatoms to nitrate downstream from the SRWTP

Response: The goal of the tentative permit is to protect the beneficial uses of the receiving water. The reduction in nitrogen will reduce excessive nutrients from the discharge that are impacting beneficial uses.

¹ SRCSD 10/11/2010 Comment letter-page 51 “Lower ratios would be considered by some investigators as potential indicators of relative nitrogen deficiency in the water column.”

SRCSO Comment #24: Scientific Evidence Has Not Been Presented in the Tentative Permit to Justify the Proposed Denitrification Requirements on the Basis of Protecting Aquatic Life Uses in the Delta

Response: See response to SRCSO Comment #23.

SRCSO Comment #25: No Adopted Water Quality Objectives or Criteria Exist to Address the Ecosystem Concern Raised in the Tentative Permit

Response: The Central Valley Water Board staff agree that there is no adopted water quality objective or criteria to address the ecosystem concern raised in the tentative permit regarding excess nitrogen. The proposed nitrate effluent limitation was developed based on the primary MCL for nitrate of 10 mg/L (as N) for protection of human health. As discussed in responses to SRCSO Comment #37 - #39, denitrification to a level of 10 mg/L (nitrate as N) is considered best practicable treatment or control of the discharge and is necessary for compliance with the State Water Board's Antidegradation Policy. The new effluent limits for ammonia and nitrate will result in significant reductions in the total nitrogen in the discharge and will address the ecosystem concerns caused by these constituents.

SRCSO Comment #26: Denitrification Is Not Needed to Protect the MUN Use Based on the Information Provided in the Tentative Permit and Fact Sheet

Response: Central Valley Water Board staff concurs. Sufficient dilution and assimilative capacity is available for nitrate for protection of the MUN beneficial use. However, as discussed in response to SRCSO Comment # 25, and in more detail in the Fact Sheet of the proposed Order, nitrate removal to a level of 10 mg/L (nitrate as N), is considered BPTC and is necessary to protect the beneficial uses of the receiving water (see response to SRCSO Comment #23). A human health mixing zone for nitrate does not meet the mixing zone requirements of the SIP¹. The SIP requires, in part, that mixing zones do not;

- (1) compromise the integrity of the entire water body;
- (2) adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws; and
- (3) produce undesirable or nuisance aquatic life;

¹ State Water Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP)

The allowance of a human health mixing zone for nitrate does not meet these requirements, because elevated nitrogen discharges from the Facility have been shown to be negatively affecting the receiving water far downstream of the discharge within the Delta, not just the areas defined by the requested mixing zone. The allowance of the requested mixing zone for nitrate would comprise the integrity of the entire water body, adversely impact biologically sensitive or critical habitats, and produce undesirable or nuisance aquatic life.

SRCSO Comment #27: Proposed Effluent Limit Is Inappropriately Based

Response: See response to SRCSO Comment #28.

SRCSO Comment #28: Proposed Effluent Limit for Nitrate Is Not Achievable Through Available Denitrification Treatment Processes

Response: The Tentative Order included an average monthly effluent limit for nitrate of 0.26 mg/L, which was based on the level of nitrate removal that could feasibly be attained using reasonable nitrate removal technologies. However, based on comments from the Discharger and other interested parties that the proposed average monthly effluent limits cannot feasibly be met, Central Valley Water Board staff re-evaluated the limits. Staff agrees that current nitrate removal technologies are not capable of nitrate removal to the level that would ensure compliance with the proposed effluent limit in the Tentative Order. Therefore, the final average monthly effluent limits for nitrate have been modified to be based on the USEPA Primary Maximum Contaminant Level (MCL) of 10 mg/L (nitrate as N) for the protection of human health. There are standard nitrate removal technologies in use today that are capable of maintaining compliance with this effluent limit.

SRCSO Comment #29: The Argument for the Need for Denitrification to Satisfy State Board Resolution No. 68-16 Is Wholly Inadequate

Response: See response to SRCSO Comments #37-39 regarding Antidegradation and BPTC.

SRCSO Comment #30: The District generally supports the “Nitrate Removal Alternative 1,” with the qualification that, if a WQBEL is required based on the MCL, any effluent limitations include dilution credit.

- **Response:** This nitrate removal alternative has been developed for Board consideration. However, Central Valley Water Board staff

do not recommend adoption of the alternative for the reasons discussed in responses to SRCSD Comment # 23, #25, #26, and #28.

SRCSD Comment #31: Renewal of NPDES Permit Not an Action Subject to State’s “Statement of Policy With Respect to Maintaining High-Quality Waters in California” (Resolution No. 68-16) or the Federal Antidegradation Policy

Response: See response to SRCSD Comments #37- 39.

SRCSD Comment #32: To the Extent the Regional Board Applies Resolution No. 68-16 to Existing Discharges, Such Application Has Not Been Approved Under the Administrative Procedures Act

Response: See response to SRCSD Comments #37- 39.

SRCSD Comment #33: The Tentative Permit Proposes Improperly to Use the District’s Antidegradation Analysis to Reverse Past Permitting and Allowance of the Permitted Discharge

Response: See response to SRCSD Comments #37-39.

SRCSD Comment #34: Baseline for Existing Water Quality Includes Past-Permitted Discharges

Response: See response to SRCSD Comments #37-39.

SRCSD Comment #35: The Tentative Permit Does Not Support a Finding That the District’s Discharge Is Significantly Degrading Receiving Water

Response: See response to SRCSD Comment No. 37. The District argues that the U.S. EPA significance threshold of 10% should be used to determine if a discharge has a de minimis effect, or must be used to determine accompanied by findings regarding the need to accommodate economic and social development for an impact above 10%. Therefore, the District claims that their existing discharge is not degrading receiving water except for three constituents and thus the Regional Board’s findings are unsupported. This argument fails for a number of reasons. First, the Regional Board is not compelled to follow U.S. EPA guidance in this case and the District’s citation to a court decision in the southern district of West Virginia and sixth circuit have no binding authority on the Regional Board’s action. Second, degradation represents any lowering of water quality and

neither Resolution 68-16, 40 CFR 131.12 or the State Board's Guidance document implementing antidegradation use any such number, whether 10% or otherwise, to establish whether degradation is "significant" or not. In determining whether degradation is to be considered "significant", each discharge should be considered on a case-by-case basis depending on the facts and circumstances specific to the discharge. Furthermore, the purpose of the Clean Water Act is not strictly to maintain and protect high quality waters, but to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. section 1251(a). Thus, to say that the District's discharge is not degrading water quality when, for example, the District accounts for over 60% of all the municipal wastewater discharged to the Delta and an 11.5-fold increase in ammonia downstream of the District's wastewater treatment plant is unsupportable. If the District's logic was adopted, no receiving water could ever be considered degraded if it fell within the 10% level, regardless of the consideration of any site-specific circumstances or situations, including but not limited to, the fact that the Delta, of which the Sacramento River is an integral part, (1) provides drinking water for more than 25 million Californians and irrigation water for millions of acres of farms in and out of the Central Valley; (2) is one of the most ecologically important habitats in the State; and (3) the fact the District's discharge is within designated critical habitat of the Sacramento River for five federally-listed fish species.

SRCSD Comment #36: The Tentative Permit's Proposal to Reverse Past-Permitted Discharges Is Unreasonable

Response: See Response to Comment No. 37. The Tentative Permit is not seeking to reverse past-permitted discharges. The Tentative Permit has not been revised in 10 years and the state of the science and knowledge pertaining to the Delta and its stressors has broadened significantly as a result. Regional Board staff believe that requiring full tertiary treatment and nitrification is reasonable because (1) these requirements will result in the best practicable treatment or control of the discharge to assure that a pollution or nuisance will not occur and (2) that the highest water quality consistent with maximum benefit to the people of the State will be maintained. These waste discharge requirements will result in the best practicable treatment or control of the discharge because all large wastewater treatment plants in the Delta, with the exception of the Sacramento Regional facility, already provide tertiary filtration treatment and full nitrification that has resulted in an effluent discharge much cleaner than the District's effluent. In addition, these upgrades have not resulted in significant adverse economic impacts as a result of these upgrades. These waste discharge requirements are necessary to assure that a pollution or nuisance will not occur in protecting the REC-1, agricultural,

municipal, and aquatic life beneficial uses. To do otherwise may well result or will likely result in an alteration of the quality of the waters of the state by waste which unreasonably affects the waters for these particular beneficial uses. Adopting these waste discharge requirements to fully protect these beneficial uses will ensure that the highest water quality consistent with maximum benefit to the people of the State will be maintained. It is to the maximum benefit to the people of the State that the highest water quality will be maintained in issuing these waste discharge requirements to fully protect the Sacramento River's beneficial uses because the Delta, of which of the Sacramento River is an integral part, (1) provides drinking water for 25 million Californians; (2) provides irrigation water for millions of acres of farms in and out of the Central Valley; (3) is one of the most ecologically important aquatic habitats in the State; and (4) provides invaluable recreational opportunities.

SRCS D Comment #37: The Tentative Permit's Findings for BPTC Fail to Comply with State and Federal Antidegradation Policies -The Proposed Requirements Are Not BPTC

Response: The term "best practicable treatment or control" is not specifically defined in State Water Board Resolution No. 68-16 but State Board Order No. 2000-0007 notes that one factor to be considered would be the water quality achieved by other similarly situated dischargers and the methods used to achieve water quality.

As the most significant discharger to the Delta, Sac Regional is "similarly situated" to all the other major wastewater treatment plants in the Delta, namely Lodi, Manteca, Stockton, and Tracy. In particular, all of these large wastewater treatment plants have tertiary filtration to remove pathogens and nitrification to remove ammonia and in most cases denitrification to remove nitrates. Furthermore, Lodi, Manteca, Stockton, Tracy have already completed wastewater treatment plant upgrades and the effluent that they are discharging is much cleaner than the SRCS D effluent. To somehow say that SRCS D should not have to have tertiary filtration to remove pathogens and nitrification to remove ammonia and denitrification to remove nitrates when all the other major wastewater treatment plants have such processes in place and when such processes have resulted in much cleaner effluent than SRCS D's effluent, would be unreasonable. In short, best practicable treatment and control includes tertiary filtration and nitrification of ammonia and denitrification to remove nitrates when these processes have been put in place by all the other major wastewater treatment plants in the Delta, the processes have resulted in much better effluent quality than SRCS D's effluent, and it has occurred without

significant economic or socioeconomic burdens on either Lodi, Manteca, Stockton, or Tracy.

SRCSO Comment #38: Proper Evaluation of BPTC Would Lead Regional Board to Different Conclusions

Response: See Response to Comment #37. Water Board staff considered SRCSD's Cost/Benefits Analysis. Water Board staff do not believe the costs associated with implementation of advanced treatment of SRWTP secondary treated effluent are disproportionate to the water quality benefits. Water Board staff believe that tertiary treatment with full nitrification and denitrification is needed in order to fully protect the REC-1, agricultural, municipal, and aquatic life beneficial uses. The District's discharge accounts for over 60% of all the municipal wastewater. In addition, the District's discharge of domestic sewage contains 14 tons of ammonia per day and the average annual ammonia concentration in the River increases 11.5-fold in the Sacramento River below the District's Discharge.

Even if the \$2 billion costs projected by SRCSD are correct, the increased sewage treatment rate to approximately \$60 per month for each household is entirely reasonable. In addition, the fact that (1) according to a USEPA engineering contractor the cost of modifications could potentially be reduced by as much as \$859 million and achieve the same effluent quality goals; (2) another engineering consultant hired by the State Water Contractors provided a cost estimate about one-half of the District's estimate; and (3) large communities in the Sacramento/Delta area that have already upgraded their treatment facilities to advanced treatment also similar to that in the proposed NPDES permit have sewer fees substantially less than the monthly fees supports the position that such costs that will need to be incurred to comply with the proposed waste discharge requirements will result in the best practicable treatment or control of the discharge necessary to assure that a pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained.

SRCSO Comment #39: The Tentative Permit's "Reasons" for Declaring Full Nitrification, Full Denitrification and Equivalent of Title 22 Filtration as Being BPTC Are Not Proper Findings and Are Inconsistent with State and Federal Antidegradation Policies - Bullet Points Are Not a BPTC Analysis

Response: The Proposed NPDES Permit Complies with the State and Federal Antidegradation Policies

A. Resolution No. 68-16 Discussion:

The first paragraph of State Board Resolution No. 68-16 states that “Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

Here, no one appears to be debating the question of whether the existing quality of water is better than the quality established in policies as of the date on which such policies become effective. The disagreement concerns what constitutes “maximum benefit to the people of the State” and whether the proposed discharge will or will not “unreasonably affect present and anticipated beneficial use of such water.”

First of all, consideration of maximum benefit and not unreasonably affecting present and anticipated beneficial use of such water is premised on “any change” to existing high quality water. In this case, the Regional Board has demonstrated that SRCSD’s past discharge and current discharge has and will constitute a change to such high quality water.

The second paragraph of 68-16 states that “Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.”

In this case, SRCSD’s activity of discharging waste constitutes “any activity which produces or may produce a waste.” Consequently, SRCSD’s discharge is required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge. The disagreement with SRCSD concerns what constitutes “best practicable treatment or control” for purposes of compliance with 68-16.

By way of background, it is important to first note that NPDES permits establish effluent limitations for the polluter. (*Environmental Protection Agency v. California ex rel. State Water Resources Control Board* (1976) 426 U.S. 200, 205.) The Clean Water Act’s NPDES Permit program

provides for a two-step process for the establishing of effluent limitations. (*Communities for a Better Environment v. State Water Resources Control Board* (2003) 109 Cal.App.4th 1089, 1093.) First, the polluter must comply with technology-based effluent limitations, which are limitations based on the best available practical technology for the reduction of water pollution. (*Ibid.*, citing 33 USC section 1311(b)(1)(A).) In general terms, the Clean Water Act and governing regulations require that in addition to determining an applicant's obligations by focusing on what technology can be used on the applicant's discharges, the permitting agency must also focus on the quality of the body of water into which the applicant is discharging pollutants. (*Divers' Environmental Conservation Organization v. State Water Resources Control Board* (2006) 145 Cal.App.4th 246, 253.) This is consistent with 68-16's mandate concerning "any change 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.

As recognized by SRCSD, 68-16 does not define BPTC but notes that BPTC is guided by the reasonableness standard and that one factor to be considered in determining best practicable treatment or control would be the water quality achieved by other similarly situated dischargers and the methods to achieve that water quality. (Comments at p. 65 citing WQ Order No. 2000-0007 at pp. 10-11). SRCSD also notes that information concerning costs of alternatives is relevant to determining compliance with 68-16. (*Ibid.*)

In this case, the Regional Board believes that the Tentative Permit constitutes BPTC, in part, because implementation of nitrification to remove ammonia, and the equivalent of Title 22 filtration with ultraviolet light or chlorine disinfection treatment and in all but one facility are being implemented by all large wastewater treatment plants in the Delta, namely, Lodi, Manteca, Stockton, and Tracy.

Third, 68-16's mandate requires a discharger to meet waste discharge requirements which will result in best practicable treatment or control is to assure that (1) a pollution or nuisance will not occur; and (2) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

Here, failing to require tertiary treatment may likely or will result in a condition of pollution or nuisance. Water Code section 13050, subdivision (l) defines pollution as "an alteration of the quality of the waters of the state by waste to a degree which unreasonably affects the waters for beneficial uses." In the absence of the requirements imposed in the Tentative Permit, Regional Board staff contend that there would be an

unreasonable effect on the waters for beneficial uses through (1) an increased health risk to swimmers; (2) an increased health risk to those that use the waters for municipal use; and (3) an increased health risk to those that use the waters for agricultural use; (4) an increased health to those that use the waters for municipal use; and (5) a likely impact on pelagic organisms.

Furthermore, establishing waste discharge requirements that include tertiary and nitrification/denitrification requirements ensure that the highest water quality consistent with maximum benefit to the people of the State will be maintained. To require otherwise would result in a continued loss of dissolved oxygen to the Sacramento River which currently extends many miles downstream from the SRCSD wastewater treatment plant.

SRCS D's second main argument to support the claim that the Tentative Permit is not BPTC is based on the fact that SRCSD is not a "similarly situated" discharger to others within the Delta. In response, as noted previously, all other large wastewater treatment plants in the Delta (Lodi, Manteca, Stockton, and Tracy) have tertiary filtration to remove pathogens, and nitrification to remove ammonia and in most cases denitrification to remove nitrates. Furthermore, Lodi, Manteca, Stockton, and Tracy have already completed wastewater treatment plant upgrades and the effluent that they are discharging is much cleaner than the SRCSD effluent. Consequently, Regional Board staff believe that Sacramento Regional is "similarly situated" to these dischargers.

Another factor in evaluating BPTC are the methods to achieve that water quality and information concerning costs of alternatives is relevant in determining compliance with 68-16. It is important to note that Lodi, Manteca, Stockton, and Tracy have constructed and are operating similar advanced treatment systems and have not suffered significant adverse economic impacts as a result of these upgrades. To take one example, as it pertains to ammonia, all other large wastewater treatment plants in the Delta already remove ammonia from their discharges. Consequently, almost all the ammonia in the Delta is from the SRCSD discharge.

B. Federal Anti-Degradation Requirements

40 CFR section 131.12(a)(2) states in pertinent part that where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality

adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources.

In this case, requirements in the Tentative Permit are needed in order to protect existing uses fully. If these requirements are not imposed, the REC-1 beneficial use will not be fully protected, nor the aquatic life beneficial use, or the MUN use.

Second, the Administrative Procedure Update, Antidegradation Policy Implementation for NPDES Permitting (hereafter “Policy”) points out that “The determination as to whether a finding is needed must be made when issuing, reissuing, amending, or revising an NPDES permit. Here, there is no question that this provision applies. The permit has not been revised for 10 years.

In addition, the Policy also points out that the Regional Board should also make this finding when an existing discharge has reduced water quality since the facility was last permitted and the reduction is not authorized by the permit. Here, there is no question that there is at least some lowering of water quality for certain constituents to the receiving water as a result of the District’s discharge. To take one example, scientific studies developed in the last ten years show that the discharge of ammonia to the Sacramento River is having a much more detrimental effect than previously thought.

Third, the Policy goes on to state if the Regional Board finds that lowering of water quality is consistent with the conditions established in the State policy and the federal regulation, the findings should indicate: (1) the pollutants that will lower water quality; (2) the socioeconomic and public benefits that result from lowered water quality; and (3) the beneficial uses that will be affected. The proposed permit indicates the pollutants that will lower water quality, including, but not limited to, ammonia and certain pathogens, as well as the socioeconomic and public benefits that result from lowered water quality and the beneficial uses to be protected. In this case, Regional Board staff believe that the lowered water quality will have an impact on the socioeconomic and public benefits in that the lowered water quality presents, to take just a few examples, an increased health risk to recreational users and an increased health risk to aquatic life.

Fourth, in determining whether an antidegradation finding is required, the Policy states that “if the Regional Board has no reason to believe that existing water quality will be reduced due to the proposed action, no antidegradation analysis is required. Here, as noted previously, Regional Board staff have numerous reasons to believe that existing water quality

will be reduced due to the proposed action. In particular, the existing water quality will continue to be degraded as a result of establishing effluent limits for numerous constituents, including, but not limited to, ammonia and nitrate.

Fifth, the Policy goes on to state that the antidegradation analysis is needed to support all regulatory actions that, in the Regional Board's judgment, will result in a significant increase in pollutant loadings. As noted previously, SRCSD's discharge of municipal waste is resulting in a greater degradation than previously determined and an antidegradation analysis to account for the reduction in water quality as a result of the discharge of ammonia and corresponding decreases in dissolved oxygen is warranted. Furthermore, it is now better understood that the discharges of ammonia are having an adverse effect on the aquatic life beneficial use. Consequently, there is a corresponding need to account for this degradation of water quality since the permit was last issued ten years ago when considering the District's renewal of waste discharge requirements.

Similarly, it is important to note that the conditions concerning when a complete antidegradation analysis is mandated is not specifically limited to the situations or circumstances noted on page 3 of the Policy. As noted in the section, Implementation of Antidegradation Policies, "If the Regional Board finds the proposed activity does not warrant a complete antidegradation analysis; e.g., one of the criteria listed above is satisfied, such findings should be documented in the Fact Sheet of the proposed permit action or Regional Board order, along with the basis for those findings." The presence of the term "e.g." demonstrates that the conditions to trigger a complete anti-degradation analysis" is not specifically limited to the conditions noted in the section entitled, "Complete Antidegradation Analysis Required." What seems to be of real concern to SRCSD is that if they had never proposed an increase in capacity to 218 mgd, they feel that they may never have had to provide some of the additional studies relied upon by the Regional Board to determine that the continuing discharge of municipal waste to the Sacramento River would not result in the full protection of beneficial uses.

Here, because of the changes to the receiving water quality since 2000 when the permit was last adopted, it was entirely appropriate to require a complete antidegradation analysis in order to compare receiving water quality to the water quality objectives established to protect beneficial uses. This is particularly true given the Delta's importance and the magnitude of SRCSD's discharge.

SRCS D Comment #40: The District strongly objects to Table F-18 (Per Capita Costs for Tertiary Upgrades), for many reasons.

Response: Table F-18 (revised as Table F-X) is relevant evidence in determining satisfaction of the anti-degradation policy. To take one example, Table F-18 is relevant in considering whether the waste discharge requirements will result in the best practicable treatment or control the discharge as the table helps to establish, in part, that the costs per capita to implement advanced treatment processes at other POTWs are similar to the projected costs per capita for advanced treatment at the SRWTP.

In seeking to strike Table F-18 from the permit entirely, the District claims that none of the entities listed in Table F-18 are “similarly situated” dischargers. The entities listed in Table F-18 were chosen because they are a cross-section of representative dischargers within the Region that have upgraded to tertiary requirements. Furthermore, many of these entities are large wastewater treatment plants in the Delta (Lodi, Manteca, and Tracy) and therefore the use of Table F-18 is entirely proper.

By contrast, the District wants Table F-18 removed and believes that they are “similarly situated” to the cities of Yuba City, Corning, and Chico. Although it is true that these facilities are not currently required to implement tertiary filtration, nitrification, or denitrification, this claim ignores the fact that all large wastewater treatment plants in the Delta, with the exception of the Sacramento Regional Facility, already provide tertiary treatment and full nitrification. Furthermore, it ignores the significantly greater average dilution for these dischargers in relation to the District’s discharge. To take just one obvious example, the average dilution for the City of Corning is 4,100-to-1 and the average dilution for City of Chico is 400-to-1 versus the District’s average dilution is 50-to-1. Finally, the District’s discharge, unlike Yuba City, Corning, and Chico, do not have corresponding issues pertaining to pelagic organism decline, a high level of public contact, a major drinking water source, and extensive agricultural irrigation use. . Therefore, it is not appropriate to consider the District as “similarly situated” to Yuba City, the City of Corning, and the City of Chico.

SRCS D Comment #41: In accordance with applicable mixing zone policy, regulations and guidance, the District provided extensive documentation and evidence to support a proposed 60-foot long acute mixing zone, a 350-foot long chronic mixing zone, and a harmonic mean flow human health mixing zone at the point where complete mixing of the SRWTP effluent and Sacramento River

occurs, approximately three miles downstream from the discharge point. (LWA SRCSD (June 2010).) However, despite the overwhelming and complete evidence submitted by the District, the Tentative Permit proposes to deny an acute mixing zone altogether, and denies granting mixing zones and dilution credits for specific compounds. Although the Regional Board has some discretion in granting mixing zones and dilution credits, it must explain any denial of a mixing zone based on consideration of the facts of the discharge. (*In the Matter of the Petition of Yuba City*, State Board Order WQO 2004-0013, at p. 10.) The information contained in the Tentative Permit in fact fails to provide proper justification for denial of an acute mixing zone, and for denial of dilution credits for specific constituents. (Tentative Permit at pp. F-29 - F-44.) As such, those denials are inappropriate and the mixing zones should be allowed.

Response: The Tentative Permit allows chronic toxicity and human health mixing zones and includes the appropriate findings supporting the allowance of these mixing zones in accordance with applicable mixing zone policy, regulations and guidance. The Discharger also requested an acute mixing zone. Findings in the Fact Sheet for the acute mixing zone is not included that specifically grant or deny the acute mixing zone. Based on the pollutant-by-pollutant evaluation for the allowance of dilution credits it was determined that acute dilution credits are either not needed, not allowed by the Basin Plan, or would result in unacceptable adverse impacts to the receiving water if dilution credits were allowed. Central Valley Water Board staff agree that findings regarding the proposed acute mixing zone should be included in the Fact Sheet that evaluate the acute mixing zone against the State Water Resources Control Board, Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (referred to as the State Implementation Plan, or SIP) mixing zone requirements. Findings addressing the SIP's mixing zone requirements have been added to the Fact Sheet in the proposed Order. Although the acute aquatic life mixing zone complies with the SIP and the Basin Plan, due to concerns with aquatic toxicity in the Delta, the Central Valley Water Board has denied the allowance of an acute aquatic life mixing zone in the proposed Order. Section 1.4.2 of the SIP states, in part, "...The allowance of mixing zones is discretionary and shall be determined on a discharge-by-discharge basis." In this case, the Delta is impaired for unknown toxicity and has experienced a significant pelagic organism decline. Therefore, the Central Valley Water Board finds that the allowance of an acute aquatic life mixing zone is not acceptable for this discharge.

SRCS D Comment #42: District's Proposed Mixing Zones Are Consistent with SIP, Basin Plan, and U.S. EPA Guidance. Generally, in accordance with the TSD, mixing zones are allocated for types of criteria or objectives. For

example, the acute mixing zone is allocated for acute aquatic toxicity criteria, and a chronic mixing zone is allocated for chronic aquatic life toxicity criteria. If it can be demonstrated that the acute mixing zone is sufficiently sized to prevent any acute toxicity to organism passing through the zone, the acute mixing zone is considered protective of the aquatic life beneficial use. (SIP at p. 17) The acute mixing zone dilution should be used to evaluate acute aquatic life criteria. If there are more stringent limitations (e.g., applicable chronic aquatic life criteria), they may control the final effluent limitations. However, merely because there are more stringent criteria, or treatment performance indicates that the discharge may comply with limits more stringent than the WQBELs calculated with consideration of dilution, denial of any mixing zone without cause is not appropriate. Thus, if the acute mixing zone is sufficiently sized to comply with the SIP, Basin Plan, and U.S. EPA regulations and guidance for ensuring the intended level of protection for the aquatic life beneficial use, the Regional Board should find it appropriate for the discharge and approve it for use in effluent limit derivation.

Response: Central Valley Water Board does not completely concur; See response to SRCSD Comment #41. It is the Regional Board's discretion to determine whether to allow a discharge that exceeds water quality criteria, via an acute mixing zone, to the River. In this discharge-specific instance, the discharge is to the Sacramento River and the Sacramento – San Joaquin Delta. Central Valley Water Board staff proposes that it is not good policy to allow mixing zones in a water body that has been demonstrating an ecological decline in aquatic life and water quality. Just because a mixing zone study indicates that a mixing zone is protective of the beneficial uses, the mixing zone does not address the bigger picture of overall health of the Sacramento River and Delta.

SRCSD Comment #43: Board Staff Accepted the District's Model The District has devoted considerable resources to ensure the evaluation of available mixing and sizing of the proposed mixing zones were conducted in a sound and scientifically defensible manner. As described in the Tentative Permit, the dynamic modeling tool developed by the District is composed of four main parts: PROSIM to determine the monthly flows and temperatures in the Sacramento River, Fischer Delta Model (FDM) and longitudinal dispersion model (LDM) to convert the monthly flows to hourly flows taking the tidal cycle and reverse flows into consideration, FLOWMOD to calculate 3-D mixing and flow in the vicinity of the diffuser, and DYNTOX to incorporate river and treatment plant conditions to develop the statistical analysis of the magnitude, duration, and frequency of constituent conditions in the plume downstream of the diffuser. The modeling system is described in the ADA performed by the District and elsewhere in the record. A review of the appropriateness of the District's modeling system has been provided to the Regional Board by its contractor.

Response: Central Valley Water Board agrees that the Discharger's dynamic model is acceptable and has been used in the development of the proposed Order. However, the Regional Board's allowance of a mixing zone is not based on the acceptance of a mixing zone study alone; See response to SRCSD Comment #41 and #42.

SRCSD Comment #44: Denial of an Acute Mixing Zone Here Would Be Inappropriate and Inequitable The SIP is used to establish mixing zones throughout the Central Valley and the State of California for discharges to inland surface waters, enclosed bays and estuaries. In compliance with the SIP and other applicable regulatory requirements and provisions (i.e., Basin Plan and TSD), the District has employed extensive efforts to model its discharge and evaluate the risks it poses in the near-field. (See section V.B, ante.) The District's dynamic model results show that there is no unacceptable risk to aquatic life within the proposed mixing zone. Furthermore, the proposed acute mixing zone for the District's discharge has been established in a manner that is consistent with other acute mixing zones granted by the Regional Board in other NPDES permits. The denial of an acute mixing zone here, without proper cause, would be inconsistent with the Regional Board's practice of granting acute mixing zones to other POTWs.

Response: The evaluation of granting or denying acute dilution credits is consistent with other NPDES permits adopted by the Central Valley Water Board. As discussed in response to SRCSD Comment #41 and #42, the findings regarding the proposed acute mixing zone's compliance with the SIP have been added to the proposed Order. Although the acute mixing zone meets the SIP requirements for some constituents, acute dilution credits have not been allowed in the proposed Order based on a pollutant-by-pollutant evaluation and due to concerns with aquatic toxicity in the Delta.

SRCSD Comment #45: Use of Region VIII Guidance In determining the appropriateness of granting an acute mixing zone, the Tentative Permit references a 1995 policy for one of the ten U.S. EPA regions, U.S. EPA Region VIII. (Tentative Permit at p. F-35.) The Tentative Permit then uses its interpretation of that guidance to deny approval of an acute mixing zone. (Tentative Permit at p. F-35.) Specifically, the Tentative Permit refers to the Region VIII document with respect to the applicability of mixing zones to acute aquatic life criteria. (*Ibid.*) However, the Tentative Permit fails to completely consider the U.S. EPA Region VIII guidance, which contains provisions for approving acute mixing zones for discharge situations similar to that which exists for the SRWTP discharge. (U.S. EPA Region VIII Guidance at Appendix D.)

While the District's proposed mixing zone meets the criteria proposed by Region VIII, the Regional Board should (and must) rely on the mixing zone policies established under the SIP, which was adopted by the State Water in 2000 (and amended in 2005) rather than on guidance for another U.S. EPA region for the reasons stated below. The SIP is the state's governing regulatory requirement for establishing mixing zones for priority pollutants in California, and the SIP has been approved by U.S. EPA. First, it should be noted that California is in U.S. EPA Region IX—not Region VIII. U.S. EPA Region VIII covers the states of Colorado, Utah, Wyoming, North Dakota, South Dakota, and Montana. Thus, the U.S. EPA Region VIII guidance referenced in the Tentative Permit does not apply to California or the District's discharge. Also, the U.S. EPA Region VIII *Mixing Zones and Dilution Policy* is a 1995 document that was developed to upgrade methods for deriving water quality-based permit limits, improve the technical defensibility of NPDES permits, and reduce risks associated with mixing zone and dilution practices in those states within its jurisdiction.

Response: Staff agrees that the SIP is the governing policy for mixing zones in California. However, it is acceptable to use other mixing zone guidance, such as the USEPA Region VIII guidance and the TSD, to assist in the evaluation of a requested mixing zone and compliance with the SIP requirements. The specific requirements in the SIP are subjective and the additional guidance assists permit writers with evaluating the acceptable conditions for a mixing zone. Some examples of the subjective nature of the SIP requirements include the requirements that the mixing zone shall not compromise the integrity of the entire water body, cause acutely toxic conditions to aquatic life passing through the mixing zone, and shall not restrict the passage of aquatic life. USEPA Region VIII guidance and the TSD provide guidelines for determining if mixing zones meet these requirements (for example, the TSD recommends that the float time through the mixing zone be less than 15-minutes to ensure there is no lethality to passing organisms).

SRCSO Comment #46: The District's Proposed Mixing Zones Will Not Compromise or Adversely Affect Beneficial Uses. By definition a "mixing zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body." Additionally, all applicable water quality objectives and criteria apply at the edges of mixing zones. (SIP at p. 13.) Organisms passing through the acute mixing zone will not experience acute toxicity. The area of the requested chronic mixing zone is small in comparison to the size of the Sacramento River, and therefore would have little effect on the integrity of the water body as a whole. Based on the above, and that the numeric and narrative objectives apply at the edge of mixing zones, the

District's proposed mixing zones will not adversely affect beneficial uses. In fact, the Tentative Permit stipulates to this for proposed chronic and human health mixing zones. (Tentative Permit at pp. F-37 - F-39.)

Response: Central Valley Water Board staff agrees that the proposed acute mixing zone meets the requirements of the SIP for some of the constituents for which the Discharger requested acute dilution credits. However, as discussed in response to SRCSD Comment #41 and #42, acute dilution credits have not been allowed based on a pollutant-by-pollutant evaluation. For ammonia, an acute or chronic mixing zone does not meet the mixing zone requirements of the SIP. The SIP requires, in part, that mixing zones do not;

- (1) compromise the integrity of the entire water body;
- (2) adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws; and
- (3) produce undesirable or nuisance aquatic life;

The allowance of acute or chronic mixing zones for ammonia do not meet these requirements, because ammonia discharges from the Facility have been shown to be negatively affecting the receiving water far downstream of the discharge within the Delta, not just the areas defined by the requested mixing zones. The allowance of the requested mixing zones for ammonia would compromise the integrity of the entire water body, adversely impact biologically sensitive or critical habitats, and produce undesirable or nuisance aquatic life. The Fact Sheet has been updated to provide this clarification.

SRCSD Comment #47: The Tentative Permit proposes WQBELs for BOD and TSS based on the requirement to implement tertiary treatment. (Tentative Permit at p. F 17.) As discussed extensively in section I, ante, the District objects to the adoption of effluents limits based on a tertiary treatment requirement. For all the reasons previously provided, such limits are not appropriately applied to the discharges from the SRWTP. We note that despite the SRWTP being a secondary treatment facility, it is a high performing facility with overall average BOD and TSS effluent concentrations below the average tertiary monthly effluent limits (AMEL) of 10 mg/L for BOD and TSS (BOD average concentration of 7.59 mg/L and TSS average concentration of 6.68 mg/L). The maximum average monthly BOD concentration based on data collected between June 2005 and July 2008 is 11 mg/L and the maximum average monthly TSS concentration is 10.5 mg/L. While the SRWTP cannot consistently comply with the tertiary standards, the quality of the effluent from the current treatment system is high.

Response: See Response to SRCSD Comment # 2 and #3.

SRCSD Comment #48: The Tentative Permit proposes an instantaneous minimum pH limit of 6.5 and an instantaneous maximum pH limit of 8.5. This proposal is based on application of the Basin Plan water quality objective for surface water with no consideration for dilution. However, as noted in the Tentative Permit, dilution for chronic aquatic life criteria is available for the SRWTP discharge. The pH water quality objectives are designed to protect aquatic life from chronic impacts. (See Quality Criteria for Water, U.S. EPA (July 1976) (The Red Book) at pp. 178-180 [concern with pH to freshwater fish between 5 and 9 is a gradual deterioration—not lethality].) Considering the amount of dilution available and with the establishment of a chronic mixing zone, it is not necessary for the effluent to meet the surface water quality objective at the end-of-pipe. Thus, the District requests that the effluent limitation for pH be calculated with appropriate consideration for actual dilution that occurs in the Sacramento River. Requiring the SRWTP to meet a minimum pH of 6.5 would result in additional chemicals being added to the effluent, which would increase the salts (i.e., Total Dissolved Solids (TDS)) levels in the effluent.

Response: Central Valley Water Board staff agrees that the instantaneous minimum pH effluent limit should be changed from 6.5 standard units to 6.0 standard units. The Basin Plan water quality objectives were included in the Tentative Permit, because modeling was not available to allow a dilution credit. The Discharger provided modeling for pH with its public comments demonstrating that an instantaneous minimum pH of 6.0 is acceptable. The proposed Order has been updated accordingly, based on this new information.

SRCSD Comment #49: The Tentative Permit proposes final effluent limits for total coliform based on Title 22 requirements that typically apply to unrestricted use of recycled water. (Cal. Code Regs., tit. 22, § 60304(a).) As discussed earlier in section I, ante, it is inappropriate for the Regional Board to adopt total coliform limits equal to Title 22 disinfection requirements for unrestricted reuse for this discharge. As described previously, the District supports the alternative effluent limit for total coliform of 23 MPN/100 mL as a 7 day median.

Response: See Response to SRCSD Comment #2 and #3.

SRCSO Comment #50: The Tentative Permit proposes final effluent limits for ammonia without consideration of dilution, citing concerns over potential impacts to aquatic life in the Delta. As discussed previously, this is inappropriate.

Response: See Response to SRCSO Comment #8 and #12.

SRCSO Comment #51: Even if the Regional Board grants *acute* dilution credits for ammonia toxicity, thereby establishing WQBELs for toxicity with which the SRWTP's existing discharge complies, the District is committed to reducing effluent ammonia levels to ensure that DO levels downstream of its discharge meet Basin Plan objectives. The District has extensively modeled DO downstream of the discharge to determine the location of the DO sag, and calculated the maximum level of oxygen demand (i.e., UOD) that can be present in the discharge and still ensure that DO does not go below the Basin Plan objective of 7.0 mg/L at the locations where the lowest DO levels occur in the Sacramento River (i.e., Isleton). (Memorandum from M. Mysliwiec, LWA, to Bob Seyfried, SRCSO, "Response to TetraTech Comments on the LDOPA" (Aug. 26, 2010).) Using estimated intra-daily DO variation, preliminary model results are used to derive AMEL and maximum daily effluent limit (MDEL) for UOD that would achieve the Basin Plan objective over critical conditions reflective of 70 years of observed hydrologic conditions. Those UOD limits were provided to Regional Board staff in an August 30, 2010, e-mail. (Table 5 Correction for May 2010 LDOPA_3_.pdf.) In the SRWTP effluent, the UOD consists primarily of BOD and ammonia. Ammonia reduction efforts will be driven by ensuring that the UOD limit is always met. Therefore, the appropriate ammonia effluent limits should be based on WQBELs considering acute and chronic dilution and UOD limits to meet downstream DO levels. These effluent limits are the basis for the Dilution #3, Ammonia #2 Alternative as described in Table 3 of the Tentative Permit Options. However, we believe there are some errors in this table. The ammonia effluent limits of 37 mg/L as an AMEL and 47 as an MDEL are based on a permitted effluent flow of 218 mgd. The AMEL and MDEL that are applicable to 181 mgd with acute and chronic dilution are found in Attachment H of the Tentative Permit (i.e., 41 mg/L as an AMEL and 51 mg/L as an MDEL). (Tentative Permit at p. H-1.) In addition, it appears that the values from Table 5 may have been inserted incorrectly into Table 3. The correct values are:

Constituents		Tentative Permit Dilution Ammonia #2		Dilution #3 Ammonia #2	
		HH and Chronic UOD Req'ts		HH, Chronic and Acute UOD Req'ts	
		AMEL	MDEL	AMEL	MDEL
Ammonia (as N)	mg/L	11	13	41	51
UOD (dry season)	lbs/day	169,000	234,000	169,000	234,000
UOD (wet season)	lbs/day	275,000	438,000	275,000	438,000

While the District strongly believes that dilution credit for ammonia toxicity is warranted, if dilution is denied for ammonia, the effluent limits should be determined on a seasonal basis. In addition, it is requested that a maximum permitted pH of 8.0 be used to calculate the acute ammonia criteria. It is appropriate to use a maximum pH permitted value of 8.0 because the District's effluent typically ranges between 6.2 and 7.3. Since at least 2000, it has never exceeded 8.0. Further, any changes to the treatment processes are not anticipated to cause the effluent to exceed 8.0. If an end-of-pipe limit based on the U.S. EPA criteria applies, the District would also request that the effluent pH and temperature be used to calculate the chronic criteria consistent with applying this effluent limit as an end-of-pipe limit (i.e., no dilution). The resulting effluent limits using the approach requested would be an AMEL of 3.0 mg/L and an MDEL of 3.9 mg/L for March 1-October 31, and an AMEL of 3.6 mg/L and MDEL of 4.7 mg/L for November 1-February 29.

Response: As discussed in the proposed Order and in response to SRCSD Comment #18, dilution credits are not proposed for ammonia because the mixing zone for ammonia does not meet the requirements for mixing zones in the SIP, due to the adverse affects ammonia is having on the Delta. However, although Central Valley Water Board staff believe end-of-pipe effluent limits for ammonia are necessary to protect the beneficial uses of the Delta, two permit alternatives are presented in the agenda package for Board consideration that propose to allow dilution credits for ammonia. Effluent limits for ammonia considering mixing zones and dilution would cause or contribute to exceedances of the Basin Plan's dissolved oxygen water quality objective of 7 mg/L in the Sacramento River. This was confirmed by the Discharger's Low Dissolved Oxygen Prevention Assessment (LDOPA) study. Therefore, the Discharger has proposed to include effluent limitations for the mass loading of oxygen-demanding substances, specifically ammonia and biochemical oxygen demand (BOD). The LDOPA study recommended the ultimate oxygen demand (UOD) mass loading limits in the table above.

Central Valley Water Board staff does not completely concur with the study findings. The LDOPA study was reviewed by modeling experts with Tetra Tech on behalf of the Central Valley Water Board. The Tetra Tech experts confirmed that the model was technically sound. Central Valley Water Board staff agree that the modeling is technically sound. However, staff is concerned about the dissolved oxygen data used to calibrate and validate the model. The study finds that at current discharge rates the Facility is not causing exceedances of the Basin Plan objective. However, dissolved oxygen ambient monitoring data downstream of the SRWTP discharge has demonstrated that at times the Sacramento River is not in compliance with the Basin Plan objective. Staff does not concur with the study findings that state that, at current discharge rates the Facility is not causing exceedances of the Basin Plan objective.

The Department of Water Resources (DWR) maintains several water quality databases for monitoring locations in the Delta. DWR operates a water quality monitoring station downstream of the discharge at Hood (eight miles below the SRWTP discharge). DWR conducts continuous monitoring for dissolved oxygen on 15 minute intervals at the Hood station. The station is checked every two weeks for accuracy and is calibrated, as needed. Since 2008, at times the dissolved oxygen concentrations have been recorded below 7.0 mg/L at the Hood monitoring station. The Municipal Water Quality Investigations (MWQI), a separate unit at DWR, also collects discrete dissolved oxygen water quality data at Hood. The MWQI database also shows dissolved oxygen concentrations below 7.0 mg/L. Furthermore, Central Valley Water Board staff conducted a nutrient study for the last year and also recorded dissolved oxygen concentrations below 7.0 mg/L at several locations downstream of the SRWTP discharge, including Hood. The dissolved oxygen concentrations upstream of the discharge are always in compliance with the objective. This information illustrates that the Facility is causing or contributing to the violation of the Basin Plan objective.

The Discharger contends that the DWR data is not accurate and did not use the data to calibrate or validate the model. Central Valley Water Board staff does not concur. As with the development of other NPDES permits, data is only discarded from use if certified information from a laboratory, or other quality assurance/quality control (QA/QC) is made available to illustrate that the data is not representative of the water sample. There is no sufficient evidence to discard the DWR data.

SRCS D Comment #52: The Tentative Permit proposes final effluent limits for chlorpyrifos based on no consideration of dilution because the Delta is listed as impaired for chlorpyrifos on the state's 303(d) list. This denial of dilution is

proposed even though the Tentative Permit indicates that there appears to be assimilative capacity in the vicinity of the discharge. The proposed denial of dilution credits based on listing of impairment alone is not sufficient evidence to deny dilution. The State Board has consistently held that “the listing itself is only suggestive; it is not determinative[,]” and findings of denial must be directly linked to ambient monitoring data. (State Board Order No. WQO 2001-06 (Tosco); State Board Order No. WQO 2004-0013 [“Pursuant to our instructions in Order No. WQO 2001-06, the Regional Board must revise its findings and link the denial of assimilative capacity to the ambient monitoring data.”].) Based on State Board precedent, the Tentative Permit improperly denies dilution credits as it does not do so based on actual ambient data, and because assimilative capacity exists within the vicinity of the discharge.

Response: Central Valley Water Board staff does not concur. The denial of a mixing zone for chlorpyrifos is not based on a finding of no assimilative capacity, which is an evaluation of constituent levels upstream of the discharge. The Tentative Permit states the following on pgs. F-40 – F-41:

“Although there appears to be assimilative capacity in the vicinity of the discharge, the Sacramento-San Joaquin Delta is impaired for chlorpyrifos. Allowing dilution credits allows lower levels of treatment and control of the discharge and a higher mass loading of chlorpyrifos. Since the Delta is impaired for chlorpyrifos, no dilution credits have been allowed in this Order.”

Denying a mixing zone for a constituent in which the waterbody is impaired is appropriate and justified. Regardless, upon further evaluation of the Basin Plan requirements for chlorpyrifos, staff determined that the water quality-based effluent limits were improperly applied in the Tentative Permit. In October 2005, the Central Valley Water Board updated the Basin Plan based on the total maximum daily load (TMDL) established for chlorpyrifos and diazinon. The TMDL, which became effective in December 2006, established waste load allocations for NPDES Dischargers and required NPDES Dischargers to comply by 11 August 2008. Since the WLAs are applied as water quality objectives, in the Basin Plan, there is also no allowance for dilution credits. Therefore, the proposed Order has been modified to: (1) establish the effluent limits for chlorpyrifos and diazinon based on the WLA, (2) modify the dilution findings for chlorpyrifos have been updated in the Fact Sheet, and (3) remove the compliance schedule for chlorpyrifos from the permit and add it to the proposed Time Schedule Order.

SRCSD Comment #53: The Tentative Permit states that assimilative capacity is available for copper, but does not include WQBELs based on assimilative capacity or dynamic modeling because dilution credits are deemed to be not needed. (Tentative Permit at p. F-39.) Instead, the Tentative Permit proposes effluent limits using a steady state effluent limit derivation approach. As noted above, effluent limits calculated using the dynamic models are more accurate and reflective of ambient water quality in the vicinity of the discharge. If adequate data and dynamic modeling tools and results are available, it is inappropriate to evaluate effluent limits using a steady state approach. The steady state and dynamic approaches are not equivalent, and the dynamic approach is acknowledged as being superior in all respects.

Response: Central Valley Water Board staff does not concur. Although staff concurs that a dynamic approach is more accurate and reflective of ambient water quality conditions, the effluent limits proposed by the Discharger using its dynamic model with acute and chronic mixing zones cannot be compared to the end-of-pipe effluent limits proposed in the Tentative Permit using a steady state approach. It is not an “apples to apples” comparison. The Discharger’s proposed dynamic model-derived limits allow mixing zones where the copper criteria are exceeded in the effluent and within the mixing zones in the receiving water. The proposed steady-state end-of-pipe copper limits in the Tentative Permit are developed such that the effluent never exceeds the copper criteria, and any mixture of the effluent and receiving water do not exceed the criteria. A statistical evaluation of effluent data from June 2005-October 2009 demonstrates that the Facility can comply with end-of-pipe effluent limits for copper. Therefore, it is not appropriate to allow mixing zones.

SRCSD Comment #54: Cyanide Effluent Limits. The Tentative Permit states that assimilative capacity is available for cyanide, and goes on to state that chronic dilution credit is allowed because the steady state limit cannot be met. Conversely, acute dilution is not allowed because the Tentative Permit declares that it is not needed. Further, the Tentative Permit finds that “granting of this dilution credit could allocate an unnecessarily large portion of the receiving water’s assimilative capacity.” (Tentative Permit at p. F-65.) Because of concerns associated with the WQBEL, which is calculated at 22 µg/L as the MDEL and 11 µg/L as the AMEL, the Tentative Permit proposes a final effluent limit of 11 µg/L as a MDEL.

In calculating WQBELs, the first step is not to first determine what is necessary for compliance but what is the appropriate WQBEL considering available dilution credits. When there are significant differences between the calculated WQBEL and plant performance, it may be appropriate for the Regional Board to make supportive findings to reserve some portion of the assimilative capacity. (See

State Board Order WQO 2004-0013, at p. 13.) However, this process has not occurred for cyanide. In addition, significant modifications to the SRWTP have been proposed in the Tentative Permit and indirect impacts on the constituents that are not targeted by the new treatment processes have not been fully evaluated. Further, the impact of water conservation and growth on effluent levels of cyanide is also unknown.

Response: Central Valley Water Board staff does not concur. The Discharger requested acute and chronic mixing zones and requested dilution credits for cyanide. Although the acute and chronic mixing zones meet the requirements of the SIP, the first step for developing the WQBELs for cyanide was to determine if dilution credits are actually needed by reviewing the performance of the Facility. If a discharger can meet effluent limits without dilution or less dilution than is being requested, then in order to comply with the State Water Board’s Antidegradation Policy, the permit must require the Facility meets best practicable treatment or control (BPTC) for that constituent. This means that it would not be appropriate to allow a dilution credit. Table F-12 in the proposed Order, shown below, displays the WQBELs for cyanide calculated using SRCSD’s dynamic model with the allowance of acute and chronic aquatic life dilution, WQBELs calculated using SRCSD’s dynamic model with the allowance of only chronic aquatic life dilution, end-of-pipe effluent limitations using a reasonable worst-case steady-state approach, and the Facility’s performance. As shown in the table, the Discharger clearly does not need acute dilution credits. In fact, the Facility can meet effluent limits more stringent than would be allowed using the full chronic dilution credits. To ensure compliance with the Antidegradation Policy, the proposed Order requires a maximum daily effluent limit for cyanide of 11 µg/L, which is based on the performance of the Facility.

Table F-12. WQBELs for Cyanide

	Average Monthly Effluent Limitation	Maximum Daily Effluent Limitation
Dynamic Modeling (acute and chronic dilution)	21 µg/L	40 µg/L
Dynamic Modeling (chronic dilution only)	11 µg/L	22 µg/L
Steady-State Approach	4.3 µg/L	8.3 µg/L
Facility Performance ¹	11 µg/L	

¹ Projected 99.9th percentile of effluent cyanide data from June 2005-October 2009

The proposed effluent limit in the Tentative Permit is a maximum daily effluent limitation (MDEL) of 11 µg/L. The Tentative Permit finds that the actual maximum effluent concentration (MEC) is 10 µg/L and, therefore, the Discharger is already complying with the MDEL. (Tentative Permit at p. F-66.) However, in Attachment H of the tentative permit, the MEC is listed as 11 µg/L in error. The actual measured maximum effluent concentration (MEC) for cyanide is 10 µg/L, while the projected 99.9th percentile effluent concentration is 11 µg/L, based on 148 effluent cyanide samples from June 2005-October 2009. Based on the dataset available, the probability of compliance is 99.91%. The tentative Permit has been modified to correct this error.

The District states that, instead, WQBELs should be calculated with consideration of an acute and chronic mixing zone using the approved dynamic model. To the extent that the Regional Board determines that the calculated WQBELs are higher than necessary to ensure consistent compliance, the District recommends that final WQBELs then be set in a manner that is consistent with the approach proposed by the District in its memorandum *Approach to Water Quality-Based Effluent Limits Based on Performance*. (Betsy Elzufon, Larry Walker Associates, *Approach to Water Quality-Based Effluent Limits Based on Performance* (Aug. 2010) (Elzufon Effluent Limits Memo); see section A.11, post.) Using the District's proposed approach, the final effluent limits would be 15 µg/L and 9.7 µg/L as the MDEL and AMEL, respectively. (Elzufon Effluent Limits Memo at p. 4.)

Staff does not concur. To ensure compliance with the State Water Board's Antidegradation Policy it is necessary to require the Facility to meet BPTC of the discharge for cyanide. In this case, a performance-based maximum daily effluent limitation of 11 µg/L for cyanide is required.

SRCS D Comment #55: The Tentative Permit proposes a final WQBEL for nitrate as an average monthly effluent limitation (AMEL) of 0.26 mg/L. The effluent limit is inappropriate as well as unattainable. The Tentative Permit properly references established water quality criteria for the protection of the municipal and domestic water supply beneficial use. Specifically, the Tentative Permit references the 10 mg/L criterion for nitrate based on the primary maximum contaminant level (MCL). (Tentative Permit at p. F-71.) The Tentative Permit further states that the discharge has reasonable potential to cause or contribute to an in-stream excursion above the primary MCL for nitrate. However, the Tentative Permit does not propose to adopt a WQBEL based on the primary MCL. As discussed above, it instead proposes to adopt a limit based on an unknown criterion for the protection of aquatic life. At most, the Regional Board would be justified in adopting a WQBEL for nitrate based on the primary

MCL of 10 mg/L. As indicated in communications to the District, a proper AMEL with the consideration of dilution would result in an effluent limitation of 300 mg/L as N. In the alternative, the Tentative Permit Options proposes an effluent limit of 127 mg/L as N. (Tentative Permit Options at p. 10.) In any case, the calculation of a WQBEL based on the primary MCL with some consideration for dilution is more appropriate than the final effluent limit proposed in the Tentative Permit.

Response: Central Valley Water Board staff concurs. Sufficient information is not available to provide for a nitrate effluent limitation less than the Department of Public Health's Effluent limits for nitrate have been revised in the proposed Order. The proposed Order includes an average monthly effluent limit of 10 mg/L for nitrate (as N) based on the Department of Public Health primary Maximum Contaminant Level (MCL) for the protection of public health without the allowance of dilution. Although assimilative capacity and dilution is available in the receiving water for compliance with the primary MCL, a human health mixing zone for nitrate does not meet the mixing zone requirements of the SIP. The SIP requires, in part, that mixing zones do not;

- (1) compromise the integrity of the entire water body;
- (2) adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws; and
- (3) produce undesirable or nuisance aquatic life;

The allowance of a human health mixing zone for nitrate does not meet these requirements, because elevated nitrogen discharges from the Facility have been shown to be negatively affecting the receiving water far downstream of the discharge within the Delta, not just the areas defined by the requested mixing zone. The allowance of the requested mixing zone for nitrate would compromise the integrity of the entire water body, adversely impact biologically sensitive or critical habitats, and produce undesirable or nuisance aquatic life. (see response to SRCSD Comment #23)

SRCSD Comment #56: Mercury.

- a) The Tentative Permit proposes a final effluent limit for total mercury as an annual average mass limit of 2.2 pounds per year (lbs/yr), as a performance-based limit. (Tentative Permit at p. 14). The Fact Sheet for the Tentative Permit identifies the limit as 2.3 lbs/yr. (Tentative Permit at p. F-70.) Although the discrepancy is small, the ultimate limits in the Permit and the information in the Fact Sheet should match.

Response: The effluent limit for mercury stated in the Limitations and Discharge Specifications is correct (i.e., 2.2 lbs/yr). The typo in the Fact Sheet has been corrected.

- b) This final effluent limit does not provide any credit or consideration for the District's effective source control efforts that have been ongoing for several years. To recognize the District's efforts and to avoid penalizing the District for its efforts, the performance-based limit for mercury must be recalculated. First, the Tentative Permit uses an inappropriate time period of effluent data to calculate the proposed limit. The Fact Sheet notes that the limit was calculated as the 99.9th percentile of the running annual total mercury loading based on effluent data from January 2005 through April 2010. (Tentative Permit at p. F-70.) The Fact Sheet claims that such calculation is consistent with the Delta Methylmercury TMDL. However, the District has several concerns with this approach. As a preliminary matter, the Delta Methylmercury TMDL is not yet approved by the State Board, the Office of Administrative Law, or U.S. EPA. Thus, it is not applicable at this time. More importantly, even if approved, the TMDL does not specify the appropriate time period for data to use in calculating performance-based mass loads. It states only that limits should be calculated as follows, "[t]he interim inorganic (total) mercury effluent mass limit is to be derived using current, representative data and shall not exceed the 99.9th percentile of 12-month running effluent inorganic (total) mercury loads (lbs/year)." (Resolution No. R5-2010-0043, Attachment 1, at p. 4.) Based on the language in the TMDL, the District properly requested that the 99.9th percentile of the 12-month rolling monthly average be derived using effluent data from January 2004 through December 2009. The District's proposed data period is current and representative, as it does not penalize the District for its significant proactive efforts to reduce mercury in the effluent. Using this data period, the performance-based limit would be 4.4 lbs/yr.

The District submits that its proposed calculated limit is more appropriate and more representative of performance for the SRWTP. Although the annual mercury load has remained below the proposed final limit since January 2006, compliance problems may arise in the future, especially if the slight upward trend beginning in April 2008 continues. Further, the Regional Board must recognize that the upward trend is most likely due, at least in part, to the additions of West Sacramento, Courtland, and Walnut Grove to the SRWTP. These communities have been added to the SRWTP in an effort to regionalize wastewater services, which is encouraged by the Regional Board. (See Resolution No. R5-2009-0028, In Support of Regionalization, Reclamation, Recycling and Conservation for Wastewater Treatment Plants.) In addition, basing the limit on the most recent time period would, in effect,

penalize the District for the proactive source reduction it has accomplished since 2001.

Response: As required by the existing NPDES Permit, Order 5-00-188, adopted in 2000, a source reduction program for mercury was initiated in 2001 by the Discharger. The source reduction program has been quite successful as illustrated in Figure VI.2 of the SRCSD Comment Letter dated 11 October 2010. The results of the Dischargers efforts decreased the effluent total mercury by 60% between 2001 and 2009. The majority of this decrease occurred between 2001 and 2006. After 2006 the mercury concentration trend flattens out, representing the diminishing returns of the source reduction program; furthermore, data collected after 2006 best represents what is achievable by the treatment plant. Therefore, the interim limit should be based on what is consistently achievable, not biased high by including data that represents the downward trend (pre-2006 data) while the source reduction program was taking hold and creating an artificially high performance-based effluent limit. Central Valley Water Board staff used the data set encompassing January 2005 through April 2010 to calculate a performance-based annual mercury effluent limit, which includes a buffer that does not penalize the District for its proactive mercury reduction efforts.

- c) The 2000 NPDES permit (Order No. 5-00-188) also allows the District to bank total mercury mass loadings under its limit of 5.1 lbs/yr for future offsets. Between 2000 and 2009, the annual mass loading has never exceeded the interim limit. As a result of its extensive source control efforts, the District has banked 21.5 lbs of mercury during this time period. However, the Tentative Permit proposes to eliminate and discard the District's banked credits because the District can supposedly meet the performance-based limit. This is inappropriate, and not good policy. As noted above, the District is concerned with being able to consistently comply with the proposed limit. Further, being able to meet the performance-based limit is not a proper reason for eliminating banking credits that accrued over the current permit term. Thus, the Tentative Permit should be revised to maintain the District's ability to bank mercury credits, or at the very least, maintain the credits already banked.

Response: The performance-based effluent limits for mercury have been established based on the projected 99.9th percentile of the running 12-month average mercury loadings for the past 5 years. The statistical 99.9th percentile means that the effluent discharge should be less than the limit 999 out of 1000 times. To allow the Discharger to bank the mass loading less than the limit does not make sense, because the limit is designed so the discharge is essentially always less than the limit. In fact, if the proposed 2.2 lb/yr mercury limit was in place during the past 5 years

with a banking provision, the Discharger would have accrued a banked mercury loading of 2 lbs. Including a banking provision would allow the Discharger to increase its loading of mercury to the Delta, which is contrary to the SIP¹ and the Antidegradation Policy. To ensure compliance with the Antidegradation Policy it is necessary to require the Facility meet BPTC of the discharge for mercury. The Discharger must maintain current loadings of mercury.

- d) Further, the District is also concerned that the SRWTP's impact on methylmercury loads is mischaracterized in the Fact Sheet. Under the discussion on RPA Results, it is stated that the 2000-2003 SRWTP methylmercury load to the Delta is comparable to the Cache Creek load contribution. (Tentative Permit at pp. F-69 - F-70.) This comparison is true only for a relatively short, relatively dry period. In reality, the long-term average methylmercury load from the Cache Creek Settling Basin is likely more than 10 times greater based on the 20-year average load estimate of total mercury and typical total:methyl ratios. The Tentative Permit also states that the District has contributed as much as 20 to 30% of the methylmercury loading to the river during drier periods when effluent mercury concentrations were higher (prior to source reduction efforts). (Tentative Permit at p. F-70.) However, these values are the maximum percentages from single readings. They are not representative of chronic conditions that are relevant to bioaccumulative effects. Average increases are less than 10%.

Response: The paragraph in question is the discussion of the reasonable potential analysis in the Fact Sheet. The issue whether the Facility discharge of methylmercury is comparable to the Cache Creek Settling Basin is irrelevant, so the comparison has been removed from the proposed Order. The main point is that the Facility discharges elevated levels of methylmercury and there is no question that it has reasonable potential for methylmercury. Therefore, effluent controls are necessary.

SRCS D Comment #57: Electrical Conductivity (EC) Effluent Limits. The Tentative Permit proposes a final effluent limit for EC as an annual average limit of 840 μ mhos/cm. The Fact Sheet states that this performance-based limit is a 99.9th percentile of the running annual average effluent EC based on effluent data from June 2006 through April 2010. (Tentative Permit at p. F-50.) The limit proposed differs from the performance-based limit requested by the District on April 20, 2010. (See handout dated April 20, 2010, "Performance Based EC

¹ "For bioaccumulative priority pollutants for which the receiving water has been included on the CWA Section 303(d) list, the RWQCB should consider whether the mass loading of the bioaccumulative pollutant(s) should be limited to representative, current levels pending TMDL development in order to implement the applicable water quality standard." (SIP Section 2.1.1)

Limit for the SRWTP” and email from V. Pandya to Kathleen Harder dated July 27, 2010, re “Follow-up items from July 26 mtg”.) Specifically, the District requested that the EC limit be calculated from the mean plus 3.3 times the standard deviation of the individual data points for the data set for June 2005 through July 2008, which results in an effluent limit of 1000 $\mu\text{mhos/cm}$ as an annual average. The District noted in its request that the data set between June 2005 through July 2008 did not include a critical dry year, and does not account for future increases in EC due to water conservation efforts or increased use of groundwater by water purveyors or, as noted in the discussion on pH, changes in treatment plant operations. The 2006-2010 data set used by Regional Board staff does include a critical dry year, but the District’s other concerns remain. To provide the margin of safety, the District requests that the effluent limit be based on the 99.9th percentile value (i.e., mean + 3.3 times the standard deviation) of the individual data points rather than the 99.9th percentile value of the running annual average.

A review of the average annual EC calculated for calendar years between 2005 and 2009 indicates that EC has not exceeded the final proposed annual average limit, however there appears to be an upward trend. Therefore, the District may not be able to comply with the final effluent limit, especially as a result of water conservation, variations in water supply or changes in treatment plant operations (e.g., additional TDS added as a result of pH adjustment to meet a pH limit of 6.5). In addition, the Tentative Permit notes that the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. (Tentative Permit at p. F-50.) The relatively low salinity of the SRWTP discharge should be taken into account in establishing an effluent limit. The District requests that the effluent limit be 1000 $\mu\text{mhos/cm}$ as an annual average as previously requested.

Response: Central Valley Water Board staff concurs that water conservation can result in increased concentrations of EC in the effluent. However, staff does not concur that water conservation is a reason to elevate concentration effluent limitations. In the constituent-specific situation of salinity, the effluent does not have reasonable potential to cause or contribute to an exceedance of a water quality standard or objective. Similar to other NPDES dischargers within the Central Valley Region, due to the increased salinity in the Delta, a performance-based salinity effluent limitation is included in NPDES permits to “cap” the salinity discharged at the current level. Staff has modified the annual average effluent limits, per the Discharger’s request, to account for some increases due to water conservation. The annual average effluent limits for EC have been changed from 840 $\mu\text{mhos/cm}$ to 900 $\mu\text{mhos/cm}$ in the proposed Order, but does not concur with the EC effluent limitation to be raised any higher. As required of other NPDES dischargers, the Discharger is required to prepare and implement a salinity evaluation and minimization

plan. Salinity minimization efforts will balance the effluent salinity levels as further increased water conservation takes place. The Discharger's implementation of salt minimization within its service areas, and within its treatment process can ensure compliance with the annual average effluent limit for EC of 900 $\mu\text{mhos/cm}$.

SRCSO Comment #58: Performance-Based Effluent Limits (PBELs). The Tentative Permit proposes a harmonic mean dilution credit of 56:1 for effluent limits based on human health criteria. As a result, many of the calculated WQBELs are orders of magnitude higher than the maximum observed SRWTP effluent concentrations. The District agrees that only a portion of the assimilative capacity is needed to guarantee compliance. However, the PBELs proposed in the Tentative Permit are much more stringent than necessary or reasonable and may result in unnecessary and inappropriate compliance issues. Table VI.7 below summarizes the District's concerns with PBELs associated with human health-based criteria proposed in the Tentative Permit. Therefore, the District requests the PBELs be adopted as identified in the table below. The requested PBELs are those requested in the District's memorandum *Approach to Water Quality-Based Effluent Limits Based on Performance*. (Betsy Elzufon, Larry Walker Associates, *Approach to Water Quality-Based Effluent Limits Based on Performance* (Aug. 2010) (Elzufon Effluent Limits Memo). Another approach would be to use the approach to determining interim limits described in the TSO (pp. 3-4) for 1,2-diphenylhydrazine and dibenzoanthracene. Those interim limits are calculated as 3.11 times the maximum observed effluent concentration. If this approach is acceptable for interim limits where a water quality criterion may be exceeded, then it should be acceptable for an effluent limit that results in ambient concentrations that are well below water quality criteria. PBELs based on this approach are also shown in the table below. Either approach presented here ensures reasonable protection of beneficial uses, preserve a significant portion of available assimilative capacity, and avoids unnecessary or inappropriate noncompliance for the SRWTP discharge.

Table VI.7.

Constituent	WQBEL	PBEL in Tentative Permit	Probability of Compliance ¹	PBEL requested by District	PBEL based on method in TSO
Manganese	2700 µg/L ²	85 µg/L MDEL	93.6%	225 µg/L ²	280
Chlorodibromo-methane	12 µg/L AMEL 15 µg/L MDEL	2.2 µg/L MDEL	99.87%	2.4 µg/L MDEL	3.0
Dichlorobromo-methane	27 µg/L AMEL 47 µg/L MDEL	3.4 µg/L MDEL	98.7%	6.8 µg/L MDEL	10.6
Bis(2-ethylhexyl)phthalate	94 µg/L AMEL 180 µg/L MDEL	13 µg/L MDEL	99.64%	26 µg/L MDEL	40.4
Cyanide	21 µg/L AMEL 40 µg/L MDEL	11 µg/L MDEL	98.2%	15 µg/L MDEL	31.1

¹ A Once-in-three-year noncompliance corresponds to a compliance rate of 99.91% for an MDEL and 97.2% for an AMEL.

² Annual Average Effluent Limit

Response: Central Valley Water Board staff does not concur. The basis for the PBELs in the proposed Order is clearly detailed in the Fact Sheet (Section IV.D.6). The PBELs have been established as the 99.9th percentile of the effluent dataset. This means if 1000 samples were collected, 999 of the 1000 samples are expected to be less than the PBEL. This corresponds to a 99.91% compliance rate. If daily sampling was required, this is the compliance rate that corresponds to an exceedance no more than one day in three years. However, the proposed Order requires monthly monitoring for the constituents with statistically calculated PBELs, not daily. Therefore, it is highly questionable whether the 99.91% corresponds to a once in three year exceedance, it is likely a much longer period.

The Discharger states that the compliance rates for Manganese, Chlorodibromomethane, Dichlorobromomethane, Bis(2-ethylhexyl)phthalate, and Cyanide are all less than 99.91%, but did not provide any details as to why they believe the probability of compliance is less. Based on the datasets and methodology used by the Central Valley Water Board, the PBELs for the five constituents in question all have compliance rates of 99.91% or greater as discussed in detail below.

- Manganese:** The performance-based effluent limit for manganese was determined from calculating the mean plus 3.3 standard deviations. The mean and standard deviation were determined from a log normal distribution based on the normality plot of the 19 April to 4 June 2009 dataset. The dataset included 34 samples. This is the only manganese data provided by the Discharger. The performance-based limit of 85 µg/L represents the 99.91% or a once-in-three-year

noncompliance. The MEC for this dataset is 82 µg/L, less than the performance-based MDEL.

- **Dichlorobromomethane:** Analysis of 101 samples collected between 12 June 2005 to 10 October 2009 indicates that 91% of the samples analyzed had detectable concentrations. With the number of non-detects, both normal and log normal normality tests poorly fit the dichlorobromomethane dataset. When datasets include non-detects, the regression on order statistics (ROS) technique can be used to develop summary statistics and probability distribution functions. The ROS method was chosen because numerous studies have found can other arbitrary methods like substituting the detection limit or using half of the detection limit for every non-detect value “results in substantial bias unless the proportion of missing data is small, 10 percent or less”. The ROS technique is often used with water quality data and is a useful tool for evaluating data sets with at least 40% detected data. An estimated mean and standard deviation are used to calculate the 99.9th percentile performance-based effluent limitation. In the case of dichlorobromomethane, the ROS technique was used to estimate the mean and standard deviation. The ROS technique using the mean plus 3.3 standard deviations produced a maximum daily limit of 3.0 µg/L, which is less than the MEC of 3.4 µg/L. Therefore, the MEC was established as the MDEL because it is the most conservative performance-based limit and represents more conservative limit than 99.91% or a once-in-three-year noncompliance. All other analytical samples collected between 12 June 2005 and 10 October 2009 are less than 3.0 µg/L, making the 3.4 µg/L MEC an outlier.
- **Chlorodibromomethane:** Analysis of 73 samples collected between 12 June 2005 to 10 October 2009 indicates that only 16.8% of the samples analyzed had detectable concentrations. Normality plots of both normal and log normal data become uncertain with such a large number of non-detect data. Even the regression on order statistics technique should not be used for datasets with less than 20% detected data. Therefore, the TSD method for estimating the interim limitations, multiplying the MEC of 0.7 µg/L by 3.11 was used to determine the performance-based MDEL of 2.2 µg/L. The proposed MDEL is more than 3 times greater than any measured concentration in the effluent. Since there are insufficient detected data to conduct a statistical evaluation, Staff is not able to determine how the Discharger was able to determine the probability of compliance. No information was provided in the Discharger’s comments to determine how this was calculated.

- **Bis(2-ethyhexyl)phthalate:** Analysis of 115 samples collected between 12 June 2005 to 10 October 2009 indicates that 99.1% of the samples analyzed had detectable concentrations. The performance-based effluent limit for Bis(2-ethyhexyl)phthalate was determined by calculating the mean plus 3.3 standard deviations. The mean and standard deviation were determined from a log normal distribution based on the normality plot of the dataset. The performance-based MDEL of 13 µg/L represents the 99.91% confidence interval or a once-in-three-year noncompliance. The MEC for this four plus year dataset is 8.1 µg/L, less than the performance-based MDEL of 13 µg/L.
- **Cyanide:** The performance-based effluent limit for cyanide was developed using the ROS technique to estimate the mean and standard deviation. Cyanide is an excellent candidate for ROS because the percentage of non-detect samples (41.5%) can be better estimated than arbitrary methods like substituting the detection limit or half of the detection limit for every non-detect value. The ROS method estimated the MDEL as 11 µg/L and the MEC between 12 June 2005 and 10 October 2009 was 10 µg/L, based on 176 samples. This demonstrates the PBEL for cyanide has less than a 1-in-3 year exceedance rate, since it was not exceeded for the four year period.

Using the procedures proposed by the Discharger for calculating the PBELs is not appropriate. The Discharger references a memorandum from Larry Walker and Associates as a proposed method for calculating the PBELs for constituents where dilution credits were allowed. The proposed method allows a certain percentage of the assimilative capacity of the river to be used to allow the Discharger a higher effluent limit. This approach does not comply with the State Water Board's Antidegradation Policy, which requires the Discharger meet best practicable treatment or control (BPTC) of the discharge. Allowing effluent limits greater than needed does not meet BPTC.

The other procedure proposed by the Discharger for calculation of the PBELs is to multiply the maximum effluent concentration by 3.11. This procedure is not appropriate, unless there are significant non-detects (greater than 80%) or when there is less than 10 data points. In these situations statistical methods are uncertain. However, when the data lends itself to statistical evaluations, it is appropriate to use more statistically robust methods for determining the 99.9th percentile.

SRCSD Comment #59: N-nitrosodimethylamine (NDMA). The Tentative Permit proposes a WQBEL for NDMA of 0.00069 µg/L as an AMEL and 0.0014 µg/L as an MDEL. (Tentative Permit at p. 13.) The TSO establishes an

interim limit of 0.26 µg/L as an MDEL. (TSO at p. 5.) The District has evaluated its ability to comply with this interim limit and the probability of compliance with this limit is 99.89%, which is less than the one-day in three-year compliance rate of 99.91%. Therefore, and subject to section II.D, the District requests an interim limit of 0.30 µg/L to ensure compliance for the SRWTP discharge.

Response: Analysis of data collected between 12 June 2005 to 10 October 2009 indicates that 16.8% of the samples analyzed had detectable concentrations. Normality plots of both normal and log normal data are not valid with such a large number of non-detect data. Even the regression on order statistics (ROS) technique should not be used for datasets with less than 20% detected data. This is an instance when the TSD method for estimating the interim limitations, multiplying the MEC of 0.082 µg/L by 3.11, is used to determine the performance-based MDEL. The TSD method was used resulting in a MDEL of 0.26 µg/L. Considering there is insufficient detected data to statistically calculate the 99.91 percentile, it is questionable how the Discharger was able to determine the probability of compliance. The PBEL for NDMA in the proposed TSO has been correctly established.

SRCSD Comment #60: N-nitrosodimethylamine (NDMA). Further, as noted in the Fact Sheet, analytical method detection levels are greater than the CTR criteria for NDMA. (Tentative Permit at p. F-61.) Therefore, assessing compliance with effluent limits is difficult. The District requests that the permit state in section VII, Compliance Determination, that compliance with this effluent limit be evaluated based on the Minimum Level in Appendix 4 of the SIP (i.e., 5 µg/L). It should also be noted that the analytical method specified for NDMA (U.S. EPA Method 521) is a drinking water method. Typically, drinking water methods are not appropriate to use in analyzing wastewater because of the more complex nature of the wastewater matrix. Therefore, the method detection level that is achievable for drinking water is not appropriate for wastewater monitoring.

Response: Central Valley Water Board staff does not concur. The Discharger has used USEPA Method 521 on numerous occasions and has not reported any issues. The proposed Order requires the Discharger use analytical methods with reporting levels that will allow an evaluation of compliance with the effluent limits. USEPA Method 521 must be used for NDMA.

SRCSO Comment #61: 1,2-diphenylhydrazine. The Tentative Permit proposes a WQBEL for diphenylhydrazine of 0.04 µg/L as an AMEL and 0.08 µg/L as an MDEL. (Tentative Permit at p. 13.) The TSO establishes an interim limit of 8.7 µg/L as an MDEL. (TSO at p. 5.)

Reasonable potential for this constituent was triggered by two estimates (i.e., J-flagged values) with the rest of the data being below detection limits. (Tentative Permit at p. F-64.) As indicated in information submitted to the Regional Board previously, research with respect to analytical methods for this constituent reveals that analysis is based on a breakdown product of diphenylhydrazine (i.e., azobenzene) because diphenylhydrazine is so unstable in water that it cannot be detected. The Agency for Toxic Substances and Disease Registry (ATSDR) toxicological profile reports that analysis of 1,2-diphenylhydrazine in wastewater is “virtually meaningless” because, due to this oxidation, the concentration measured in the sample cannot be directly related to the actual concentration at the time of collection. A U.S. EPA study referenced in the ATSDR toxicological profile reported that 1,2-diphenylhydrazine, “. . . instantaneously decomposes to azobenzene in the GC injection port,” and therefore gas chromatography (GC) is not suitable for detecting 1,2-diphenylhydrazine.

Due to the uncertainties associated with the analytical method, it is inappropriate for the Regional Board to adopt a WQBEL at this time as the data are not valid or representative. Where data are not valid or representative, the SIP provides that, “[t]he RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy.” (SIP at p. 5.) Using this discretion, and based on the substantial information in the record, the Regional Board should follow step 8 of the SIP. Step 8 provides, “[i]f data are unavailable or insufficient, as described in section 1.2, to conduct the above analysis for the pollutant, or if all reported detection limits of the pollutant in the effluent are greater than or equal to the C value, the RWQCB shall require additional information for the pollutant in place of a water quality based effluent limitation.” (SIP at p. 7.) Accordingly, the proposed final limit for 1,2-diphenylhydrazine should be removed from the Tentative Permit.

Response: Central Valley Water Board staff concurs that there is insufficient information to conduct the reasonable potential analysis for 1,2-diphenylhydrazine. The proposed Order has been modified by removing the final effluent limitations for 1,2-diphenylhydrazine and a study requirement has been added for the Discharger to evaluate the effluent to determine if the discharge has reasonable potential for 1,2-diphenylhydrazine. The compliance schedule for 1,2-diphenylhydrazine in the proposed Time Schedule Order has also been removed.

SRCSO Comment #62: The Tentative Permit contains surface water limitations for receiving waters including receiving water limits set for DO. (Tentative Permit at pp. 16-18.) The Tentative Permit includes two receiving water limits for dissolved oxygen that are not applicable to the Delta. The two limits in question are as follows:

- a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass; and
- b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation.

Accordingly, the two inapplicable water quality objectives expressed as receiving water limits should be removed from the Tentative Permit.

Response: Central Valley Water Board staff concurs. These receiving water limits have been removed from the proposed Order.

SRCSO Comment #63: Based on the fact that the District has technically justified its exceptions consistent with the requirements of CWA section 316(a) and the fact that this justification has not been refuted, the District requests that the Thermal Plan exceptions it has justified be granted in the renewed permit. The issue of predation should be considered separately, and should not interfere with a proper Thermal Plan waiver or 316(a) process.

If the Regional Board nonetheless chooses not to accept the District's proposed thermal provisions, it should at minimum state the effluent limitation as a daily average. Again, there is no technical analysis of any sort that would lead to denial of the request. But failure to grant the request poses significant operational problems and risk, as identified in a letter from the District dated August 11, 2010.

Response: The Central Valley Water Board staff are required to request consultations from other state and federal agencies as satisfaction of the stakeholder (public participation) for the antidegradation analysis. The National Marine Fisheries Service (NMFS), the United States Fish and Wildlife Service (USFWS) as well as the California Department of Fish and Game (DFG) are the consulting agencies for the Thermal Plan and any exceptions. All the fish and wildlife agencies clearly did not accept the District's request for additional relaxation of the Thermal Plan requirements beyond the relaxation now allowed in the current permit. USFWS stated that the District's Thermal Plan Justification did not adequately address Delta Smelt. USFWS, NMFS and DFG concluded additional studies (required under the tentative permit) must be completed

to determine if the current exception protects the aquatic life. Specifically, the USFWS found the District's evaluation of adequate passage for delta smelt is not supported by the Sacramento River-specific information. Delta smelt are not strong swimmers and their vulnerability to the combination of thermal and constituent exposure is unknown. Site-specific information about the behavior of delta smelt and other fishes is needed to ensure that current and future thermal conditions are protective. This is in addition to the potential to create winter thermal refugia for fish species that do better in warmer temperatures, specifically non-native predators; lack of an analysis linking the synergistic effects of multiple pollutants, like chemical and thermal contamination. Dr. Bryan's testimony (attachment to the District's comment letter) state that the issues discussed above are either addressed or irrelevant has not satisfied Central Valley Water Board staff. The District's assertions that bioassays address the synergist impacts neglects to address that the District's failed bioassays have confirmed an acute toxicity problem with its effluent. Additionally, the bioassays do not reveal the potential sub-lethal impacts on native fish such as the "startled" scenarios that increases vulnerability to predators. The idea that the predators may be attracted to plume under any of the thermal plan scenarios may indicate that the site-specific predator studies will conclude that additional protections beyond the thermal plan will be appropriate.

Additional studies were provided by the Water Agencies, "Review of the Sacramento Regional Wastewater Treatment Plant (SRWTP)-Impact of Tentative Order and Thermal Exception on Delta Smelt" Rosie Thompson, Ph.D. and Jean Baldrige, October 6, 2010 and "Impact of Sacramento Regional Wastewater Treatment Plant Effluent Discharges on Salmonids", Cramer Fish Sciences, September 2010. These studies furthered the question as to whether the District's thermal analysis is complete and/or adequate. More importantly, the United States Bureau of Reclamation states "The use of PROSIM and the outdated version of Reclamation's temperature model, results in an inadequate analysis that does not properly reflect the current conditions of the basin. Since PROSIM drives the other four linked models, the overall analysis does not meet the test of "Best Available Science" and quality information."

Far from the District's request for additional relaxation of the thermal plan, the USFWS indicated that the District must begin planning for the likelihood that no thermal exceptions will be granted in the future.

Since the fish and wildlife agencies have requested studies and data to confirm the existing exception is protective of aquatic life, the Board staff will not modify this exception to change maximum temperature effluent limitation to a daily average.

SRCSO Comment #64: Under any circumstance, the District is concerned that the Fact Sheet (pp. F-78 - F-82) has not been reconciled with either the District's or the Tentative Permit's proposed effluent and receiving water limitations, and that appropriate findings (and resolution for exception to the Thermal Plan) are yet to be prepared. We urge the Regional Board to address these issues promptly. We also observe that the Fact Sheet on page F-82 refers to a TSO, but the draft TSO contains no provisions related to compliance with thermal requirements.

Response: Central Valley Water Board staff concur that the Fact Sheet is not consistent with the effluent and receiving water limitations. Those inconsistencies will be corrected in the tentative permit. Since the Thermal Plan exception is being carried over from the current permit, no new resolution is needed from the Central Valley or State Water Board. The Fact Sheet referral to a TSO is incorrect and will be corrected in the tentative permit.

SRCSO Comment #65: The Tentative Permit contains a numeric toxicity monitoring trigger of >6 TUc (where TUc = 100/NOEC). (Tentative Permit at p. F-109.) The Discharger provided modeling results of the discharge with its comments that demonstrates the once in three-year occurrence for 4-day average percent effluent is 7.50%, corresponding to a dilution of 13.3 at the edge of the chronic mixing zone. Based on the dynamic model results, the District requests a numeric toxicity monitoring trigger of **>13 TUc** (where TUc = 100/NOEC). With a >13 TUc trigger, the Toxicity Reduction Evaluation (TRE) provisions in the Tentative Permit are triggered when the effluent exhibits toxicity at 7.7% effluent.

Response: Central Valley Water Board staff concurs that the chronic toxicity trigger can be determined based on the updated modeling results provided by the Discharger. The toxicity trigger has been revised to be set at 8 TUc, which is the toxicity trigger in the current permit. The Discharger has shown consistent compliance with this trigger and it will require proactive efforts to evaluate effluent toxicity before chronic toxicity is experienced outside the chronic toxicity mixing zone.

SRCSO Comment #66: The Tentative Permit proposes requirements associated with Chronic Whole Effluent Toxicity. (Tentative Permit at pp. 25-27.) Concerns in addition to the appropriateness of the toxicity trigger described above in section VIII.A. are as follows:

- a) The District requests that the requirement to prepare a TRE workplan within 90 days be revised to require an update of the existing TRE workplan that

was submitted for the 2000 permit and has been in use since it was approved. (Tentative Permit at p. 25.)

Response: Central Valley Water Board staff concurs and have modified the proposed Order accordingly.

- b) The Tentative Permit proposes to require a TRE if accelerated monitoring results in 1 exceedance of the trigger. (Tentative Permit at p. 26.) This does not account for intermittent toxicity that can often occur and, because it is intermittent, its cause is very difficult to determine. A TRE is warranted if there is persistent toxicity. Therefore, the District requests that the requirement to initiate a TRE result if 2 accelerated tests exceed the trigger.

Response: Central Valley Water Board staff does not concur. The TRE requirements in the proposed Order are consistent with other permits adopted by the Central Valley Water Board. The provisions have been developed based on USEPA guidance.

- c) In addition, this section states that the Executive Officer may require a TRE even if accelerated monitoring does not result in any failed tests. The reason for this is stated as, “notwithstanding the accelerated monitoring results, adequate evidence of effluent toxicity” This vague rationale could not be predicted and does not allow for any discussion with or input by the District. At minimum, additional details and/or examples of what might constitute “adequate evidence” should be provided. TREs can be very difficult and very expensive under certain conditions (i.e., chronic toxicity, intermittent, variable intensity, and if toxicity is lost in stored samples) and, therefore, should be initiated only if evidence warrants.

Response: Central Valley Water Board staff does not concur that additional information describing examples when the Executive Officer (EO) may require a TRE. The decision to require a TRE is site-specific. If the EO requests a TRE under these circumstances site-specific details would be provided justifying the requirement to conduct a TRE. Providing examples in the permit does not add anything of merit.

SRCS D Comment #67: It is inappropriate to Use *Hyalrella Azteca* as test species.

Response: Central Valley Water Board staff and USEPA, DFG, USFWS and DWR all concur that *Hyalrella Azteca* is an appropriate test species because they are resident Delta species, they are an interface species between sediment and water column and they are a sensitive species for detecting toxicity to pyrethroids. The water column method most labs are using is based off of EPA’s reference toxicant test method that uses a

substrate substitute that allows them something to hold to, eliminating the stress. Dr. Werner found that adding particulate organic matter to the control helped increase the sensitivity of the growth endpoint. Dr. Weston isn't the one researcher using paralysis as a sublethal endpoint. There is a growing use of swim cams that help quantify the swim patterns, swim times and resting periods of various organisms used in toxicity testing. USEPA's concerns with using *Hyalella azteca* is referencing ammonia toxicity and has nothing to do with pyrethroid toxicity. The SRWCB SWAMP website identifies labs that use a couple of variations on how to test *hyalella*.

SRCS D Comment #68: The District recommends specific permitting alternatives to staff recommendations in the tentative permit.

- Dilution Alternative 3 in Table 1: Adopt acute, chronic and human health mixing zones as proposed by the District. Utilize the District's dynamic modeling tool to derive WQBELs. Establish reasonable and achievable performance based limits where appropriate.
- Disinfection Alternative 1 in Table 2, as discussed in section I above, with coliform limits as a status weekly median.
- Dilution Alternative 3, Ammonia #2 in Table 3: Adopt concentration limits for ammonia based on the proposed acute and chronic mixing zones, and establish seasonal UOD mass limits to ensure future compliance with dissolved oxygen objectives in the Lower Sacramento River.
- Dilution Alternative 3, Nitrate #1 (an alternative that is not listed in Table 4): Adopt nitrate effluent limits based on the Primary MCL for nitrate and an appropriate dilution credit.
- Use Dilution Alternative 3 and the District's dynamic modeling tool to establish a defensible chronic toxicity testing trigger of >13.

Response: Central Valley Water Board staff support the tentative permit. See responses to SRCS D Comments #s 41-46.

SRCS D Comment #69: The Tentative Permit proposes to require the District to conduct a study to develop procedures for conducting whole effluent toxicity (WET) testing using *Hyalella azteca* as the test species. Requiring a discharger to conduct a study to develop an analytical method is not appropriate and well exceeds the Regional Board's authority. Studies for the development of test methods is an activity that is more appropriately conducted by or supported by U.S. EPA.

Response: Dr. Weston¹ found in every sample of the SRWTP, at least 70 percent of the organisms were dead or unable to swim. Pyrethroids were detected in 4 of 6 SRWTP samples. The current permit acute and chronic toxicity testing will not detect toxicity from pyrethroids, thus the need for *hyalella azteca* as a test species since they are resident Delta species sensitive to pyrethroids. The District needs to review existing *hyalella* testing which is used frequently for Delta toxicity tests and submit a work plan that will demonstrate what testing with *hyalella* will determine if the effluent is toxic to pyrethroids and to what extent.

SRCS D Comment #70: The District does not believe an ammonia and nitrogen study coordinated with other NPDES dischargers should be a requirement of the tentative permit.

Response: The Ammonia and Nitrogen study has been removed as a requirement.

SRCS D Comment #71: The Tentative Permit proposes to require a mercury pollution prevention plan, but does not acknowledge the Pollution Prevention Plan for Mercury prepared by the District in 2001. Based on implementation of the 2001 Pollution Prevention Plan (PPP), SRWTP effluent has realized substantial reductions in mercury effluent concentrations. In recognition of the previous efforts, the study requirement should be revised to require an “update” of its existing plan consistent with Water Code section 13263.3.

Response: Central Valley Water Board staff concurs. The proposed Order has been revised to acknowledge the existing PPP for mercury and requires the Discharger to update its PPP.

SRCS D Comment #72: The Tentative Permit proposes to require a salinity minimization and evaluation plan. The Sacramento River is not impaired for salinity and the SRWTP discharge does not have reasonable potential to cause or contribute to an exceedance of salinity water quality objectives. The proposed performance-based effluent limit is intended to ensure the District maintains current levels of salinity, which do not impact beneficial uses. Because the District’s salinity levels are sufficiently low, a Salinity Evaluation and Minimization Plan is not necessary or consistent with Water Code section 13267. Accordingly the District requests that this requirement be removed.

¹ Weston, Donald P and Michael J. Lydy, “Urban and Agricultural Sources of Pyrethroid Insecticides to the Sacramento-San Joaquin Delta of California”, Environmental Science Technology 2010, 44, 1833-1840.

Response: Central Valley Water Board staff does not concur. Salinity is a significant issue in the Delta. All NPDES dischargers need to do their part to evaluate and implement measures to reduce the salinity is discharged to the Delta. The requirement to develop and implement a salinity evaluation and minimization plan is justified.

SRCS D Comment #73: The Tentative Permit proposes a temperature study that would be required to include: continuous monitoring of the thermal discharge in coordination with mixing zone monitoring; an evaluation using hydroacoustic technology to determine if there are aggregations of large fish or schools of small fish in the zone of elevated temperature; and, ambient water acute and chronic toxicity testing using rainbow trout bi-weekly during December and June for two-years, with control samples upstream and ambient river monitoring at 65 feet and 360 feet for acute and chronic toxicity tests respectively. (Tentative Permit at p. 28.) The District disagrees with the proposed study requirements for the following reasons, and overall the benefits to be gained by implementing the study requirements does not bear a reasonable relationship as compared to the burden, including costs of the study requirement.

Response: Central Valley Water Board staff do not concur. See response to SRCS D Comment #63. The fish studies are required to see if the existing thermal plan exception is protective of beneficial uses and if not what temperature requirements are necessary.

SRCS D Comment #74: Pyrethroid Pesticide Monitoring. With respect to pyrethroids, this would be a new monitoring requirement that is being imposed for the first time on the District. No other Central Valley POTWs are required to monitor for pyrethroids. The cost and burden of monitoring for pyrethroids bears no reasonable relationship as compared to the benefit. First, pyrethroid monitoring in the effluent is not appropriate because there is no currently accepted U.S. EPA method for pyrethroid testing. Second, the Tentative Permit states that the rationale for monitoring pyrethroids is to determine reasonable potential. (Tentative Permit at p. F-103.) However, there are no adopted water quality objectives to determine reasonable potential for pyrethroids.

Response: A recent study¹ to identify sources of pyrethroid pesticides in the Sacramento-San Joaquin Delta shows, that although minimal toxicity was detected in the Sacramento River, SRWTP effluent contained pyrethroid pesticides in concentrations that may be toxic. Monitoring is required for pyrethroids, because it is a constituent of concern that has been measured in the effluent.

¹ Weston, Donald P and Michael J. Lydy, "Urban and Agricultural Sources of Pyrethroid Insecticides to the Sacramento-San Joaquin Delta of California", Environmental Science Technology 2010, 44, 1833-1840.

SRCS D Comment #75: Additional Analyses to be Conducted. The number of constituents required in the MRP in the 2000 permit are compared to the number of constituents required in the Tentative Permit in Table XI.1. As can be seen, for each sampling event approximately 506 additional analyses are required. These include constituents for which there are no water quality standards including pyrethroids, non-CTR persistent chlorinated hydrocarbon pesticides, and several of the ‘constituents of concern.’ Receiving water monitoring was previously conducted for a subset of the priority pollutants (11 constituents) 3 days per year. This requirement is proposed to be changed from 3 days in the receiving water per year to 21 days per year for all 126 priority pollutants along with 6 pyrethroids, 22 non-CTR chlorinated pesticides and 30 other constituents of concern. While 21 days per year is already the number of sampling events required for the effluent, analyses for pyrethroids, non-CTR chlorinated pesticides, and most of the constituents of concern are new requirements. No rationale is found anywhere in the Tentative Permit for requiring monitoring for this exceptionally large number of constituents.

While some additional monitoring would be expected in the new permit, a review of recently adopted permits does not reveal any with an extensive list of chlorinated hydrocarbon pesticides or other constituents of concern. In addition, typical monitoring frequency for the full list of Priority Pollutants is once per year.

To avoid the unnecessary burden and expense, the District requests the following:

- a) Monitoring frequencies for priority pollutants be the same as in the current permit (i.e., 3 times/year for 7 days each in the effluent and 3 days/year in the receiving water).

Monitoring frequencies for non-CTR chlorinated pesticides and other constituents of concern with water quality objectives be once per year.

Response: The monitoring for priority pollutants, non-CTR chlorinated pesticides, and other constituents of concern has been reduced in the proposed Order. Monthly monitoring of the effluent and receiving water (RSWU-001) is required for 12 months, every two years. The purpose of this monitoring is to adequately characterize the effluent and ambient background receiving water for development of the next permit renewal. This level of monitoring is sufficient for this purpose.

- b) Monitoring for certain non-CTR chlorinated pesticides (2,4-D; 2,4-DB; 2,4,5-T; 2,4,5-TP; Dalapon, Dicamba, Dichloroprop, Dinoseb, MCPA, and MCPP) should be deleted. Laboratories do not commonly analyze for these

compounds and special request would be required. Conversely, these compounds are not typically found in effluent and therefore monitoring for them is unnecessary.

Response: Central Valley Water Board staff agree these compounds are not typically found in effluent and therefore monitoring for them is unnecessary. These constituents have been removed from the MRP.

- c) Constituents without approved wastewater methods and without water quality criteria (e.g., pyrethroids) be removed from the monitoring requirements.

Response: Central Valley Water Board staff does not concur. The Discharger must adequately characterize its effluent and the ambient background receiving water for all constituents of concern. As discussed above in response to SRCSD Comment #74, monitoring for pyrethroid pesticides is warranted.

- d) For certain constituents, monitoring should be conducted only through special studies and not be included in the MRP (e.g., perchlorate).

Response: Central Valley Water Board staff concurs that the monitoring for perchlorate in the effluent and receiving water should be removed at this time. Perchlorate is not expected to be in the effluent. However, the Discharger's pretreatment program monitoring included detections of perchlorate that the Discharger contend are false positives. The proposed Order requires the Discharger conduct a study for perchlorate to evaluate if perchlorate is actually present in the discharge. The proposed Order includes a reopener provision to add effluent limits and/or monitoring for perchlorate based on the results of the special study.

SRCSD Comment #76: Additional Monitoring Locations.

- a) New receiving water locations are required at 60 feet (RSWD-002a), 350 feet (RSWD-002b), River Mile 44 (RSWD-004), and River Mile 43 (RSWD-005). While no specific explanations for the monitoring locations are provided, it appears that RSWD-002a and RSWD-002b are at the edge of the acute and chronic mixing zones respectively. In addition, RSWD-005 appears to be the location of the edge of the harmonic mean mixing zone. Considering that the acute mixing zone was not approved, it is not necessary or appropriate to require monitoring at that location. If the purpose is to collect information regarding the appropriateness of this mixing zone, then this should be a special study, not a monitoring requirement.

Response: Central Valley Water Board staff concurs that regular monitoring 60 feet and 350 feet downstream of the outfall is not

appropriate. Monitoring locations RSWD-002a and RSW-002b have been removed from the MRP.

- b) Regardless of the rationale for each of these locations, there are difficulties associated with collecting weekly samples at these locations. The District's concerns are as follows:
1. The Tentative Permit proposes to require 7 consecutive days of sampling 3 times/year for receiving water sampling at RSWU-001 and RSWD-003. (Tentative Permit at p. E-14, fn. 1.) This requirement has both logistical and cost implications compared to the current permit, which requires only a 1 day sampling frequency at the river locations. The new requirement would result in a significant increase in cost and sampling efforts. Additionally, Monday to Thursday sample collection does not allow for outside laboratories to receive samples in time and test samples within required holding times. Achieving required holding times would be highly improbable in a 7 consecutive day sampling scheme. Thus, the District requests that the 7 consecutive day sampling scheme be changed to match the 1-day sampling scheme in the current permit. This would allow the laboratories adequate time to adhere to the required hold times.

Response: See response to SCRSD Comment #75.

2. Continuous flow monitoring for additional receiving water stations (RSWD-004, RSWD-005) is not feasible. (Tentative Permit at pp. E-13 - E-14.) Continuous meters would have to be installed at these structures, which may not be permitted or allowed. It is requested that the Regional Board require continuous flow monitoring only at RSWU-001 where existing equipment currently records the river flow continuously.

Response: Central Valley Water Board staff concurs that continuous flow monitoring of the Sacramento River is only necessary at RSWU-001. The MRP has been updated accordingly.

3. Monitoring stations RSWD-002a and RSWD-002b are in-river monitoring locations. (Tentative Permit at p. E-4.) However, due to river currents and boat movements, it is difficult to collect a sample or measurement at exactly 60 feet or 350 feet, making it difficult to obtain a representative sample. The only parameter proposed to be measured at these locations is temperature. A more reliable approach is to monitor the effluent and RSWU-001 and use the dynamic model (which has been extensively field verified) to determine what the temperature would be at those locations. Thus, the District requests

that the monitoring requirements at 60 feet and 350 feet be removed and be replaced with dynamic modeling to obtain the temperature profiles at these locations. We also request that monitoring at RSWD-004 and RSWD-005 be required no more often than quarterly.

Response: As discussed above, the receiving water monitoring locations RSWD-002a and RSWD-002b have been removed. With regard to monitoring at RSWD-004 and RSWD-005 be limited to no more than quarterly, Central Valley Water Board staff disagree. Monitoring in the river at RSWD-004 and RSWD-005 is necessary to accurately characterize the discharge's impact on the receiving water and is not overly burdensome.

- c) On another note, the Tentative Permit does not specify which downstream locations are to be used for compliance determination purposes. Considering the difficulties of collecting data at RSWD-002a and RSWD-002b, these samples are unlikely to be representative and should not be used for compliance. If the multiple downstream locations remain in the permit, it should be stated explicitly that compliance will be determined based on results at RSWD-003, or the difference between RSWU-001 and RSWD-003 only. Monitoring locations RSWD-004 and RSWD-005 are too far downstream and other inputs may influence the values measured at these locations making them unsuitable for compliance determinations.

Response: Central Valley Water Board staff concurs. The proposed Order has been updated to specify that for compliance determination purposes for receiving water limitations that compare upstream to downstream samples (i.e. turbidity), RSWU-001 (upstream) and RSWD-003 (downstream) monitoring locations shall be used.

SRCSD Comment #77: The MRP contains a proposed requirement to monitor the municipal water supply on an annual basis. (Tentative Permit at p. E-16.) It is noted that if there is more than one water supply, the sample may be composited or reported as a weighted average. Monitoring the municipal water supply for the District's service area is complex and, at best, unlikely to be representative and, at worst, infeasible altogether. It is not clear what meaningful information would be obtained through this effort. As noted in the Tentative Permit, the SRWTP discharge has relatively low salinity and does not have reasonable potential to cause or contribute to an exceedance of a water quality objective. Therefore, efforts to obtain water supply quality data are not useful in characterizing influent loads for salinity or for other purposes. In addition, the representativeness or reliability of numbers obtained through this monitoring effort would be questionable due to the complexity of the water supply in the

Sacramento area. Thus, the District requests that this monitoring requirement be removed.

Response: Understanding the salinity level of the municipal water supply is important in evaluating the effectiveness of salinity minimization efforts within the wastewater collection and treatment system. Central Valley Water Board staff understands that for the SRCSD there are many water purveyors and it is not a simple task to estimate the salinity of the water supply. However, this information is necessary and must be reported.

SRCS D Comment #78: Revisions to Influent Monitoring Requirements.

Table E 2b would require analysis for total ammonia nitrogen and total coliform. These analyses were not required by WDR 5 00 188. The District requests that these two parameters be removed from Groundwater Corrective Action Program (CAP) monitoring requirements.

Response: Central Valley Water Board staff concurs that monitoring for total ammonia nitrogen and total coliform at monitoring location CAP-001 is unnecessary and has been removed from the proposed Order.

SRCS D Comment #79: Revisions to Effluent Monitoring Requirements.

- a) The MRP proposes to require monitoring for *Giardia* and *Cryptosporidium*. Such a requirement is inappropriate for several reasons. First, tests for *Giardia* and *Cryptosporidium* are very costly. Considering the fact that monitoring for these pathogens is not necessary to determine permit compliance, cost is a relative factor. As indicated above, the burden (i.e., costs) must be reasonable as compared to the benefit. For the benefit, there is none. Monitoring for *Cryptosporidium* and *Giardia* is not necessary to ensure compliance with the effluent limitations for total coliform. (See Tentative Permit at pp. E-6, F-72 to F-76, F-102, F-104.) Further, levels of *Cryptosporidium* and *Giardia* in the effluent would not indicate what levels a drinking water intake would realize for the same parameters. Also, the accepted procedure for analyzing *Cryptosporidium* and *Giardia*, Method 1623, detects oocysts/cysts using microscopy (labeling with a specific antibody and an additional nucleic acid stain to confirm oocyst/cyst presence). This method detects *all* intact oocysts/cysts recovered from the water sample and does not provide information on whether the cells are alive or dead. Because this method provides no indication of the risk associated with protozoa in a water sample, it can overestimate the concentration of oocysts/cysts by detecting dead cells as “false positives.” In other words, the monitoring information is of questionable value. Therefore, this monitoring requirement should be eliminated.

Response: *Giardia* and *Cryptosporidium* monitoring is needed to ensure adequate protection of the beneficial uses of the receiving water related to human health protection. No change is necessary.

- b) The settleable solids monitoring frequency should be changed from a daily max (Grab) to a daily average (Composite). The return flows from diversion and/or growth in the sample lines can cause a grab sample not to be representative of effluent quality.

Response: Central Valley Water Board staff concurs and have modified the MRP accordingly.

- c) The increase in monitoring frequency for Oil and Grease is excessive given that there is no reasonable potential and no effluent limit prescribed in the Tentative Permit. Historically, the District has never detected oil and grease in the effluent. Thus, reduced monitoring frequency to monthly, which is currently required, will still provide a representative and adequate characterization of the effluent.

Response: Central Valley Water Board staff concurs and modified the MRP accordingly.

- d) The once per week Electrical Conductivity (EC) monitoring requirement is excessive, given that there is no reasonable potential and only an annual average limit is proposed in the Tentative Permit. The District requests that the monitoring frequency be changed to monthly.

Response: Central Valley Water Board staff do not concur. Monitoring for EC is not costly. Weekly monitoring is consistent with monitoring required for POTWs and is appropriate for the SRWTP.

- e) Increase in monitoring for certain pollutants from three times a year to once a month is excessive for those constituents that have no reasonable potential and permit limits (e.g., diazinon). Thus, the District recommends that the frequency be decreased to quarterly where there is no effluent limit or reasonable potential.

Response: As discussed in response to SRCSD Comment #52, an error was made with regard to the effluent limits for diazinon and effluent limitations for diazinon have been added to the proposed Order based on the Basin Plan. Therefore, monthly effluent diazinon monitoring is necessary to determine compliance with the permit.

- f) The test method referenced for NDMA is applicable to drinking water. It is not appropriate to use this method to analyze wastewater. Although the

wastewater method has detection limits greater than the criteria, drinking water methods are not reliable for wastewater due to likely interference from the complexity of the sample matrix. The District requests that the drinking water method for effluent testing be eliminated and such testing be conducted pursuant to U.S. EPA test methods for wastewater.

Response: It is not uncommon to use drinking water testing methods for wastewater. In this case, it is necessary to use EPA Method 521 for NDMA to evaluate compliance with effluent limits.

- g) The cyanide sampling type should be changed to a grab sample as cyanide is required to be preserved within 15 minutes of sample collection (as specified in footnote 9 on page E 8). A composite (24 hour) would exceed this hold time requirement.

Response: Central Valley Water Board staff concurs and have modified the MRP accordingly.

- h) The Tentative Permit proposes to change the sample type from composite to grab for the constituents listed in the table below. The District requests that the sample type be changed back to 24 hour composite samples to maintain consistency with the previous permit. Changing the sample type to grab samples will cause a loss of comparability with historical data.

Parameter	Tentative Permit Sample Type	District's Requested Sample Type
Mercury, total	Grab	24-hour composite
Mercury, methyl	Grab	24-hour composite
Pentachlorophenol	Grab	24-hour composite
Dibenzo (a,h) anthracene	Grab	24-hour composite
1,2 Diphenylhydrazine	Grab	24-hour composite
Bis-2 ethylhexylphthalate	Grab	24-hour composite
Alkalinity	Grab	24-hour composite

Response: Central Valley Water Board staff does not concur for all constituents in the table, except alkalinity. The MRP has been updated to change the sample type for alkalinity to 24-hour composite. However for total mercury, methyl mercury, and bis-2 ethylhexylphthalate sample contamination is an issue, so grab samples are appropriate to ensure clean sampling techniques are used. Pentachlorophenol, Dibenzo (a,h) anthracene, 1,2 Diphenylhydrazine are semi-volatile organics that will

degrade over time, so a grab sample is more appropriate than a 24-hour composite sample.

- i) The sample type for hardness should be changed to a 24 hr composite, to maintain consistency with metals sampling. (See Tentative Permit at p. E 8, fn. 8, Dissolved Copper - 24 hour Composite.)

Response: Central Valley Water Board staff concurs and have modified the MRP accordingly.

- j) Priority Pollutants Footnote 3 – The previous permit excluded asbestos and dioxin testing from the CTR list. The District requests that these two parameters be excluded in the Tentative Permit. Dioxin testing should be consistent with the requirements in Attachment J.

Response: Asbestos is a priority pollutant and it is appropriate that monitoring is required in the proposed Order. The dioxin monitoring requirements have been clarified in the proposed Order. Effluent and receiving water dioxin monitoring is required twice a year (once during wet season and once during dry season) every other year.

- k) The MRP proposes to change the sample type from grab to 24 hour composite for the constituents listed in the table below. The District requests that the sample types be changed back to a grab samples. The new 24 hour composite requirement will cause a loss of comparability with historical data.

Parameter	Tentative Permit Sample Type	District's Requested Sample Type
Cyanide	24-hour composite	Grab
Dichloromethane	24-hour composite	Grab
Chloroform	24-hour composite	Grab
Tetrachloroethylene	24-hour composite	Grab
Dichlorobromomethane	24-hour composite	Grab
Dibromochloromethane	24-hour composite	Grab
1,4 Dichlorobenzene	24-hour composite	Grab
Carbon Tetrachloride	24-hour composite	Grab
Di-isopropyl ether (DIPE)	24-hour composite	Grab
Ethyl Tertiary Butyl Ether (ETBE)	24-hour composite	Grab
Tertiary Amyl Methyl Ether (TAME)	24-hour composite	Grab
Methyl Tertiary Butyl Ether (MTBE)	24-hour composite	Grab

Response: Central Valley Water Board staff concurs and have modified the MRP accordingly.

- l) The sample type for standard minerals should be changed back to 24 hour composites. The new grab sample requirements will cause a loss of data trending and comparability.

Response: Central Valley Water Board staff concurs and have modified the MRP accordingly.

- m) There appears to be significant overlap between frequency and constituent requirements for effluent and river monitoring in Attachment E (includes pretreatment program monitoring) and Attachments I and J. It should be acknowledged that whenever possible, sampling to meet one requirement should satisfy the requirements for any other, to avoid duplicative efforts and to reduce costs.

Response: Central Valley Water Board staff concurs. Section X.B Self Monitoring Reports (SMRs) has been updated to specify that sampling to meet one requirement may be used to satisfy another monitoring requirement.

- n) The District requests that the proposed monitoring requirements for constituents with current studies underway (such as perchlorate and dioxins) be removed as the monitoring will be conducted as part of the special study. Once the study is completed, an evaluation of whether there is reasonable potential can be made. The MRP could then be revised by the Executive Officer as necessary.

Response: Central Valley Water Board staff concurs and have modified the MRP accordingly.

- o) There are two discrepancies in the proposed dioxin monitoring: Attachment E requires only 2 dioxin congeners be monitored 3 times/year for 7 days while Attachments I and J require that 1 sample in Dry Weather season and 1 sample in Wet Weather season be taken per year for all 17 congeners. This requirement to sample all 17 congeners twice per year as specified in Attachments I and J is consistent with other NPDES permits in the Central Valley. In comparison, requiring monitoring of 2 dioxin congeners 3 times/year for 7 consecutive days is costly. (See Tentative Permit at pp. I 2.B, F 45, and J 1, 2nd paragraph.) Also, the Tentative Permit requires testing for all 126 priority pollutants, which includes 2,3,7,8 TCDD. (Tentative Permit at p. E 8.) Accordingly, the District requests that all dioxin references in Attachment E be removed as monitoring for dioxin is adequately addressed

in Attachment J. This will both simplify and clarify the monitoring requirements for dioxins. It is also requested that Attachment J be presented in the form of a Special Study that specifies that monitoring may be discontinued after 2 years if monitoring results are all non-detected values.

Response: The dioxin monitoring requirements have been clarified in the proposed Order. Effluent and receiving water dioxin monitoring is required twice a year (once during wet season and once during dry season) every other year.

- p) Footnote 2 would require asbestos and dioxin testing from the CTR list. The previous permit excluded asbestos and dioxin testing from CTR list. The District requests that asbestos be excluded once again in the Tentative Permit. Dioxin testing is already addressed with study requirements in Attachment J.

Response: See response to SRCSD Comment #79.

- q) Footnote 8 would require monitoring for tributyltin and radionuclides. The District has not routinely tested for tributyltin in the past and has conducted only limited testing for radionuclides. The District requests that the monitoring requirements in the current permit be maintained for radionuclides, and that monitoring for tributyltin be required just once per year.

Response: Effluent and receiving water tributyltin and radionuclides testing is required as part of the every other year monitoring specified in Section IV.B and VIII.A.2 of the MRP (Attachment E).

- r) To reduce costs and duplicative efforts, the District requests that the MRP explicitly state that when monthly testing overlaps with the required 3 sampling events/year, either one of the samples satisfies the other.

Response: Central Valley Water Board staff concurs. Section X.B Self Monitoring Reports (SMRs) has been updated to specify that sampling to meet one requirement may be used to satisfy another monitoring requirement.

SRCSD Comment #80: Toxicity Testing Requirements.

- a) The District originally requested 6 months from permit adoption to switch from fathead minnows to rainbow trout. However, because it may take significant changes to a flow through system to remove ammonia toxicity, the District requests that additional time be added to allow the change. Additional time is needed to adequately study different alternatives to remove ammonia toxicity in acute toxicity testing for rainbow trout. With this, the District requests an additional 3 months for a total of 9 months.

Response: Based on comments received, the allowance to remove ammonia toxicity prior to conducting the acute and chronic bioassays has been removed from the proposed Order. This comment is moot.

- b) The MRP would require the District to re-sample and re-test for acute toxicity as soon as possible but not to exceed 7 days. However, re-sampling and re-testing in the case of a test failure coincides with the District's weekly acute toxicity testing. The District conducts its testing within 7 days of the previous test. The District's Environmental Laboratory cannot run 2 flow-through tests at the same time, and there would be no point in running 2 tests concurrently because they would give the same result. Thus, the District requests that its normally scheduled weekly acute testing be considered to meet the re-sample and re-test provisions in the MRP.

Response: Central Valley Water Board staff concurs. The MRP has been modified accordingly.

- c) Monthly WET testing for 3 species is a huge burden with little added value. Due to the extreme costs and limited benefit, the District requests that this requirement be reduced to quarterly testing per the existing permit.

Response: Due to large discharge flow, threat and complexity of the discharge, and critical habitat in the Sacramento River, monthly chronic WET testing is appropriate and necessary to ensure the discharge is in compliance with the Basin Plan's narrative toxicity objective.

- d) The requirement that a chronology of chronic and acute toxicity results be submitted along with monthly SMRs seems redundant when WET test results are submitted directly to the Regional Board. To reduce this duplicative effort, the District requests that the chronology submittal not be required.

Response: This requirement has been changed in the proposed permit. Rather than a running 12-month summary of chronic toxicity test results submitted with each SRM, the Discharger shall submit an annual report on 1 February of each year that contains the chronic toxicity test results for the previous calendar year.

SRCSD Comment #81: River Monitoring, Section VIII.A.2, Table E-6b:

- a) Monitoring is requested for RSWU 001 (Freeport) and RSWD 003, which is Cliffs Marina. The location for RSWD 003 is a new monitoring location as compared to the previous downstream receiving monitoring location. As such, the District requests clarification that this is the Regional Board's intent.

It is requested that this be clarified, as Cliffs Marina would be a new sampling station.

Response: Central Valley Water Board staff concurs that the Every Other Year monitoring is only necessary at RSWU-001, because the purpose of the monitoring is to characterize the background receiving water. The requirement to monitor at RSWD-003 has been removed from the proposed Order.

- b) Footnote 8 for Other Constituents lists tributyltin and radionuclides. The District requests that these constituents be removed from the monitoring requirements for receiving waters.

Response: See response to SRCSD Comment #79.

SRCSD Comment #82: Reporting Requirements.

- a) The MRP requirements would require all monitoring results required to be submitted in the Self Monitoring Report (SMR). However, it is not always efficient or consistent with other requirements to submit all results with the SMR. For example, other than flow, results for the Groundwater CAP are currently submitted with the required biosolids reports. To avoid redundant reporting the District proposed that it not submit them with the SMR as well. Also, hardcopy reports of 3 times/year testing is reported separately when it is due, and not included in the monthly SMR as “No Sample.”

Response: Central Valley Water Board staff concurs and updated the MRP accordingly.

- b) The SMR due date for the following constituents with monthly monitoring frequency may be problematic: Pentachlorophenol, Dibenzo(a,h) anthracene, 1,2 Diphenyl hydrazine, Chlorpyrifos, Diazinon, and NDMA. These constituents are sent out to specialized sub-contractors due to the low reporting limits. There is a potential for not being able to meet the required turnaround time specified in the reporting schedule. The District requests that the SMR due date for once a month be changed to first day of third calendar month following month of sampling to allow for the specialized reporting and sampling.

Response: Central Valley Water Board staff understands that specialized sub-contractors may be needed to analyze for the above mentioned compounds. However, the Discharger can plan accordingly to meet the reporting requirements in the proposed Order.

- c) The District has concerns with respect to the ability of laboratories to meet the proposed MLs and RLs. It is recommended that the Regional Board outline specifically how the data will be handled if a laboratory reports an inability to meeting method or reporting limit requirements.

Response: Central Valley Water Board staff will handle these situations on a case-by-case basis. Including specifics on how the Central Valley Water Board staff will handle these situations is not possible.

- d) Additionally, requiring a report within 60 days that has all of the ML, MDLs, and methods is not reasonable. The first 60 days is not enough time to complete this, along with the myriad of other short-term requirements after the permit adoption. This will require working with many different laboratories that have contracts with the District to determine what their capabilities are. Also, the discharger should have the flexibility to select the laboratory that provides the best overall service and to change laboratories at its discretion, without locking itself into a set of laboratories reported in this report. The service of a laboratory may change and/or their ability to meet a certain ML or MDL. Thus, the District requests that the report be required in 90 days instead of 60.

Response: Central Valley Water Board staff concurs and has extended the requirement to submit the subject report to 90 days after adoption of the permit.

- e) The District requests that the Pretreatment annual report due date be March 25 (not February 28) of each year to provide time for compilation of required data. Since the annual report includes data from sampling conducted in December of each year, the results of the data (including biosolids) may not be available until the middle of February. Additionally, District staff needs time to adequately QA/QC the data and to input the data into the database.

Response: Central Valley Water Board staff concurs that this request is reasonable have changed the due date accordingly.

SRCS D Comment #83: Industrial Pretreatment Program Monitoring.

- a) The MRP would require a summary of analytical results to “consist of an annual full priority pollutant scan with quarterly samples analyzed only for those pollutants detected in the full scan.” The District recommends a full priority pollutant scan be conducted annually, with detected pollutants being tested 2 more times to align with the 3 times/year effluent sampling. This would allow consistency with the effluent 3 times/year sampling events.

Response: The 3 times/year sampling has been changed in the proposed Order, so the Discharger's suggestion is no longer applicable. No change is proposed for the Industrial Pretreatment Program monitoring.

- b) **Industrial Pretreatment Program Monitoring.** The MRP would require sludge to be sampled. This type of sampling is a grab sample taken every 2 hours over 24 hours and highly energy intensive and very costly. Further, biosolids testing and reporting for the District's "sludge" are covered under separate WDRs. Thus, the District requests that this requirement be removed.

Response: The subject biosolids monitoring is part of the Industrial Pretreatment Program monitoring. The biosolids monitoring requirements in the District's separate WDRs do not address the Industrial Pretreatment Program.

- c) **Industrial Pretreatment Program Monitoring.** The MRP would require a quarterly compliance report for each industrial user with the 4th quarter incorporated into the annual report. On the other hand, 6.b requires a semi-annual compliance report (which would be the same as a 2nd quarter). These 2 proposed requirements are inconsistent and should be reconciled.

Response: Central Valley Water Board staff concurs and have removed the requirement to submit the quarterly report identified in Section 6.a. The proposed Order has been changed to require this information in the annual report.

- d) **Industrial Pretreatment Program Monitoring.** It is requested that all references to quarterly reporting be removed and require annual (March 25) and semi-annual (July 31) reporting.

Response: These changes have been made to the proposed Order for the Industrial Pretreatment Program reporting.

SRCSO Comment #84: The Tentative Permit states that the District's application "was deemed complete on 24 August 2010." (Tentative Permit at p. 4.) This sentence implies that the District did not complete its report of waste discharge (ROWD) until that date. However, and as noted directly in the Tentative Permit, that is not true. The Tentative Permit acknowledges that the District submitted its ROWD on February 1, 2005, which was in compliance with the Order No. 5-00-188. (Order No. 5-00-188, at p. 23, District was required to file its ROWD no later than 180 days in advance of August 1, 2005.) By submitting its ROWD timely, the District complied with applicable state and federal regulations, and Order No. 5-00-188 is administratively continued until

such time that a new NPDES permit is adopted by the state. (See Cal. Code Regs., tit. 23, § 2235.4; see also 40 C.F.R. § 122.6.) The Regional Board has acknowledged the District's administrative extension in other documents (e.g., the Regional Board's Aquatic Life Issues Paper includes a footnote that states "[t]he expired permit has been administratively extended until the renewed permit is adopted . . ."). Thus, the statement in the Tentative Permit is misleading and should be removed or revised to say that a complete application was submitted on February 1, 2005.

Response: Central Valley Water Board staff concurs and have modified the permit by removing the sentence stating when the application was deemed complete.

SRCSO Comment #85: The Tentative Permit includes a number of provisions with respect to operation of the ESBs. The last 2 proposed requirements would require that dissolved oxygen in the upper zone (1 foot) of wastewater not be less than 1.0 mg/L, and that the ponds shall not have a pH less than 6.5 or greater than 8.5. (Tentative Permit at p. 30.) These 2 proposed requirements are inconsistent with the intent and purpose of the ESBs. Also, they are not adopted with quality objectives and their application in these circumstances is not appropriate. As described in the Tentative Permit, the primary purpose of the ESBs in general is to store diverted influent flows above the SRWTP's hydraulic capacity and to store diverted effluent flows to meet various conditions to comply with the NPDES permit. (Tentative Permit at p. F-14.) Thus, there may be times when influent and/or effluent stored in the ESBs does not meet the dissolved oxygen and pH requirements proposed.

However, failure to meet these proposed requirements in the ESBs will not defeat the purposes for which the requirements are being proposed. According to the Tentative Permit, the ESB requirements are to ensure proper operation and minimize any potential impacts to groundwater quality. (See Tentative Permit at p. F-113.) For dissolved oxygen, there are no groundwater concerns so the proposed requirement is presumably intended to ensure that objectionable odors will not emanate from the SRWTP. The SRWTP site encompasses a total of 3,500 acres of which actual facilities cover approximately 900 acres, including the ESBs. That leaves approximately 2,400 acres surrounding the facility. The extent and size of surrounding acreage acts as a buffer and provides odor control for all the SRWTP facilities.

With respect to pH, it is not necessary to require limitations of 6.5 and 8.5 to ensure proper operation or to minimize impacts to groundwater. (See Tentative Permit at p. F-113.) As explained in a memorandum from the District to Regional Board staff, 2 of the ESBs are lined (ESB-A and ESB-D). Thus, use of the lined basins for emergency storage is unlikely to have any impacts on groundwater

quality. The other 3 basins (ESB-B, ESB-C, and ESB-E) are used infrequently, and in the case of ESB-E almost never. Thus, they too are unlikely to have any impacts on groundwater quality. To the extent the pH requirements are related to operation of ESBs for odor control, the requirement is unnecessary for the same reasons expressed immediately above with dissolved oxygen. Considering the lack of risk to groundwater or the need employ such requirements for odor control, these two provisions should be removed from the Tentative Permit.

Response: Central Valley Water Board staff concurs and have modified the MRP accordingly.

SRCSD Comment #86: The Tentative Permit includes provisions related to sanitary sewer overflows (SSOs) from the collection system. Specifically, it proposes to include the District's collection system as part of the treatment system subject to the provisions of the Tentative Permit, and also suggests that sanitary sewer overflows are prohibited by the Tentative Permit. (Tentative Permit at pp. 30 31, E 21.) The District is opposed to the proposed provisions and the provisions need to be removed and modified. The Tentative Permit should also be revised so that it no longer implies that SSOs are prohibited by the permit itself. (Tentative Permit at p. E 21.) The suggested changes are consistent with recent communications between the Regional Board's Executive Officer and representatives of the Central Valley Clean Water Association where the Executive Officer indicated that SSO prohibition language in NPDES permits would be eliminated because State Board Order No. 2006 0003 is controlling on this issue.

Response: Central Valley Water Board staff concurs and have modified the Special Provision VI.C.5.a as shown below in underline/strikeout format:

- a. **Collection System.** On 2 May 2006, the State Water Board adopted State Water Board Order No. 2006-0003, a Statewide General WDR for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003 and any future revisions thereto. Order No. 2006-0003 requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDR. The Discharger has applied for and has been approved for coverage under State Water Board Order 2006-0003 for operation of its wastewater collection system.

~~Regardless of the coverage obtained under Order No. 2006-0003, the Discharger's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal~~

~~regulations, the Discharger must properly operate and maintain its collection system [40 CFR 122.41(e)], report any non-compliance [40 CFR 122.41(l)(6) and (7)], and mitigate any discharge from the collection system in violation of this Order [40 CFR 122.41(d)].~~

SRCSD Comment #87: Table 3 of the Tentative Permit lists the deadline for submitting the ROWD as “3 years prior to the Order expiration date.” This is 2.5 years sooner than the typical deadline of 180 days prior to expiration of the permit. The District submits that this is unreasonable and inefficient, and an inappropriate burden. To require the ROWD after only 2 years in the permit term would likely result in the information provided with the ROWD to be incomplete. Also, because the ROWD is requested so soon after permit adoption, the information in the ROWD will be stale by the time the permit is renewed.

Response: Central Valley Water Board staff concurs and have modified Table 3, to state that a new report of waste discharge is required 180 days prior to the Order expiration date.

SRCSD Comment #88: The District requests the following language clarifications, corrections, and minor edits to the Limitations and Discharge Requirements in the Tentative Permit:

- a) Page 1, Table 2. In the Effluent Description, “Domestic Wastewater” does not accurately characterize the effluent. Suggest replacing with “Domestic Wastewater Disinfected Secondary Treated Wastewater”.

Response: Central Valley Water Board staff concurs.

- b) Page 4, Table 4. In this table, it states that the “Facility Design Flow” is 181 mgd. In fact, the 181 mgd is the permitted flow, which is not necessarily consistent with the facility design flow. The District recommends replacing the term “Facility Design Flow” with “Facility Permitted Flow”.

Response: Central Valley Water Board staff concurs.

- c) Page 4, II.A. “The Discharger provides sewerage service to the Cities of Sacramento, Folsom, West Sacramento, and the Sacramento Area Sewer District service area. The Sacramento Area Sewer District service area includes the Cities of Elk Grove, Rancho Cordova, Citrus Heights, Courtland, and Walnut Grove, as well as, portions of the unincorporated areas of Sacramento County.”

Response: Central Valley Water Board staff concurs.

- d) Page 5, II.B. “Solids handling consists of dissolved air flotation thickeners, gravity belt thickeners, anaerobic digesters and sludge stabilization basins with disposal on-site through land application or biosolids recycling facility.”

Response: Central Valley Water Board staff concurs.

- e) Page 5, II.B. “The Discharger is currently permitted to treat 5.0 mgd of wastewater at the Water Reclamation Facility (WRF) for unrestricted use, with a provision for Facility expansion to 10 mgd.”

Response: Central Valley Water Board staff concurs.

- f) Page 8, Paragraph 2. “steehead” should be “Steelhead”.

Response: Central Valley Water Board staff concurs.

- g) Page 12, III.B. This states that the bypass or overflow of wastes to surface waters is prohibited, with bypass defined as the intentional diversion of waste streams from any portion of a treatment facility, according to page D-2. Order 5-00-188 has a similar provision on page 12, but specifically exempts the CAP discharge as follows: “The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13 in “Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)” and as described in Finding No. 13.” Finding No. 13 of Order 5-00-188 states, in part, “Discharging water from the CAP system downstream of the secondary clarifiers is acceptable and does not decrease the amount of treatment as the treatment processes upstream of this discharge point are not designed for removal of the CAP discharge constituents of concern.” The permit language should be revised to resemble Order 5-00-188 so that the discharge of the CAP system is not affected by this provision.

Response: Central Valley Water Board staff concurs.

- h) Page 14, IV.A.1.i, j, and k. Confirm that the calculation for determining compliance with the annual average limits for total recoverable aluminum, electrical conductivity, and mercury load is a January through December average.

Response: Central Valley Water Board staff concurs.

- i) Page 14, IV.A.1.e. The MRP requires temperature readings to be collected at three depths from the boat as grab samples in the Sacramento River.

Currently, temperature readings are only collected from 1 depth and are used to determine compliance with the 20 and 25 degree limits. Collecting temperature data from 2 additional depths does not provide any significant benefit and will complicate sampling and compliance calculations. Thus, we request that sampling be required at only 1 depth.

Response: Central Valley Water Board staff concurs.

- j) Page 15, IV.A.2.a, Table 7. The interim total coliform limit specified on page 15 and further defined on page 35 is listed as a rolling median. The current permit has a static week limit of Sunday through Saturday. The new rolling median would be difficult to ensure consistent compliance and is unnecessary. The purpose of interim effluent limits is to ensure consistent compliance while actions are being taken to comply with final effluent limits. Thus, and subject to the comments in section I above, the interim effluent limit should be adjusted to be a static weekly median and not a rolling median.

Response: Central Valley Water Board staff concurs that the total coliform effluent limits from the existing permit should be included in the proposed Order as the interim effluent limits. The proposed Order has been changed accordingly.

- k) Page 16, V.A. Specify which river sampling locations should be used for compliance purposes with receiving water limitations.

Response: Central Valley Water Board staff concurs.

- l) Page 26, VI.C.2.a.iv.c and page E-12, V.D.1. The section states that WET reports are due within 30 days following the completion of the test. It may be difficult to produce reports within 30 days due to holidays and staffing issues. Please revise the sentence to state: “30 business days”.

Response: Central Valley Water Board staff concurs.

- m) Page 28, VI.C.2.e.iv. Change to “rainbow trout” not “reainbow”.

Response: Central Valley Water Board staff concurs.

- n) Page 30, VI.C.4.c.iv. This sentence should be revised, since the basins are designed to overflow to each other. It should state: “Freeboard for the total ESB system shall never be less than 2 feet (measured vertically to the lowest point of overflow).”

Response: Central Valley Water Board staff concurs.

- o) Page 35, VII.D. There is no reference to the words “lowest consecutive” in the description of dry weather months. “Average dry weather flow” should be defined as the average flow of three lowest consecutive months. We request that any reference to groundwater or runoff be removed from the definition.

Response: Central Valley Water Board staff concurs.

- p) Page 36, VII.G. “Chronic Whole Effluent Toxicity Effluent Limitation (Section IV.A.1.<x>).” “<x>” should be replaced with “c”.

Response: Central Valley Water Board staff concurs.

SRCS D Comment #89: The District requests that the following phrases be given definitions in Attachment A: Geometric mean, Total recoverable metals (as distinct from “total” metals), Suspended Sediments, Suspended Materials.

Response: These changes are not necessary and have not been made to the proposed Order.

SRCS D Comment #90: Replace Attachment C with an updated flow schematic.

Response: Central Valley Water Board staff concurs and updated the flow schematic in Attachment C.

SRCS D Comment #91: Attachment D – Standard Provisions. The formatting throughout this section is inconsistent and therefore creates confusion as to the applicability of certain requirements. Additionally, the primary heading references for the first 5 sections are identified with an Arabic number (e.g., 1, 2, 3, 4), but the remaining two sections are identified with roman numerals (e.g., VI, VII). Using both styles for the same level of heading creates confusion. The District recommends that the formatting and headings be corrected.

Response: Central Valley Water Board staff concurs and has corrected the formatting issues.

SRCS D Comment #92: The District requests the following language clarifications, corrections, and minor edits to the Monitoring and Reporting Program (MRP), Attachment E:

- a) Page E-4, II, Table E-1. Monitoring station INF-001 is required to be located before “...any additives, treatment processes, and plant return flows.” It would be difficult to relocate this monitoring location to comply with the

description as proposed. Instead, we recommend that the description be changed to describe the current monitoring location as follows: “after pre-chlorination, ESB return flows, and also includes supernate return flow from the SSBs.”

Response: Central Valley Water Board staff concurs.

- b) The station called INF-002 in Table E-1 is not an influent monitoring station and should be renamed to reflect this. It is the groundwater CAP monitoring station and discharges into either the secondary effluent channel or to the wetlands. The station name could be changed to “CAP-001”.

Response: Central Valley Water Board staff concurs.

- c) The monitoring station description for EFF-001 is incorrect. The description should be corrected as follows: “Location where a representative sample of the facility’s ~~influent~~ effluent can be obtained.”

Response: Central Valley Water Board staff concurs.

- d) As discussed in Section X, Monitoring and Reporting, the District has requested that this monitoring requirement be removed. However, if it remains, monitoring station SPL-001, municipal water supply, is referenced on page E-16. This station is not included in Table E-1, therefore its location is unclear.

Response:

- e) Page E-5, III. The section lettering on this page includes two sections III.B. The first one should be changed to III.A.a.

Response: Central Valley Water Board staff concurs.

- f) Page E-5, III.B, Table E-2b. There are footnote links attached to Nitrogen, Total (as N) (footnote 5) and Ammonia Nitrogen, Total (as N) (footnote 3), which have no corresponding footnotes below the table. The footnote references should either be removed, or footnotes added (and re-number them, as there are no footnotes 2 or 4).

Response: Central Valley Water Board staff concurs.

- g) If the two footnotes described above (3 and 5, but not footnote 1) are linked to the footnotes in Table E-3a, footnote 3 would require WET testing to be conducted concurrently with ammonia monitoring at INF-002. This

requirement should not apply to CAP monitoring, so the link to footnote 3 should be deleted.

Response: Central Valley Water Board staff concurs.

- h) Pages E-6 through E-8. IV.A.1, Table E-3a. Temperature is listed twice, with two monitoring locations (final effluent and discharge point). The continuous temperature requirement is linked to footnote 2, which specifies that “Effluent temperature monitoring shall be at the Discharge Point location.” This location should be changed to specify final effluent EFF-001 (i.e., delete footnote 2).

Response: Central Valley Water Board staff concurs.

- i) For turbidity (if requirement is retained), a footnote should be added that states, “[u]pon compliance with Special Provisions VI.C.6.a. in the Permit, location for measurement of effluent turbidity may change due to change in disinfection systems.”

Response: Central Valley Water Board staff concurs.

- j) Ammonia, nitrate, and nitrite are listed as composite samples. To meet preservation requirements, samples should be collected as a grab. A grab temperature sample should also be collected at the same time.

Response: Central Valley Water Board staff concurs.

- k) The cyanide sample type is listed as a 24 hour composite. The required analytical test method is linked to footnote 9, which states “As specified in 40 CFR Part 136; or samples taken at the effluent without preservatives, may be analyzed for cyanide within 15 minutes from collection and must be performed by a laboratory certified for such analyses by the State Department of Public Health.” A 24-hour composite would exceed the 15-minute analysis hold time necessary for the second option provided here. The preservation of cyanide samples has been shown to lead to falsely elevated cyanide concentrations. To comply with the necessary hold time for the second option, the sample type should be changed to “24-hr composite or grab sample (with sample analysis within 15 minutes).” This is also discussed in section XI, ante.

Response: Central Valley Water Board staff concurs.

- l) Effluent/River Dilution should be a continuous calculation, not meter reading.

Response: Central Valley Water Board staff concurs.

- m) In case of composite sample breakage, composite sampling should include an option for grab sampling, or no results will be available for that sample.

Response: Central Valley Water Board staff concurs.

- n) Footnote 1 regarding total residual chlorine: The current meters are calibrated to 0.1 mg/L and the permit is requesting 0.01 mg/L. This accuracy currently cannot be achieved with the current span setting on the analyzer. Request that this calibration accuracy be stated as 0.1 mg/L.

Response: Central Valley Water Board staff does not concur that the accuracy of the chlorine residual analyzer should be allowed to be less precise due to the capability of the existing equipment. The precision is needed in order to evaluate compliance with the effluent limits for total residual chlorine. Since the Discharger cannot immediately comply with the monitoring requirement, a time schedule has been added to the proposed Order that allows the Discharger until 1 January 2012 to install new monitoring equipment that is capable of meeting the monitoring requirement. Until that time an accuracy of 0.1 mg/L will be allowed.

- o) Footnote 10 requires running 12 month summary to be reported monthly. This requirement is redundant and adds no benefit. We propose that only diversions for that DMR submittal period be included.

Response: Central Valley Water Board staff concurs.

- p) Page E-8 and E-9, Table E-3b. Weekly monitoring for EC and TDS is required in Table E-3a. Because of this weekly monitoring, the 3x/year monitoring requirements in Table E-3b are unnecessary and should be removed.

Response: EC and TDS should be included in the effluent and receiving water characterization monitoring. This comment is now moot due to the proposed change to the 3x/year monitoring requirements.

- q) 1,2,3,6,7,8-HpCDD is missing a “4”. It should be 1,2,3,4,6,7,8-HpCDD.

Response: The monitoring for this dioxin congener has been removed. See response to SRCSD Comment #79.

- r) Semi-annual monitoring for dioxin is required by Attachment I (page I-2, II.B) and Attachment J. Because of this semi-annual monitoring, the 3x/year monitoring requirements for OCDD and 1,2,3,4,6,7,8-HpCDD in Table E-3b are unnecessary and should be removed.

Response: The dioxin monitoring has been changed in the proposed Order to require semi-annual monitoring every other year. See response to SRCSD Comment #79.

- s) Footnote 2 is out of place: “Chlorpyrifos and diazinon shall be sampled using EPA Method 625M, Method 8141, or equivalent GC/MS Method.” There are no sampling requirements for chlorpyrifos or diazinon in Table E-3b and there is no footnote 2 within the table. Perhaps this footnote applies to Table E-3a or Table E-6b, and the footnotes should be re-ordered.

Response: Central Valley Water Board staff concurs.

- t) In footnote 7, “permtethrin” should be “permethrin”.

Response: Central Valley Water Board staff concurs.

- u) In footnote 8, “flouride” should be “fluoride”, and “1,1,2-trichloro-1,2,2-trifluoromethane” should be “1,1,2-trichloro-1,2,2-trifluoromæthane”.

Response: Central Valley Water Board staff concurs.

- v) Page E-11, V.B.7, Table E-4. The percent dilution for chronic toxicity testing should include a 100% effluent scenario. Also, it should be further clarified that upstream receiving water (RSWU-001) is to be used as control.

Response: Central Valley Water Board staff concurs.

- w) Page E-13, VI.A.1. For clarity, please insert the following into this provision: “The Discharger shall monitor diverted influent or treated effluent at the Emergency Storage Basins, when present, as follows:”.

Response: Central Valley Water Board staff concurs.

- x) Continuous flow meters are not currently installed on each basin (only D), and because basins A, B, and C are connected, continuous meters are not practical. Thus, we recommend replacing “Meter” in Sample Type with “Level” and replacing “Continuous” in Sampling Frequency with “Daily”.

Response: Central Valley Water Board staff concurs.

- y) Page E-13, Table E-6a. For clarity, please add a link to footnote 1 to pH and temperature.

Response: Central Valley Water Board staff concurs.

z) The “3” in “Alkalinity (as CaCO₃)” should be a subscript, not a superscript.

Response: Central Valley Water Board staff concurs.

aa) Remove the link to footnote 5 from the grab sample designation for ammonia. There is no footnote 5 in Table E-6a.

Response: Central Valley Water Board staff concurs.

bb) Remove footnote 2. It appears to be a fragment and there is no link to footnote 2 in the table.

Response:

cc) Pages E-14 and E-15, VIII.A.2, Table E-6b. “Diazonon” should be “Diazinon”.

Response: Central Valley Water Board staff concurs.

dd) Perchlorate is listed twice, in two separate rows.

Response: Central Valley Water Board staff concurs.

ee) In footnote 1, it states that “monthly receiving water samples are taken for the Coordinated Monitoring Program.” To clarify, Coordinated Monitoring Program (CMP) samples are collected three times per year and during storm events. Thus, please remove the word “monthly” from footnote 1.

Response: Central Valley Water Board staff concurs.

ff) In footnote 5, “permtethrin” should be “permethrin”.

Response: Central Valley Water Board staff concurs.

gg) In footnote 6, “flouride” should be “fluoride”, and “1,1,2-trichloro-1,2,2-trifluoromethane” should be “1,1,2-trichloro-1,2,2-trifluoromethane”.

Response: Central Valley Water Board staff concurs.

hh) Page E-16, X. There is no section X.A, the first section under X is B.

Response: Central Valley Water Board staff concurs.

- ii) Page E-22, X.E.6a.i. All requirements for biosolids testing and reporting are adequately covered under separate WDRs. Thus, all references to sludge sampling should be removed and references to the appropriate WDR, as in IX.A, should be added. For example, revised language should state: “Biosolids testing and reporting shall be conducted in accordance with Waste Discharge Requirements Order No. R5-2003-0076 or subsequent Orders that regulate the disposal of biosolids.”

Response: Central Valley Water Board staff concurs.

SRCS D Comment #93: The District requests the following language clarifications, corrections, and minor edits to Attachment F:

- a) Page F-4, II.A. For the facility description language in section A, we recommend the following revisions: “The Facility is staffed and operated 24 hours per day and consists of influent pumps, septage receiving station, mechanical bar screening; aerated grit handling, grit classifiers that wash and dewater grit, covered primary sedimentation tanks, pure oxygen biological treatment by activated sludge, secondary sedimentation, disinfection with chlorine gas sodium hypochlorite and dechlorination with sulfur dioxide. Effluent can be diverted to lined and unlined emergency storage basins as needed to meet effluent dilution, thermal, and disinfection requirements or divert excess flows. Odors are controlled through stripping towers and carbon treatment. Solids are thickened by dissolved air floatation and gravity belt thickeners. Primary and secondary sludge is mixed and sent to anaerobic digesters for approximately fifteen days or more, stored at the solids storage basins for three to five years then harvested and injected into lined dedicated land disposal sites. Some biosolids are recycled with the Synagro Organic Fertilizer Company and the Discharger can dispose of biosolids at the Keifer Landfill as an emergency disposal option. Separate Waste Discharge Requirements (Order No. R5-2003-0076) in conformance with Title 27, California Code of Regulations, Division 2, Subdivision 1 cover the biosolids and solids storage and disposal facilities, the Class II dedicated land treatment units, unclassified solids storage basins, the Class III grit and screenings landfill closure and the groundwater Corrective Action Program (CAP).”

Response: Central Valley Water Board staff concurs.

- b) Page F-7, II.C, Table F-2. The concentration units for bis(2-ethylhexyl)phthalate limits should be µg/L, not mg/L.

Response: Central Valley Water Board staff concurs.

- c) Page F-8, II.D. The District does not agree with the number of violations for acute aquatic toxicity listed in the compliance summary table. To clarify the

numbers, a footnote should be linked to the 6 violations in 2008, stating, “In 2008, 3 of the violations were exceedances of the single test, 70% survival limit, and SRWTP also reported one additional monthly 90% median violation (4 total violations reported). The Regional Board assessed 3 violations based on its interpretation of the 90% median of 3 consecutive tests.” Another footnote should be linked to the 9 violations in 2009, stating, “In 2009, 2 of the violations were exceedances of the single test, 70% survival limit, and SRWTP also reported one additional monthly 90% median violation (3 total violations). The Regional Board assessed 7 violations based on its interpretation of the 90% median of 3 consecutive tests.”

Response: Central Valley Water Board staff disagree with these proposed changes. A Notice of Violation (NOV) was issued by Central Valley Water Board staff by letter dated 12 January 2010 from Mr. Victor Vasquez to the District that identifies the violations of the acute toxicity effluent limits from June 2009 through November 2009. The compliance summary table is consistent with the January 2010 NOV.

- d) Page F-13, III.D.2. The section reference under Table F-3 is incorrect. Revise as follows: “A pollutant-by-pollutant evaluation of each pollutant of concern is described in sections IV.C.2.c and IV.C.2.d.vi, IV.C.3.b,c,d, IV.C.4, IV.C.5, and IV.D.6, ~~VI.C.3~~ of this Fact Sheet.” There is no section VI.C.3 in the Fact Sheet.

Response: Central Valley Water Board staff concurs.

- e) Page F-14, III.E.1. Revise as follows: “In ~~June~~ July 2009, the District installed six new wells to monitor groundwater water quality.”

Response: Central Valley Water Board staff concurs.

- f) Page F-14, III.E.3. Revise as follows: Corrective Action Program (CAP). During the 1990’s the groundwater beneath the DLDs were found to be impacted by elevated concentrations of nitrates, chlorides and total dissolved solids (TDS). To mitigate the impacted groundwater, the Class III landfill that took grit and screenings was closed and the DLDs were either lined or closed. The District implemented a Corrective Action Program in December 1995 to remediate the impacted groundwater and it consisted of extraction wells down gradient of the DLDs. The extraction wells keep the groundwater from migrating off the Facility site. The groundwater is discharged downstream of ~~to~~ the secondary clarifiers of the WWTP where it continues through the remaining treatment processes and discharged to the Sacramento River or to the Wetlands. The CAP is operational and is regulated under Order No. R5-2003-0076, Sacramento Regional County Sanitation District Biosolids and Solids Storage and Disposal Facilities.

Response: Central Valley Water Board staff concurs.

- g) Page F-26, IV.C.2.c.i.(b). Please correct the following, “m, b = criterion specific constants (from CTR) ~~san-jose~~”.

Response: Central Valley Water Board staff concurs.

- h) Page F-32, IV.C.2.d.ii. All references here and elsewhere to “Flow Sciences Inc” should be changed to “Flow Science Incorporated”.

Response: Central Valley Water Board staff concurs.

- i) Page F-40, IV.C.2.d.vi, Table F-12. Please correct footnote to state “effluent cyanide” versus effluent copper.

Response: Central Valley Water Board staff concurs.

- j) Page F-46, F.IV.C.3.b.ii. The first paragraph states “The Reporting and Monitoring Program requires perchlorate be sampled three times per year.” However, in Attachment E Table E-3a, monthly monitoring is required for perchlorate. The language in this section should be changed to “requires perchlorate be sampled monthly.”

Response: Central Valley Water Board staff agree.

- k) Page F-60, IV.C.3.d.vi.(d) and subsequent sections (d). Please correct the sentence in the Plant Performance and Attainability section, which incorrectly states “is less than to” versus “is less than”. This correction should be made in other subsequent identical sentences in other constituent sections.

Response: Central Valley Water Board staff concurs.

- l) Page F-67, IV.C.3.d.xvii. The units for chlorine limits should be mg/L, not ug/L. In all other locations (e.g., pages 14, F-7, and F-86), they are correctly listed as mg/L.

Response: Central Valley Water Board staff concurs.

- m) Page F-82, IV.C.3d.xxiv.(d). This section states that “a compliance time schedule for compliance with the temperature effluent limitations is established in TSO No. R5-2010-XXXX in accordance with CWC section 13300,” however it is not included in the TSO. Thus, this sentence should be deleted.

Response: Central Valley Water Board staff concurs.

- n) Page F-85, IV.C.4, Table F-17. The aluminum limit in the table is for “Aluminum, total,” but the effluent limitation in the discharge requirements is for “Aluminum, total recoverable.”

Response: Central Valley Water Board staff concurs.

- o) Page F-85. The section numbering on this page is inconsistent with the page before. The previous section number was f.(3) and the next section number after Table F-17 is b. There are two of each section 4.b, 4.c, 4.d, 4.e, and 4.f.

Response: Central Valley Water Board staff concurs.

- p) Page F-94, IV.D.4, Table F-19. Mean concentrations are included in this table for constituents with no detected data, but there is no indication that the data are all non-detected. These concentrations should be flagged as “less than” or replaced with “ND”. This applies to the mean values at R-1 for bromodichloromethane, chloroethane, dibromochloromethane, methylene chloride, 1,4-dichlorobenzene, NDMA, and BOD.

Response: Central Valley Water Board staff concurs.

- q) Page F-96, IV.D.6, Table F-20. No units are provided with this table.

Response: Central Valley Water Board staff concurs.

- r) Page F-102, VI.A.1. The influent monitoring frequency for electrical conductivity is inconsistent with the MRP. Revise the language as follows: “electrical conductivity (once per ~~day~~ month).”

Response: Central Valley Water Board staff concurs.

- s) Page F-103, VI.B. The numbered sections 5 through 9 have been over-indented.

Response: Central Valley Water Board staff concurs.

- t) Page F-104, VI.C.1. Acute Toxicity. This section states that “In addition to rainbow trout, *Hyaella azteca*, an amphipod, is a resident species in the Sacramento-San Joaquin Delta and is an appropriate indicator organism for detecting pyrethroid toxicity.” The District recommends removing the reference to *Hyaella azteca* in this paragraph, as it has no bearing on the acute toxicity requirements.

Response: Central Valley Water Board staff concurs.

- u) Page F-104, VI.D.2. Groundwater. This section should be removed, as no groundwater monitoring is required by the Tentative Permit and no groundwater locations are listed in the MRP.

Response: Central Valley Water Board staff concurs.

SRCS D Comment #94: This study is redundant with monitoring required under Tables E-3a, E-3b, E-6a, and E-6b of the MRP and with monitoring required in Attachment J. It is requested that this study include only the constituents that are not included in Attachments E or J.

Response: Central Valley Water Board staff concurs.

Other corrections and minor edits to Attachment I include:

- a) Page I-1, II.A. It is redundant and unnecessary to require data that is being reported on a quarterly basis (e.g., 3 times per year monitoring) to also be provided in a separate report. This should be deleted.

Response: Central Valley Water Board staff concurs.

- b) RSW-001 is not a listed monitoring location. The correct location is “RSWU-001”.

Response: Central Valley Water Board staff concurs.

- c) Page I-2, Table I-1. The quantifiable limit at the District’s lab for acrolein, constituent 17, is 2.5 µg/L, not 2 µg/L.

Response: Central Valley Water Board staff concurs.

Water Agencies

Alameda County Water District; Alameda County Flood Control and Water Conservation District, Zone 7; Contra Costa Water District; Kern County Water Agency; Metropolitan Water District of Southern California; San Luis & Delta Mendota Water District; State & Federal Contractors Water Agency; State Water Contractors; and Westland Water District (Water Agencies)

General Comments: The above-listed Water Agencies urge implementation of the tentative permit as soon as possible. The agencies comment that protecting

and improving the water quality and ecological health of the Sacramento River and Bay-Delta is a priority for the Water Agencies. Growing bodies of data and scientific literature demonstrate how ammonia/ammonium and other pollutants have significantly altered the Bay-Delta's food web. Through their comments, the Water Agencies urge the Central Valley Water Board to not adopt interim limits for ammonia/ammonium which allow increases of these pollutant loadings to the Sacramento River and Delta for the next ten years. The Water Agencies additionally comment that:

- Removing pathogens is a basic requirement for human health protection for both recreational purposes and drinking water uses;
- The proposed salinity limit and minimization plan contributes to the region-wide effort to address salinity in the Central Valley; and
- The proposed toxicity provisions need to be expanded and strengthened.

Additionally, the Water Agencies support the proposed increased monitoring requirements.

Response: Comments noted and addressed in detail with the corresponding detailed comment. The corresponding responses to comments from the Water Agencies' letter follow the numbering system used in the Water Agencies' letter.

Water Agencies Comment #1: The Tentative Order properly requires Treatment Plant upgrades (nutrient removal and tertiary filtration), which are already being employed at many other publicly owned treatment works.

Response: Central Valley Water Board staff concurs.

Water Agencies Comment #2: Given the need for Treatment Plant upgrades to avoid the impacts it is causing to Delta smelt, Chinook salmon, steelhead, and other important aquatic species, the Final Order should require that nutrient removal and tertiary filtration be incorporated in the shortest practicable time, with milestones enforceable through a Cease and Desist Order, and require interim measures and more stringent interim limits to address ongoing ammonia discharges.

Response: The tentative permit requires the District to submit a pollutant minimization plan for ammonia. That plan must include interim measures to reduce ammonia and must be reviewed and approved by Central Valley Water Board staff. Interim limits for ammonia are developed based on the current wastewater treatment performance and is used for all NPDES permits issued by our region. The performance based limit will not allow for increases in ammonia loadings from the current loadings due to the District's current performance of reducing ammonia levels below their

current NPDES permit requirements. In accordance with the State Water Resources Control Board (State Water Board) 2008 Policy for Compliance Schedules in National Pollutant Discharge Elimination System (NPDES) Permits, a time schedule is allowed in an NPDES permit for compliance with new ammonia effluent limitations that are more stringent than the previous permit. Although the Central Valley Water Board has the discretion to establish a time schedule in a Cease and Desist Order, the Board is not required to do so. Time schedules are allowed for all other new and/or more stringent effluent limitations such as effluent limits for Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS) and coliform.

The existing wastewater treatment plant is a secondary pure-oxygen activated sludge treatment facility. This secondary process limits the simple addition of conventional treatment options for both nutrient and pathogen removal to the existing treatment train. The proposed Permit grants the District the maximum-allowed time schedule, per the Basin Plan, to comply with the newly proposed requirements. Justification for the maximum ten-year time schedule includes necessary time to evaluate the most reliable and cost-effective treatment alternatives, one of which may be converting the pure oxygen activated sludge treatment to a conventional aerated activated sludge treatment process. This alternative allows for more treatment options for nutrient and pathogen removal. Central Valley Water Board staff believes the ten year schedule is reasonable for the necessary studies, planning, CEQA processing, design and construction of an upgraded facility of this size. The tentative permit will be modified to include enforceable milestones within the ten years.

Water Agencies Comment #3: The Sanitation District has not provided the Regional Board with a basis to grant an exception to the Thermal Plan; particularly since the Sanitation District proposes an exception that will likely harm Delta smelt, Chinook salmon, steelhead, and other important aquatic species.

Response: Central Valley Water Board staff consulted with the Department of Fish and Game (DFG), the United States Fish and Wildlife Service (USFWS) and the United States Department of Commerce, National Oceanic and Atmospheric Administration – National Marine Fisheries Service (NFMS) on the District's request for a Thermal Plan Exception. The District's request for the proposed Thermal Plan Exception, with new thermal requirements, was not supported by these fishery agencies, thus the District's proposed new Thermal Plan Exception were not incorporated in the tentative permit. The fishery agencies recommended the current Thermal Plan Exception requirements from the existing NPDES permit be carried over to the tentative with the

requirement for fishery studies to confirm the requirements are protective of beneficial uses. The fishery agencies also recommended that the District immediately plan to address future increases in the discharge without the need for Thermal Plan exceptions.

Water Agencies Comment #4: The Regional Board has a reason beyond those stated in the Tentative Order to require nutrient removal; it is needed to address continued dissolved oxygen violations occurring for 40 miles downstream of the discharge and to prevent aquatic resource impacts from the discharge through Suisun Bay.

Response: Comment noted. Discussion regarding the “far-field” degradation of the Sacramento River in regards to dissolved oxygen is discussed in the tentative Permit Fact Sheet, Section IV.D.4, titled Satisfaction of Antidegradation Policy.

Water Agencies Comment #5: The Tentative Order properly requires Treatment Plant upgrades to reduce the effects of toxics in the District’s discharges, but to provide adequate protection for beneficial uses, the Final Order should expand and strengthen the proposed program for prohibiting the discharge of toxic constituents into the Delta, which is listed as impaired for unknown toxicity under Clean Water Act section 303(d).

Response: As discussed thoroughly in the tentative Permit Fact Sheet, Central Valley Water Board staff proposes the toxicity requirements in the tentative permit for the protection of aquatic life beneficial uses, specifically to address the decline in pelagic organisms and direct impact to diatoms, the preliminary elements of the food chain for aquatic life in the Delta.

Water Agencies Comment #6: Under the EPA’s treatment affordability test, the cost to upgrade the Treatment Plant to incorporate BPTC is affordable, and the cost is a reasonable expense given the harm caused by the discharges.

Response: Comment noted. The tentative Permit Fact Sheet has been modified to include a discussion of economic factors considered by the Central Valley Water Board in establishing proposed requirements to protect beneficial uses. Although not required to do so, the modified Fact Sheet discussion addresses the factors included in CWC section 13241.

Water Agencies Comment #7: The Tentative Order correctly finds the discharge of ammonia/ammonium and other nutrients is adversely affecting beneficial uses.

Response: Comment noted.

Water Agencies Comment #8: The Treatment Plant is a major source of ammonia/ammonium to the Bay-Delta.

Response: Central Valley Water Board staff concurs and has therefore established proposed ammonia limitations in the staff-recommended tentative permit to address ammonia/ammonium in the Bay-Delta.

Water Agencies Comment #9: The ammonia discharge is toxic to copepods and fish and does not meet the most current (1999) EPA aquatic life criteria for ammonia.

Response: Central Valley Water Board staff concurs. The current USEPA Ambient Water Quality Criteria for Ammonia for protection of aquatic life was implemented in the development of the proposed ammonia limitations. The proposed ammonia limitations are intended to allow discharge of ammonia at a level to protect against acute and chronic impacts to aquatic life and the aquatic food chain in the Sacramento River and Delta.

Water Agencies Comment #10: The ammonium and other nutrients from the Treatment Plant are adversely altering the food web that supports aquatic life in the Sacramento River and Bay-Delta.

Response: Central Valley Water Board staff concurs. See Response to Water Agencies Comment No. 9 above.

Water Agencies Comment #11: The Treatment Plant is inhibiting nitrogen uptake by diatoms in the Bay-Delta.

Response: Central Valley Water Board staff concurs. See Response to Water Agencies Comment No. 9 above.

Water Agencies Comment #12: The ammonium discharged by the Treatment Plant is impacting the food web by reducing diatom primary production.

Response: Comment noted.

Water Agencies Comment #13: The Tentative Order correctly requires full nitrification and denitrification because the nutrient discharge is impacting the food web in the Sacramento River and Bay-Delta by causing a shift in algal communities by changing the nutrient ratios to favor harmful, invasive species.

Response: Central Valley Water Board staff concurs. See Response to Comment No. 9 above.

Water Agencies Comment #14: Nutrient removal, where implemented in impacted ecosystems, has improved the natural ecosystem and aquatic life.

Response: Central Valley Water Board staff concurs. The proposed permit that staff is recommending includes a nitrates limit of 10 mg/L, to address nutrients and biostimulation in the receiving waters, as well as protection of human health.

Water Agencies Comment #15: The Treatment Plant discharge is depleting dissolved oxygen in the Sacramento River and the Bay-Delta.

Response: Central Valley Water Board staff concurs. To address low levels of dissolved oxygen in the receiving water, as shown by available data, the proposed permit that staff is recommending contains limits for oxygen-demanding substances including Biochemical Oxygen Demand and Ammonia.

Water Agencies Comment #16: Full nutrient removal is also appropriate because the ammonia/ ammonium in the discharge when disinfected by the Sanitation District generates harmful nitrosamines in the Treatment Plant effluent.

Response: The proposed permit includes an effluent limitation for N-nitrosodimethylamine (NDMA) in accordance with drinking water standards. NDMA is one form of nitrosamines that is a potent mutagen and possible carcinogen. The proposed NDMA effluent limitation is established in accordance with the State Water Resources Control Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (also referred to as the State Implementation Plan or SIP). Central Valley Water Board concurs that the SRWTP effluent contains elevated concentrations of ammonia, and combined with the chlorine used for disinfection, creates high levels of nitrosamines. Staff also concurs that ammonia must be reduced and/or chlorination eliminated to reduce the nitrosamines in the discharge.

Water Agencies Comment #17: Nitrosamine precursors found in the Sanitation District's effluent can form nitrosamines at downstream drinking water treatment plants.

Response: Central Valley Water Board staff concurs. See Response to Water Agencies Comment No. 16.

Water Agencies Comment #18: Nitrogen discharge is creating nuisance algal growth and increasing total organic carbon (TOC) load for drinking water treatment plants.

Response: The proposed permit that staff is recommending includes effluent limitations for ammonia and nitrates, which if adopted, will result in reduction of nitrogen in the effluent discharged to the Sacramento River and Delta.

Water Agencies Comment #19: The Treatment Plant discharge also violates federal regulations by using the Sacramento River to assimilate the ammonia/ammonium waste.

Response: The proposed permit contains ammonia limitations in accordance with federal and state regulations, policies and guidelines.

Water Agencies Comment #20: Because the interim Ammonia/um limits in the Tentative Order would allow the Sanitation District to continue and in fact nearly double the amount of ammonia/um discharged, they will not protect aquatic life.

Response: Central Valley Water Board staff does not concur. Interim numeric effluent limitations are required for compliance schedules longer than one year. The purpose of the interim effluent limitations is to “cap” the discharger at its current level of discharge during the proposed compliance schedule; therefore, the interim limitation must be based on current treatment plant performance or existing permit limitations, whichever is more stringent.

In accordance with the State Water Board’s 2008 Policy For Compliance Schedules In National Pollutant Discharge Elimination System Permits, the proposed interim ammonia effluent limitations were established using data demonstrating current treatment facility performance to determine a performance-based interim permit effluent limit to apply if a schedule of compliance is granted.

For the proposed permit, the interim effluent limitations were statistically calculated based on Facility performance in the same manner as other permits adopted by the Board. Sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row). Therefore, the interim limitations in the proposed Order are established as the mean plus 3.3 standard deviations of the available data. However, if the maximum observed effluent concentration (MEC) exceeds the mean plus 3.3 times

the standard deviation, then the MEC is the used for the interim limitation, which is the case for the subject ammonia interim limitations. The interim limitations are a maximum daily effluent limitation, which will be numerically greater than the average ammonia levels the treatment facility is currently discharging. Additional weekly average and monthly average interim performance-based effluent limitations have been added to the proposed Order. The additional limitations will ensure the Facility maintains current treatment performance for ammonia.

Water Agencies Comment #21: The dramatic increase in ammonia/um concentration and ammonia/um loadings above current levels that would be authorized under the interim ammonia limits in the Tentative order must not be adopted.

Response: Central Valley Water Board staff does not concur that the proposed interim ammonia limitations is allowing an increase in ammonia concentration above current levels. See response to Water Agencies Comment # 20 for further details.

Water Agencies Comment #22: The Discharger can now certainly meet a lower daily ammonia/um concentration limit than the interim limit proposed in the Tentative Order.

Response: The Discharger has successfully reduced effluent ammonia concentrations off and on since mid-2009. However, there is not sufficient data to calculate a new interim effluent limit and it is not certain the Discharger can sustain to reduced ammonia concentration either seasonally or indefinitely. The pollution prevention plan has been amended to require assessment of interim ammonia controls and a reopener added.

Water Agencies Comment #23: Consistent with the decision to impose advanced treatment, the Final Order should include weekly and monthly average mass loading and concentration limits for ammonia/um.

Response: Consistent with other NPDES permits for similar dischargers, the proposed permit contains a maximum daily interim effluent limitation. The purpose of the interim limitation is to “cap” the Discharger at the current performance. See Response to Water Agencies Comment #20 for further detail regarding how an interim limitation is statically derived to capture the range of the most probable concentration of ammonia discharged from the current facility. Monthly average and weekly average performance-based interim limits of 33 mg/L (ammonia as N) and 35 mg/L (ammonia as N), respectively, have been statistically

calculated and added to the proposed Order to further ensure the Facility maintains current treatment performance of ammonia.

Water Agencies Comment #24: Consistent with the decision to impose advanced treatment, the Final Order should also include weekly and monthly average mass loading and concentration limits for total nitrogen.

Response: Central Valley Water Board staff does not concur. For the interim, nearly all of the nitrogen in the wastewater is in the form of ammonia. If the facility is to nitrify its wastewater in the future, then the nitrogen in the form of ammonia will be converted to nitrite and nitrate (other forms of nitrogen), and regulated accordingly. Proposing an interim Total Nitrogen limitation will not provide additional benefit to the purpose of interim limitations, which is to maintain the current ammonia (essentially total nitrogen) levels as currently discharged. Therefore, capping the current ammonia discharge will essentially cap the total nitrogen discharge. For final effluent limitations, the proposed permit includes ammonia and nitrate effluent limitations. The ammonia effluent limitations are maximum daily and monthly average limits, based both on concentration and mass. The proposed Nitrate limitation is a monthly concentration limitation, set at the Department of Public Health's Maximum Contaminant Level of 10 mg/L. The Nitrate concentration limit sufficiently regulates the discharge of Nitrate for purpose of public health protection. Together, the set of proposed effluent limitations for ammonia and nitrates provides a practical level of limitations for both concentration and mass to protect aquatic life and human health.

Water Agencies Comment #25: Consistent with its decision to impose advanced treatment, the Final Order should include sufficient monitoring of all ammonia/um and nitrogen limits.

Response: Central Valley Water Board staff concurs. The tentative permit includes daily 24-hour composite effluent monitoring for ammonia nitrogen, nitrate, nitrite and Total Kjeldahl Nitrogen, and weekly grab receiving water monitoring for ammonia and Total Kjeldahl Nitrogen. The proposed sampling is sufficient for purpose of compliance with effluent limitations and receiving water limitations.

Water Agencies Comment #26: Consistent with its decision to impose advanced treatment, the Final Order should set interim concentration and mass limits as quickly as possible that reflect the ongoing harm being caused by the toxic discharge by the Treatment Plant.

Response: Interim limitations, if adopted as proposed, will become effective upon the effective date of the permit, typically 50 days after the date of permit adoption. See Response to Comment #20.

Water Agencies Comment #27: Given the continued water quality degradation and harm that the Treatment Plant discharge will cause, as well as the lack of any plan by the Sanitation District to reduce that degradation and harm, the Regional Board should issue and Cease and Desist Order that includes firm requirements for developing a plan of interim measures and an expeditious schedule for implementing the measures.

Response: The proposed Permit grants the District the maximum compliance schedule of ten years, in the permit itself, not in an enforcement order. See Response to District Comments #2 regarding the State Water Resources Control Board's Compliance Schedule Policy allowing such compliance schedules in the permit for constituents that have new and/or more stringent effluent limitations. Compliance schedules for other constituent effluent limitations are included in the proposed Time Schedule Order. All compliance schedules, whether in the permit or in an enforcement order, include interim milestones and corresponding time schedules to assure the District is putting forth diligent effort to comply with the permit requirements by the set compliance date.

A Time Schedule Order is an enforcement order that is legally equivalent to a Cease and Desist Order.

Water Agencies Comment #28: The ammonia/um removal alternatives presented in the Tentative NPDES Permitting Options document should not be adopted, in part, because it would not protect beneficial uses or avoid further degradation of the Sacramento River and Bay-Delta.

Response: Central Valley Water Board staff concurs and are not recommending adoption of the Permitting Options.

Water Agencies Comment #29: The ammonia/um removal alternatives to full nitrification in the Tentative NPDES Permitting Options document should not be adopted, in part, because it would not protect beneficial uses or avoid further degradation of the Sacramento River and Bay-Delta.

Response: Due to unavailability of information to determine if a nitrate effluent concentration less than 10 mg/L is feasible, the proposed nitrate effluent limitation in the tentative NPDES permit has been modified to require compliance with the State Drinking Water Standard of 10 mg/L at the end-of-pipe (i.e., no dilution). Although assimilative capacity and dilution is available in the receiving water, to maintain a healthy nitrogen-to-phosphorous ratio in the river, no dilution for nitrate

is proposed. The Discharger can immediately comply with the effluent limits for nitrate. However, if the Discharger is required to nitrify the wastewater to remove ammonia, which is the biological conversion of ammonia to nitrate, additional facilities would be required to remove the nitrate formed during the ammonia removal process. In the proposed permit, it has been determined that de-nitrification of the wastewater is necessary to meet the proposed nitrate limitation.

Water Agencies Comment #30: The nitrate removal alternatives presented in the Tentative NPDES Permitting Options document should not be adopted.

Response: See response to comment #30.

Water Agencies Comment #31: Additional revisions to the Tentative Order related to ammonia/um, nitrogen and phosphorus should be made.

Response: See response to comment #30.

Water Agencies Comment #32: The Final Order needs to include effluent limits for phosphorus, and additional monitoring requirements.

Response: At this time there are no adopted water quality objectives for phosphorus. The State Water Resources Control is developing procedures to calculate nutrient limitations. Once those procedures have been developed the permit can be reopened to include phosphorus limitations.

Water Agencies Comment #33: Environmentally relevant detection limits need to be specified for ammonium monitoring.

Response: Through their public comments, the Water Agencies request for an ammonia monitoring detection limit of 0.1 mg/L to detect environmentally relevant concentrations. Central Valley Water Board does not concur with the requested detection level which is acceptable for research purposes but is not necessary for permit compliance monitoring purposes. The proposed permit requires, within 60 days of permit adoption, the Discharger to submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. The appropriate minimum levels and corresponding detection levels will be determined in accordance with the specified analytical methods.

Water Agencies Comment #34: The pH effluent limit should not be increased.

Response: The existing pH limitation in the current NPDES permit allows for an effluent pH range between 6.0 and 8.5 as a running 20-minute average of continuous monitoring, and a range between 6.0 and 7.5 as a running 1-hour average. The proposed permit requires the effluent pH to be within the range of 6.0 and 8.5. An updated analysis of the District's dilution study was submitted to the Central Valley Water Board illustrating that a pH as low as 6.0 is protective of the receiving water and does not cause or contribute an excursion of the receiving water limitations for pH. The new dilution study and analysis information is new information that was not available at the time of adoption of the existing permit. Therefore the proposed change in the pH effluent limitation is in accordance with federal and state antibacksliding regulations.

A typical effluent pH limit range in other NPDES permits is 6.5 to 8.5. The District states that, to elevate the effluent pH from 6.0 to 6.5 will require the addition of chemicals which will most probably cause or contribute to an increase in salt levels in the Sacramento River and Delta; therefore Central Valley Water Board staff does not support increasing the lower end of the effluent pH limit range from 6.0 to 6.5.

Water Agencies Comment #35: The Regional Board properly found that discharge of pathogens poses and unacceptable human health risk.

Response: Central Valley Water Board staff concurs.

Water Agencies Comment #36: High quality source water is an essential component of the multi-barrier approach to protecting public health.

Response: Comment noted.

Water Agencies Comment #37: Pathogen free wastewater is needed to protect drinking water quality.

Response: Comment noted.

Water Agencies Comment #38: The Treatment Plant's existing disinfection system is unreliable and leads to chlorine excursions.

Response: Comment noted.

Water Agencies Comment #39: Pathogen monitoring is needed to ensure that public health is being protected.

Response: Central Valley Water Board staff concurs. The proposed permit includes Total Coliform effluent limitations and compliance

monitoring. Additionally, the permit includes monitoring for *cryptosporidium* and *giardia*.

Water Agencies Comment #40: Disinfection Alternative 1 – existing level of disinfection is not protective of beneficial uses.

Response: Central Valley Water Board staff concurs.

Water Agencies Comment #41: Because the Sanitation District has a history of violating the toxicity standards in its permit, the Regional Board should enhance the toxicity program in the Final Order using a science-based approach.

Response: As typically required in NPDES permits, the proposed permit includes acute and chronic effluent limitations. The proposed permit additionally requires the Discharger to submit a Toxicity Reduction Evaluation (TRE) work plan within 90 days for the permit adoption for approval by the Executive Officer. The Water Agencies are requesting that the TRE work plan be made available to stakeholders for comments. The proposed TRE work plan will be made available to the public and part of the public files for the permit. The public will have the opportunity to provide Central Valley Water Board staff and the Executive Officer comments to consider in their review of the plan for approval.

Water Agencies Comment #42: The final Order should explicitly acknowledge that the Sanitation District's wastewater is discharged into a waterbody listed on the CWA 303(d) list for "unknown toxicity".

Response: The tentative permit acknowledges that the Sacramento River and San Joaquin Delta are impaired for unknown toxicity on page 7 of the tentative permit and page F-13 of the Fact Sheet. Unknown toxicity is addressed with the effluent limits for acute and chronic toxicity, and the Whole Effluent Toxicity permit requirements.

Water Agencies Comment #43: The final Order should explicitly acknowledge that issues of "additivity" are particularly relevant to the Sanitation District's discharge.

Response: Additivity for toxic constituents is addressed in the proposed permit through the requirements for Whole Effluent Toxicity, which addresses the cumulative effects of toxicity-contributing parameters in the effluent and receiving water.

Water Agencies Comment #44: The Regional Board should develop a detailed WET testing procedure to ensure enforceability and to promote greater success in identifying the nature, origin and causes of toxicity of the Sanitation District effluent.

Response: The Department of Fish and Game (DFG), United States Fish and Wildlife Service (USFWS) and the United States Environmental Protection Agency – Region 9 (EPA) all agree with the Water Agencies' comment that modification of the effluent for toxicity testing to eliminate ammonia should not be allowed. Modifying the WET sample by removing ammonia is inconsistent with the USEPA method for toxicity testing and the ammonia removal may also result in other toxicants being removed. Central Valley Water Board staff concurs with this assessment and the ammonia modification for the acute and chronic toxicity testing has been removed from the proposed toxicity testing requirements.

The toxicity testing includes the use of ambient water as a diluent unless the ambient water itself is toxic, then lab water may be used. The rainbow trout testing is for acute toxicity and the fathead minnows remain the test species for chronic testing since they are the testing standard. Similarly, *ceriodaphnia* will continue as the testing organism for chronic toxicity. *Hyaella* augments the toxicity testing program and does not replace *ceriodaphnia*.

Staff concurs that the existing TRE testing methods have been unsuccessful in indentifying the causes of the acute toxicity in the District's effluent. The TRE work plan evaluation in the proposed permit addresses the enforcement concerns and the identification of the cause of toxicity.

Water Agencies Comment #45: The Sanitation District's discharge cannot meet the minimum requirements for allowance of a mixing zone for any pollutants in its discharge.

Response: The Water Agencies state that the District does not meet the following provisions required to allow a mixing zone: causes acutely toxic conditions to aquatic life; restricts the passage of aquatic life and adversely impacts biologically sensitive habitats and dominates the receiving water body. DFG, USFWS and USEPA also recommended that mixing zones for acute and chronic be denied. Central Valley Water Board staff does not concur with this assessment. The zone of passage is small but at this time there is no evidence that aquatic life would not avoid the effluent plume. Additional required fish studies will confirm or deny the fish passage.

Evidence does exist showing ammonia is impacting the water body as an oxygen demand substance, but no other constituent appears to impact the water body as a whole. See response to SRCSD Comments # 41-46 Regardless, the only constituent in which dilution credit is proposed is cyanide for a chronic mixing zone. This was based on dynamic modeling conducted by the Discharger. All other constituents did not qualify for

dilution due to lack of dilution necessary, no assimilative capacity, or a TMDL for the constituent.

Water Agencies Comment #46: The effect of flow reversals in the Sacramento River should be considered and addressed.

Response: Flow reversals in the Sacramento River were addressed in the dynamic modeling of the river, as explained in the Fact Sheet of the proposed permit.

Water Agencies Comment #47: The Sanitation District’s modeling of in-river conditions is unreliable.

Response: Tetra Tech, a contractor to USEPA, reviewed the District’s modeling, and concluded with verification through dye testing, that the model was valid. However, the United State Bureau of Reclamation (Bureau) submitted comments that challenged the validity of the model. The Bureau stated “CALSIM II, DSM2 and Reclamation’s revised temperature model are the recognized standard modeling tools used today to characterize the project area. These models incorporate the latest regulatory requirements and were developed to represent the combined operations of the state and feral projects. The use of PROSIM and the outdated version of Reclamation’s temperature model, results in an inadequate analysis that does not properly reflect the current conditions of the basin. Since PROSIM output drives the other four linked models, the overall analysis does not meet the test of “Best Available Science” and quality information”.

Additionally, the Bureau stated “ The Board’s (District’s dynamic model) analysis was based on a period of record from 1922 – 1991 that does not represent the current conditions in the project area. Since 1991, additional regulatory obligations have been placed on the Sacramento River and the Delta for flows, temperature, and water quality; for example, the Water Quality Control Program, Central Valley Project Improvement Act, and the listing of numerous species as endangered. In addition, from 1991 – 1992, California experienced its most severe drought to date. By excluding the period of record from 1992 – to the present, the analysis does not properly characterize the current receiving water flow pattern, which is an integral component of the dilution equation.”

Water Agencies Comment #48: The fact that the discharge attracts fish should be considered.

Response: The required fish studies will address if the discharge is attracting fish.

Water Agencies Comment #49: Allowing chronic toxicity in a 303 (d) listed waterbody is problematic.

Response: Comment noted.

Water Agencies Comment #50: Recent and ongoing research demonstrates the scope and extent of Constituents of Emerging Concern (CECs) generally, in the Bay-Delta ecosystem, and in the Sanitation District's discharge.

Response: Comment noted.

Water Agencies Comment #51: The Regional Board should expand the scope and extent of monitoring and other requirements covering CECs.

Response: There is as yet no standardized protocol for CEC monitoring or interpretation of results. The State Water Resources Control Board is working with Southern California Coastal Water Research Project (SCCWRP) on developing CEC monitoring recommendations. It is anticipated that SRCSD recommendations will be imposed on SRCSD and other Central Valley Regional Board dischargers.

Water Agencies Comment #52: Include N-Nitrosomorpholine on the list in Table E-3b and E-6b of "Other Constituents of Concern" to be monitored under the permit.

Response: The tentative permit requires monitoring for three nitrosamines, NDMA, NEMA and NDEA. If monitoring results show concentrations of these nitrosamines above the method detection level, the Central Valley Water Board may consider adding additional nitrosamines to the monitoring and reporting program. However, it is not recommended to expand the list of monitored nitrosamines at this time.

Water Agencies Comment #53: The Regional Board should require the Sanitation District to participate in CEC studies.

Response: The Central Valley Water Board staff will encourage the District to participate in applicable studies, but will not require participation.

Water Agencies Comment #54: The Regional Board should require the Sanitation District to implement CEC Science Advisory Panel monitoring requirements for water recycling activities.

Response: See response to comment #51.

Water Agencies Comment #55: The Regional Board should incorporate a reopener in the Final Order that would allow changes in CEC monitoring requirements based on the findings of the Emerging Constituents Workgroup.

Response: The Central Valley Water Board concur.

Water Agencies Comment #56: The Regional Board should coordinate CEC monitoring efforts with other Regional Boards.

Response: Comment noted.

Water Agencies Comment #57: Include a permit reopener that would apply the same types of CEC-monitoring requirements on the Sanitation District as are imposed on downstream users of Delta water.

Response: See response to comment #55.

Water Agencies Comment #58: Include representative CEC monitoring that are indicated in the draft and upcoming final Groundwater Recharge Reuse Regulation into the monitoring program requirements.

Response: See response to comment #51.

Water Agencies Comment #59: Require the Sanitation District to conduct a focused public education and outreach campaign on pharmaceutical disposal and a source control study.

Response: It is not appropriate for the Central Valley Water Board to require a specific method of source control and/or public outreach. Many Dischargers are aware of the website: www.nodrugsdownthedrain.org which can assist municipalities in public outreach efforts for minimization of pharmaceutical disposal into collection systems.

Water Agencies Comment #60: Require the Sanitation District to submit a CEC adaptive monitoring strategy.

Response: See Response to Comment #55.

Water Agencies Comment #61: The Regional Board should not grant an exemption from the Thermal Plan because the discharge creates a high temperature zone that potentially impairs state and federally listed species.

Response: The District studied and modeled the temperature plumes and concluded in its “Thermal Plan Justification Report” dated August 2010 that state and federal species would not be impacted by the discharge. The District requested additional exemptions to the Thermal

Plan requirements to the exemptions they currently have under their existing NPDES permit. DFG, USFWS and NFMS all voiced concerns over the synergistic properties of the discharge. These agencies recommendations are to keep the exemptions as currently required in the existing permit provided fish studies are conducted to confirm there is no impact on any aquatic life. DFG, USFWS, and NFMS also suggested future requests for Thermal Plan exemptions would not be forthcoming and the District needs to begin planning immediately on determine how to comply with the Thermal Plan.

Water Agencies Comment #62: Delta smelt appear to be experiencing lethal temperatures under current conditions.

Response: In its letter to the Central Valley Water Board, the USFWS states that the Thermal Plan Justification provided by the District was not adequate in its analysis of thermal impacts to Delta smelt. With the basis of USFWS' request, the tentative permit requires the District to conduct fish studies (including Delta smelt, Chinook salmon, steelhead) to determine if the temperature of the wastewater discharge is impacting Delta smelt.

Water Agencies Comment #63: Chinook salmon and steelhead are experiencing potentially lethal and sublethal temperatures under current conditions.

Response: See Response to Water Agencies Comment #62 above.

Water Agencies Comment #64: The Sanitation District's thermal plume may be suppressing nitrate uptake by diatoms.

Response: Comment noted.

Water Agencies Comment #65: There is no basis for an exception to the Thermal Plan.

Response: Central Valley Water Board staff based the proposed Thermal Plan exemption, which is the same as the exemption in the existing NPDES permit, on DFG, USFWS and NFMS' guidance regarding compliance with the Thermal Plan. Central Valley Water Board staff has proposed to continue the existing exemption until results of the required fish studies are submitted, in which time a modification made be proposed based on new information. See response to Water Agencies Comment #85.

Water Agencies Comment #66: Limits on effluent salinity are needed to protect Delta salinity objectives at Contra Costa Canal at Emmaton.

Response: Comment noted. The proposed permit contains salinity effluent limitations, in the form of electrical conductivity (EC).

Water Agencies Comment #67: Limits of effluent salinity are needed to protect Delta salinity objectives at Contra Costa Canal at Pumping Plant #1.

Response: Comment noted. See Response to Comments #66.

Water Agencies Comment #68: Effluent limits for salinity should meet the requirements for 303 (d)-listed constituents.

Response: Effluent limits for electrical conductivity are included in the proposed permit. The northern section of the Delta is not listed for electrical conductivity impairment although clearly the District's discharge is at the headwaters for the Delta. The Central Valley Water Board staff and the Central Valley Salinity Coalition (CV-Salts) are investigating alternatives for long-term sustainability. As information on salt reduction for NPDES dischargers becomes available, the NPDES permit may be reopened for the Board's consideration of additional salt reduction requirements. The tentative permit requires a salt minimization plan.

Water Agencies Comment #69: The annual average effluent electrical conductivity (EC) limit should be stricter.

Response: A review of the Discharger's monitoring reports indicates an average annual effluent EC of 764 $\mu\text{mhos/cm}$, with the data ranging from 369 $\mu\text{mhos/cm}$ to 960 $\mu\text{mhos/cm}$. The projected maximum effluent concentration is 972 $\mu\text{mhos/cm}$. The actual maximum background receiving water concentration was 260 $\mu\text{mhos/cm}$, with an averaged of 160 $\mu\text{mhos/cm}$, based on 72 samples collected from November 2000 to July 2008. The maximum instream EC concentration is less than all applicable water quality objectives for EC. The discharge does not have a reasonable potential for the discharge to cause or contribute to an instream excursion of the applicable water quality objectives for EC. The proposed annual average EC effluent limitation of 900 $\mu\text{mhos/cm}^2$ is included in the permit as a "performance-based" effluent limitation. The intention of the performance-based effluent limitation is to "cap" the Discharger at its existing level of EC in its wastewater.

Water Agencies Comment #70: A salt load limitation is necessary to meet the Regional Board's region-wide goals.

Response: Central Valley Water staff concurs the mass loading of salts in the District's discharge may appear to be high at 230 tons per day. As CV-Salts continues to evaluate the salinity in the Delta and provides direction for NPDES discharges, the needs for further salinity control from

point source discharges will be addressed in future permit revisions and/or renewals.

Water Agencies Comment #71: Effluent salinity limits are needed to control taste and odor.

Response: The proposed EC effluent limitation is intended to control the level of all forms of salinity in the effluent discharge, including Total Dissolved Solids, Chlorides and Sulfate. The Department of Public Health (DPH) Secondary Maximum Contaminant Level (MCL) for EC is a range from 900 umhos/cm to 2200 umhos/cm, with an average of 1600 umhos/cm. The District's existing effluent EC level does not cause or contribute to an exceedance to the secondary MCL. The proposed electrical conductivity effluent limitation is based on treatment plant performance and focuses on the goals for protection of agricultural irrigation. The agricultural irrigation standard is more stringent than the taste and odor standard, thus the proposed effluent limitation is protective of taste and odor.

Water Agencies Comment #72: Effluent limits for chloride and Total Dissolved Solids (TDS) are also required.

Response: See response for comment # 71. Additionally, the tentative permit requires TDS and chloride monitoring.

Water Agencies Comment #73: Requirements for the Salinity Evaluation and Minimization Plan should be clarified.

Response: Central Valley Water Board staff does not concur. The plan requirement is not intended to be detailed. The intention is to have the Discharger develop and implement minimization efforts that will be effective within its service areas.

Water Agencies Comment #74: The Salinity Evaluation and Minimization Plan should identify specific effective and implementable source control measures.

Response: The salt minimization plan will be reviewed by CV-Salts and Central Valley Water Board staff. The permit is not intended to mandate salt reduction actions, but to have the Discharger develop the measures that will be effective within its service areas.

Water Agencies Comment #75: Antidegradation Policy mandates nutrient removal and tertiary filtration and prohibits a toxic mixing zone and ten more years of degradation to critical habitat and the largest single source of fresh water supply in California.

Response: The Antidegradation Policy does not mandate nutrient removal. Regional Board staff are recommending tertiary filtration and full nitrification because these requirements will result in waste discharge requirements which result in the best practicable treatment or control of the discharge.

As noted in the Time Schedule Order, immediate compliance with the new effluent limitations for pH, N-nitrosodimethylamine, 1,2-diphenylhydrazine and dibenzo(a,h)anthracene is not possible or practicable due to lack of treatment processes to reduce these constituents. The Clean Water Act and California Water Code authorize time schedules for achieving compliance.

Water Agencies Comment #76: The tentative order properly determines that nutrient removal and tertiary filtration are Best Practicable Treatment or Control required by antidegradation policy.

Response: Comment noted.

Water Agencies Comment #77: Antidegradation policy mandates Best Practicable Treatment or Control of the Sanitation District's discharge in order to prevent pollution and to assure the highest water quality for maximum benefit of the people.

Response: Comment noted.

Water Agencies Comment #78: The Regional Board should reject the Sanitation District's proposal to use an improper baseline in applying antidegradation policy to the treatment plant's discharge.

Response: See Response to SRCSD comment #37

Water Agencies Comment #79: Antidegradation policy requires a proper baseline.

Response: See Response to SRCSD comment #37.

Water Agencies Comment #80: The Sanitation District urges use of an improper baseline and other analytical approaches that fail to lawfully apply antidegradation policy to the treatment plant's discharge.

Response: See SRCSD Response to Comment #36 through 40.

Water Agencies Comment #81: The antidegradation policy requires maintenance and restoration of high quality waters except under "extraordinary" circumstances that do not exist here.

Response: The Regional Board is requiring maintenance and restoration of high quality waters. See SRCSD Response to Comment #36 through 40.

Water Agencies Comment #82: Nitrification/denitrification and tertiary filtration are required BPTC.

Response: Central Valley Water Board staff concurs and therefore is recommending a proposed permit requiring filtration, ammonia reduction and nitrate removal.

Water Agencies Comment #83: Nitrification/denitrification is necessary in response to significant water quality degradation.

Response: Comment noted. The proposed permit requires nitrification and denitrification.

Water Agencies Comment #84: Tertiary filtration is necessary for protection of human health and to avoid water quality degradation.

Response: Comment noted. The proposed permit requires tertiary filtration.

Water Agencies Comment #85: Granting an exception to the thermal plan conflicts with antidegradation policy and temperature control may be necessary.

Response: See SRCSD Response to Comment #36 through 40. Granting an exception to the Thermal Plan does not conflict with the anti-degradation policy. The Thermal Plan allows for exceptions and the same exceptions are being carried over from the previous permit. Regional Board staff is not requiring Sac Regional to implement temperature controls as BPTC because Regional Board staff does not believe, in this particular situation, that temperature is BPTC. The technologies needed to chill the wastewater prior to discharge would require either evaporative cooling or refrigeration. Evaporative cooling evaporates water, which increases the concentration of salts and all other chemicals in the discharge, energy, and anti-fouling/anti-scaling agents (many of which are toxic). Refrigeration would require very large amounts of energy. At this time the environmental costs (including water quality and energy usage) as well as economic costs of use of evaporative or refrigeration cooling are not justified relative to the thermal impacts on the Sacramento River of the current discharge and Thermal Plan exception. If required studies indicate an adverse impact from the current thermal discharge, then this conclusion will need to be reexamined. Regardless of whether the two control technologies are available is not a sufficient condition to require temperature control as BPTC.

Water Agencies Comment #86: Nitrification/denitrification and tertiary filtration are required BPTC for other existing wastewater treatment plants that discharge to the Sacramento River and Delta.

Response: BPTC is a discharge specific determination. The proposed permit makes no conclusion on BPTC on any treatment plant other than SRCSD. See SRCSD Response to Comments. #36 through 40. In the case of SRCSD, Regional Board staff contend that tertiary treatment and full nitrification/denitrification are BPTC after evaluating the site-specific circumstances concerning the District and its discharge.

Water Agencies Comment #87: Nitrification/denitrification and tertiary filtration can be implemented at significantly lower costs than have been estimated by the Sanitation District.

Response: Central Valley Water Board staff concurs. Although it is true that the existing pure-oxygen secondary treatment process may need to be modified to accommodate nitrification, the estimates provided by the District are conservative and based on preliminary design estimates. In its preliminary cost estimate, the District used a peaking factor that is inconsistent with wastewater discharge flows. Additionally, the District did not use data from its own membrane filtration pilot studies and proposed water reclamation treatment plan expansion plans.

Water Agencies Comment #88: Measures are available to reduce compliance time frames and reduce ammonia/um loading in the near term.

Response: Central Valley Water Board staff concurs. The District is required to prepare an ammonia pollutant minimization plan. The plan must include evaluation of short-term ammonia controls.

Water Agencies Comment #89: Socioeconomic analysis mandates that the treatment plant implement BPTC.

Response: Comment noted. See SRCSD Response to Comment #36 through 40. Regional Board staff has evaluated costs pertaining to the discharge, including the District's Cost/Benefits analysis and studies provided by the water agencies, BIA, and the University of Pacific study, and contends that the proposed waste discharge requirements that require tertiary filtration and full nitrification result in the best practicable treatment or control of the discharge.

Water Agencies Comment #90: The cost for nitrification/denitrification is reasonable.

Response: Comment noted.

Water Agencies Comment #91: The cost for full BPTC is reasonable.

Response: Comment noted.

Water Agencies Comment #92: The regional economic impacts of BPTC are minimal.

Response: Central Valley Water Board staff does not concur that the regional economic impacts of BPTC are minimal. However, the economic impacts are no more than other communities that have had to upgrade their wastewater treatment plants to meet advanced treatment requirements.

Water Agencies Comment #93: The Sanitation District must consider the socioeconomic impacts it is causing to the areas served by (State Water Project) SWP and (Central Valley Project) CVP water.

Response: Central Valley Water Board staff concur that the District did not consider socioeconomic impacts for their discharge to downstream users. As the Water Agencies point out however, the monetary costs of the impacts are difficult to determine. See response to SRCSD Comment #1.

Water Agencies Comment #94: The proposal in the tentative order to require nutrient removal and filtration is consistent with California's fundamental water policy.

Response: Comment noted.

Water Agencies Comment #95: Given the continued water quality degradation and harm caused by the Treatment Plant, as well as the lack of any plan by the Sanitation District to reduce that degradation and harm, the Regional Board should shift the compliance schedule and any interim requirements into a separate Cease and Desist Order, instead of including those in the permit, as in the Tentative Order. That will enhance the Regional Board's ability to enforce the requirements.

Response: See Response to Comment #2.

Water Agencies Comment #96: An opportunity for public comment should occur before adoption of a pollution prevention plan.

Response: Central Valley Water Board staff concur and will make the proposed pollution prevention plans available to the public for submittal of comments to Central Valley Water Board staff, prior to staff approval. A separate approval by public hearing is not planned.

Water Agencies Comment #97: The Regional Board cannot adopt the tentative NPDES permitting options until further Regional Board staff analysis is complete.

Response: The tentative permit will include the required analyses for the alternative options. Separate findings and fact sheet information will be included to support the options. Depending on the circumstances, whether certain alternatives are chosen may require postponing a final decision until a future board meeting.

Water Agencies Comment #98: Dilution Alternatives – dilution for acute and chronic life criteria should not be allowed in the Final Order.

Response: Comment noted.

Water Agencies Comment #99: Dilution Alternatives – The California Department of Public Health (DPH) should be consulted regarding the allowance of dilution for human carcinogen criteria.

Response: A special consultation is not needed. DPH had an opportunity to comment on both the Human Health Issue paper and the Tentative permit and chose not to provide specific guidance.

Water Agencies Comment #100: Disinfection Alternative 1 is not protective of beneficial uses and should not be adopted.

Response: Comment noted.

Water Agencies Comment #101: Ammonia Removal Alternatives 1 and 2 are not protective of beneficial uses and should not be adopted.

Response: Comment noted.

Water Agencies Comment #102: Nitrate Removal Alternative 1- Effluent limits for nitrate based on primary MCL needs further analysis and modeling.

Response: Central Valley Water Board staff does not concur. Staff understands the nuances of considering the nitrate MCL as the basis of a nitrate limitation versus the use of a limit that is “technically feasible”. The Water Agencies offer to assist in the nutrient analysis is appreciated.

Water Agencies Comment #103: The Water Agencies strongly support the tentative order’s requirement that the Sanitation District update its treatment plant to incorporate ammonia removal through nitrification as BPTC and for the protection of beneficial uses. The tentative permit provides sufficient support for

the determination; however, additional support is provided in the Water Agencies' comments, attachments and references.

Response: Comment noted.

Water Agencies Comment #104: The Water Agencies strongly support the tentative order's requirement that the Sanitation District update its treatment plant to incorporate nitrate removal through denitrification as BPTC and for the protection of beneficial uses. The tentative permit provides sufficient support for the determination; however, additional support is provided in the Water Agencies' comments, attachments and references.

Response: Comment noted.

Water Agencies Comment #105: The Water Agencies strongly support the tentative order's requirement that the Sanitation District update its treatment plant to incorporate pathogen removal through tertiary filtration as BPTC and for the protection of beneficial uses. The tentative permit provides sufficient support for the determination; however, additional support is provided in the Water Agencies' comments, attachments and references.

Response: Comment noted.

Water Agencies Comment #106: The Water Agencies strongly support the tentative order's determination that a mixing zone for acute aquatic life criteria should not be granted. The tentative permit provides sufficient support for the determination; however, additional support is provided in the Water Agencies' comments, attachments and references.

Response: Comment noted.

Water Agencies Comment #107: The Water Agencies strongly support the tentative order's determination that a mixing zone for ammonia/um should not be granted. The tentative permit provides sufficient support for the determination; however, additional support is provided in the Water Agencies' comments, attachments and references.

Response: Comment noted.

Water Agencies Comment #108: The Water Agencies support the pathogen monitoring requirements in the tentative order.

Response: Comment noted.

Water Agencies Comment #109: The Water Agencies support the Regional's proposal to require effluent (Tables E-3a and E-3b), and receiving water (Table

E-6b) monitoring that includes certain CECs. See e.g., Table E-3b, n.8 and Table E-6b, n.6 (referring to chemicals classified as “Other Constituents of Concern”).

Response: Comment noted.

Water Agencies Comment #110: The Water Agencies support the requirement in Attachment I to conduct and “Effluent and Receiving Water Characterization Study.”

Response: Comment noted.

Water Agencies Comment #111: The Water Agencies support the inclusion of an effluent limit on salinity and a requirement for a salinity minimization plan in the final order.

Response: Comment noted.

Water Agencies Comment #112: The final order should require that nutrient removal be incorporated in the shortest practicable time with milestones enforceable through a Cease and Desist Order.

Response: See response to Water Agencies Comment # 2.

Water Agencies Comment #113: The Regional Board should issue a Cease and Desist Order and require the treatment plant to submit a plan within 60 days that would propose as part of the Pollution Prevention Plan a set of Interim Measures to reduce the mass of total ammonia/um and nitrogen loadings in the effluent each year until full nitrification and denitrification facilities are completed. The interim measures plan should be made available to the public for review and comment prior to implementation.

Response: See response to Water Agencies Comment #2 and other responses above pertaining to interim limitations.

Water Agencies Comment #114: The tentative order sets an interim maximum daily effluent limit for ammonia/um at 45 mgL^{-1} , allowing a doubling of ammonium discharges into the Sacramento River and Bay-Delta over the next ten years. The Final Order needs to set interim average monthly, average weekly and maximum daily effluent limits form ammonium concentration and load the, at a minimum, do not allow an increase over current discharge levels.

Response: See response to Water Agencies Comment # 2.

Water Agencies Comment #115: The tentative order does not set any effluent limits for total nitrogen. The final order needs to set average monthly, average

weekly and maximum daily effluent limits for total nitrogen that, at a minimum, do not allow any increase over current discharge levels during the interim period and correspond to decreased nitrogen loading once full nitrification/denitrification facilities are operational.

Response: See response to Water Agencies Comment # 24.

Water Agencies Comment #116: The tentative order does not set any effluent limits for total phosphorus. The final order needs to set average monthly, average weekly and minimum daily effluent limits for total phosphorus that do not allow any increase over current discharge levels.

Response: Information is not available to demonstrate that the phosphorous concentration in the District's effluent is impacting the nutrients loading of the Sacramento River. The proposed permit requires monitoring for Total Phosphorus, in order to provide information for future Board consideration of permit requirements necessary for further nutrients control.

Water Agencies Comment 117: Table E-3a in the monitoring and reporting program should be expanded to include total phosphorus monitoring of the effluent at least monthly. Table E-6b needs to include monitoring for nutrients (ammonia/um, nitrite, nitrate, total Kjeldahl nitrogen and total phosphorus) in the receiving water at least monthly. And, Table I-1 needs to specify method detection limits for ammonia/um, total phosphorus, nitrate, nitrite, and total Kjeldahl nitrogen no higher than $10 \mu\text{g L}^{-1}$ to detect environmentally relevant concentrations.

Response: Central Valley Water Board concurs that the tentative NPDES permit should require monitoring for the above listed nutrients. The proposed permit has been modified to include effluent and receiving water monitoring for ammonia, nitrite, nitrate, TKN and phosphorus. See response to Water Agencies Comment #33 regarding method detection levels.

Water Agencies Comment #118: The tentative order allows an increase in the allowable pH range from 6.0 – 7.5 as a 1-hour average to a range of 6.5-8.5 as an instantaneous minimum and maximum. No increase in pH should be allowed in the final order.

Response: See response to Water Agencies Comment # 34.

Water Agencies Comment #119: The final order should require that tertiary filtration be incorporated in the shortest practicable time with milestones enforceable through a Cease and Desist Order.

Response: See response to Water Agencies Comment # 2.

Water Agencies Comment #120: The Regional Board should require the Sanitation District to cooperate with the DWR MWQI Program in a planned pathogen study in the vicinity of the discharge in 2011 and provide effluent samples and the data collected by the Sanitation District as part of its routine monitoring program.

Response: Comment noted.

Water Agencies Comment #121: The final order should not allow a mixing zone for chronic aquatic life criteria.

Response: See response to CSPA Comment # 17.

Water Agencies Comment #122: The final order should explicitly acknowledge that the Sanitation District's wastewater is discharged into a water body listed on the CWA 303(d) list for chlorpyrifos, DDT, diazinon, exotic species, group A pesticides, mercury, polychlorinated byphenyls (PCBs) and unknown toxicity. The final order needs to set effluent limits including mass limits for ALL listed constituents.

Response: See response to CSPA comment # 4 and #18.

Water Agencies Comment #123: The final order should include a finding that the Basin Plan requires the consideration of additive toxicity. This finding is relevant to conducting the Reasonable Potential Analysis, determining in effluent limits, and in the antidegradation analysis. Metals such as Cu, Cd, Zn and Pb are known to be additive. Pyrethroids are additive. Cu, as an acetylcholineesterase inhibitor in salmon, should also be considered additive with the OP pesticides.

Response: See response to CSPA comment # 11.

Water Agencies Comment #124: The tentative order relies on a reasonable potential analysis for hardness-dependent metals that uses incorrect statistical multipliers as required by Federal regulations, 40 CFR § 122.44(d)(1)(ii). The final order needs to establish effluent limitations for metals based on the hardness of the ambient upstream receiving water hardness as required by Federal Regulations, the California toxics Rule (CTR, 40 CFR 131.38(c)(4)). The tentative order likely underestimated the toxic effect of metals during the RPA and additional effluent limits are likely required for constituents such as copper, lead, zinc and aluminum. Effluent limits should also be considered for pesticides and TDS.

Response: See response to CSPA comment # 6.

Water Agencies Comment #125: The monitoring and special studies plan should describe a WET testing program that is designed to maximize the ability to identify toxicants, and to answer the questions that are implicitly raised in the permit.

Response: See response to CSPA comment # 23 and Water Agencies Comment #44 above.

Water Agencies Comment #126: No manipulation of the effluent to control for ammonia or pH should be allowed.

Response: Central Valley Water Board staff concurs. The proposed NPDES permit has been modified to not allow exclusion of ammonia in the required WET testing. See response to Water Agencies Comment #44 above.

Water Agencies Comment #127: The upstream ambient river water should be used as the dilution water.

Response: Comment noted. See response to Water Agencies Comment #44 above.

Water Agencies Comment #128: The fish for acute testing should be as young as possible, consistent with the lower range given in the acute methods.

Response: Comment noted. The tentative Order includes acute and chronic whole effluent toxicity (WET) testing conducted on the most sensitive of species to determine whether the effluent discharge causes adverse effects to the beneficial uses of the receiving water. See response to Water Agencies Comment #44 above.

Water Agencies Comment #129: TIE manipulations to address ammonia toxicity need to be carefully designed since controlling or elimination ammonia will alter or eliminate other potential toxicants as well, such as metals, surfactants and certain types of organics.

Response: Comment noted.

Water Agencies Comment #130: Rainbow trout testing should be added to the suite of test species; however, fathead minnow testing should not be removed from the chronic tests. Both fish species should be used in chronic testing.

Response: See response to Water Agencies Comment # 44.

Water Agencies Comment #131: The use of *Hyalella* should augment the list of species tested, and not be a replacement for *Ceriodaphnia*.

Response: See response to Water Agencies Comment # 44.

Water Agencies Comment #132: The approach to algal testing needs to be re-examined in light of the known algal toxicity to ammonium and the indication that a second toxicant is likely present.

Response: Comment noted.

Water Agencies Comment #133: Concurrent chemistry analysis should be required during all chronic and TIE testing.

Response: See response to CSPA comment # 23.

Water Agencies Comment #134: The toxicity effluent limit should reflect the worst case dilution scenario. If the permit is not modified to incorporate an enforceable chronic WET limit equivalent to the worst case instream waste concentration (IWC), as the proposed toxicity policy requires, the 6 TUs in the proposed permit should change from being a trigger to being an enforceable effluent limit.

Response: The 6 TUs have been changed to 8 TUs. See response to SRCSD comment #65. Also, see response to CSPA comment # 23.

Water Agencies Comment #135: The Regional Board has appropriately included NDMA as one of its priority pollutants to be monitored for in the Sanitation District's Waste Discharge Requirements. N-Nitrosomorpholine (NMOR) is a nitrosamine that is commonly found in wastewater effluent, and should also be included in Tables E-3b and E-6b of "Other Constituents of Concern" to be monitored.

Response: The proposed permit requires monitoring for NDMA, NEMA and NDEA. If all these nitrosamines are detected, the permit monitoring may be expanded to include NMOR.

Water Agencies Comment #136: The final order should require the Sanitation District to cooperate and participate in studies to advance the state of knowledge of CECs in California's water systems, particularly in a planned follow-up study to the National Water Research Institute funded study of the occurrence, fate and transport of PPCPs in three California watersheds.

Response: See Response to CSPA comment #20.

Water Agencies Comment #137: The final order should require the Sanitation District to implement CEC Science Advisory Panel monitoring requirements for water recycling activities.

Response: See response to CSPA comment # 20.

Water Agencies Comment #138: The final order should include reopeners that would allow increases in CEC monitoring requirements based on the findings of the Emerging Constituents Workgroup and that would apply the same types of CEC-monitoring requirements on the Sanitation district as are imposed on downstream user of Delta water.

Response: See response to CSPA comment # 20.

Water Agencies Comment #139: The final order should include representative CEC monitoring that is indicated in the draft and upcoming final Groundwater Recharge Reuse Regulation into the monitoring program requirements.

Response: See response to CSPA comment # 20.

Water Agencies Comment #140: The final order should require the Sanitation District to conduct a focused public education and outreach campaign on pharmaceutical disposal and a source control study.

Response: Comment noted.

Water Agencies Comment #141: The final order should require the Sanitation District to submit a CEC adaptive monitoring strategy to address and account for anticipated changes in the state of scientific knowledge and state wide regulatory guidance involving CECs.

Response: See response to CSPA comment # 20.

Water Agencies Comment #142: The tentative order grants the Sanitation District's request for an expanded exception to the Thermal Plan. The Sanitation District has not shown that the Thermal Plan is more protective than necessary to protect and propagate ESA listed fish species and other aquatic organisms utilizing the reach of the Sacramento River affected by its discharge. The Final Order should therefore reject the Sanitation District's request for an exception to the Thermal Plan.

Response: See response to CSPA comment # 19 and response to SRCSD Comment #63.

Water Agencies Comment #143: The final order should be modified to set a limit of annual average effluent electrical conductivity no greater than 595 $\mu\text{mhos cm}^{-1}$ to avoid increasing the salt load.

Response: See response to Water Agencies Comments # 69 and #71.

Water Agencies Comment #144: The Regional Board should address its Region-Wide effort to reduce salinity by setting an annual salinity load consistent with current conditions, as was done for the University of California, Davis, wastewater treatment plant permit, and then requiring a certain percentage decrease in allowable salt load each year, following the approach applied by the Regional Board for the Grassland Bypass Project.

Response: Comment noted. See response to Water Agencies Comments # 69 and #71.

Water Agencies Comment #145: The final order needs to set mass-based limits for chloride and TDS, as salt load and weekly and monthly average concentration limits.

Response: See response to Water Agencies Comments # 69 and #71 and response to CSPA comment # 14.

Water Agencies Comment #146: The Final Order needs to specify that the Salinity Evaluation and Minimization Plan identify specific effective and implementable source control measures.

Response: See response to Water Agencies Comment #73

Water Agencies Comment #147: The Regional board should reject the Sanitation District's proposal to use an improper baseline in applying Antidegradation Policy to the treatment plant's discharge.

Response: See SRCSD Response to Comments #36 through 40 and especially SRCSD Response to Comments #39.

Water Agencies Comment #148: Nitrification/denitrification and tertiary filtration can be implemented at significantly lower costs than have been estimated by the Sanitation District.

Response: Comment noted.

Water Agencies Comment #149: Measures are available to reduce compliance time frames to implement BPTC. The final order should require that the Sanitation district consider alternative project approaches such as Construction Manager at-risk, Design-Build, and phased or modular construction and require that BPTC be implemented in the shortest practicable time with milestones enforceable through a Cease and Desist Order.

Response: There is no legal requirement to enforce such requirements through a cease and desist order. A time schedule order is in place for pH, N-nitrosodimethylamine, and 1,2 diphenylhydrazine and

dibenzo(a,h)anthracene for five years as allowed by the Clean Water Act and California Water Code. There is also a compliance schedule in place for tertiary treatment and ammonia, for 10 years as allowed under the Compliance Schedule Policy. Upon further review of chlorpyrifos requirements in the Basin Plan, it has been determined that the compliance schedule for chlorpyrifos is not allowed in the permit and has been moved to the proposed Time Schedule Order. Finally, additional interim milestones and dates are established in the Tentative Permit and time schedule order in order to ensure, as practicably soon as possible, whether the District will meet its compliance date.

Water Agencies Comment #150: The Water Agencies request that the final order include a requirement to immediately notify downstream drinking water agencies if there are spills of untreated or partially treated wastewater from the Sanitation District's facilities into the Sacramento River and Bay-Delta waters. Attachment 3 is contact information for the agencies that should be notified.

Response: Notification requirements have been added to the Standard Provisions.

Water Agencies Comment #151: The tentative order requires that self-monitoring reports be submitted in hard copy until the State Water Board's California Integrated Water Quality System Program website is available. The final order should require that self-monitoring reports be submitted in excel spreadsheet (or equivalent data format) and made available to the public upon adoption of the final order.

Response: Self-monitoring reports submitted by the Discharger are public documents and can be reviewed upon request.

Water Agencies Comment #152: The tentative order requires that the Sanitation District conduct five Special Studies and to submit workplans and time schedules within 90 days from adoption of the final order (See tentative order at pp. 25-29). The Water Agencies request that draft workplans be prepared with 60-days of permit adoption and be release for public review and comment before approval by the Regional Board.

Response: The proposed permit, once adopted, will not become effective until 50 days after adoption. Central Valley Water Board does not concur 60-days is sufficient time for the Discharger to prepare and submit work plans and time schedules. Therefore, the proposed number of days after permit adoption for the work plans and time schedules remains unchanged.

The work plans and time schedules will be made available to the public for review. Public comments may be submitted to Board staff and the Executive Officer for their consideration in the review of the plans for approval.

California Sportfishing Protection Alliance (CSPA)

General Comment – CSPA expresses concern that because “*Sensitive life stages of listed species are present near the outfall twelve months of the year and subject to multiple stressors. [And] The river reach is a major water contact recreational area enjoyed by thousands of anglers and water enthusiasts. [And] A major drinking water intake is located upstream, within the tidal prism, and a profusion of agricultural diversions are located downstream. It is imperative that discharges of wastewater into this sensitive river reach in an estuary that is experiencing ecosystem collapse be subject to the most rigorous regulatory treatment standards. Inexplicably, for many years, Sacramento Regional’s wastewater plant has been exempted from requirements routinely applied to other wastewater treatment facilities in the region. We appreciate [Central Valley Water Board] staff’s acknowledgement of the serious impacts to beneficial uses that have resulted from Sacramento Regional’s discharge of inadequately treated wastewater to the Sacramento River.*”

Response: Comment noted.

CSPA Comment #1: The proposed permit, Finding P, page 11, regarding endangered species protection should be modified to state that the discharge of toxic constituents in toxic concentrations will continue for 10 years, which may result in the “taking” of endangered species. CSPA contends that the Regional Board and/or EPA must enter into formal consultation with both the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of ESA, and that the discharge is a violation of Section 9 of ESA that requires an incidental take permit pursuant to Section 10 of the ESA. CSPA further contends that the Regional Board’s issuance of an Order that authorizes and /or “causes” an illegal “take” is also a violation of Section 9 of the ESA; consequently, both the Discharger and the Regional Board must secure incidental take permits from NMFS and USFWS.

Response: First, Section 7 of ESA 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. 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].) Furthermore, the Central Valley 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 tentative Order, Finding P, states, in part, “the Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.” Thus, the Order explicitly provides that it does not authorize a take. Any obligation to acquire a take permit is the *Discharger’s* obligation; engaging in any take without obtaining necessary permits would go beyond the permitted operations of the facility.

Finally, Central Valley Water Board staff complied with the endangered species-related notice requirements by providing notice of the Order to the Department of Fish and Game (DFG), the United States Fish and Wildlife Service (USFWS), and the United States Department of Commerce, National Oceanic and Atmospheric Administration – National Marine Fisheries Service (NFMS). 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. These agencies submitted comments (See Staff Response to SRCSD Comment #63)

CSPA Comment #2: The proposed Permit fails to list bis(2-ethylhexyl)phthalate in the Emergency Planning and Community Right to Know Act assessment. Bis(2-ethylhexyl)phthalate is reportable to the Toxic Release Inventory (TRI) under section 313 of the Emergency Planning and Community Right-to-know Act (EPCRA). A discussion in the Regional Board [proposed] permits with regard to bis(2-ethylhexyl)phthalate and EPCRA could not be located.

Response: Central Valley Water Board staff reviewed the TRI database and summarized these constituents in the Fact Sheet, Section III.C.7. Emergency Planning and Community Right to Know Act, of the tentative Order. The TRI database did not list bis(2-ethylhexyl)phthalate as a constituent discharged off-site or into the Discharger’s collection system; consequently, it was not discussed in Section III.C.7 of the Fact Sheet. However, the tentative Order does contain bis(2-ethylhexyl)phthalate effluent limitations because concentrations in the effluent demonstrate that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above the most stringent numeric water quality objective for

bis(2-ethylhexyl)phthalate, pursuant to Section 13263.6 of the California Water Code.

CSPA Comment #3: Effluent Limitations for aluminum and specific conductivity (EC) are improperly regulated as an annual average contrary to Federal Regulations 40 CFR 122.45(d)(2). The Regional Board is required to protect the instream municipal and domestic beneficial uses. Limiting these constituents to be regulated on an annual average will allow for shorter term peaks above the secondary MCLs directly impacting the numerous documented downstream domestic water users. State regulations can be more stringent than required by federal regulation but there is no such citation or allowance to be less stringent. Annual average limitations are less stringent than allowed under 40 CFR 122.45.

Response:

Aluminum. The tentative Order contains aluminum effluent limitations as a maximum daily, a monthly average, and an annual average. Combined, these aluminum effluent limitations are more stringent than required by federal regulations. The average monthly and maximum daily effluent limitations are based on USEPA's National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum to protect the beneficial uses of the receiving water. The annual average effluent limitation for aluminum is based on the Secondary MCLs. 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 beneficial use. Central Valley Water Board staff has determined that an averaging period similar to what is used by California Department of Public Health for those parameters regulated by Secondary MCLs is appropriate, and that using shorter averaging periods is impracticable because it sets more stringent limits than necessary.

Electrical Conductivity (EC). There are no USEPA water quality criteria for the protection of aquatic organisms for EC. However, the Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for EC. Central Valley Water Board staff conducted a reasonable potential analysis that used USEPA's recommended mass-balance approach to determine the expected critical downstream receiving water concentration. As detailed in the Fact Sheet of the tentative Order,

the maximum instream EC concentration is less than all applicable water quality standards for EC, and therefore, there is no reasonable potential for the discharge to cause or contribute to an instream excursion. However, since the discharge is into the Sacramento-San Joaquin Delta, the tentative Order contains a performance-based effluent limitation as an annual average. Federal regulations, 40 CFR 122.44(d)(1)(i), only requires NPDES permits to contain limits that control pollutants when a discharge demonstrates reasonable potential. Therefore, the inclusion of this annual average effluent limitation in the tentative Order is more stringent than required by federal regulations.

CSPA Comment #4: The proposed Permit fails to contain mass-based effluent limits as required by Federal Regulations 40 CFR 122.45(b).

Response: 40 CFR 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) 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 in the tentative Order are based on water quality standards and objectives. These are expressed in terms of concentration. Pursuant to 40 CFR 122.25(f)(1)(ii), expressing the effluent limitations in terms of concentration is in accordance with federal regulations.

However, mass limitations for oxygen demanding substances, bioaccumulative substances, and constituents with an associated 303(d) listing are included in the tentative Order. The tentative Order specifically includes mass limitations for 1) BOD₅, TSS, and ammonia since they are oxygen demanding substances, and 2) mercury since it is a bioaccumulative constituent and a TMDL is pending. For those pollutant parameters for which effluent limitations are based on water quality standards and objectives that are concentration-based, mass-based effluent limitations are not included in the tentative Order.

CSPA Comment #5: The proposed Order does not contain effluent limitations for aluminum in accordance with Federal Regulations 40 CFR 122.44, US EPA's interpretation of the regulation, and California Water Code, Section 13377.

Response: The chronic criterion (87µg/L) recommended by the USEPA Ambient Water Quality Criteria for Aluminum is based on studies conducted on waters with low pH (6.5 to 6.8 pH units) and hardness (<10 mg/L as CaCO₃), which are conditions not commonly observed in 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 CaCO₃ 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 CaCO₃, the Department regulates aluminum based on the 750 µg/L acute criterion. In the case of Sacramento River the available data indicates that the pH ranges from 6.4 to 8.8 standard units with the median at 7.6 standard units, and hardness values that range from 26 to 100 mg/L with a median of 58 mg/L as CaCO₃. It is likely 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 tentative NPDES Permit.

The crux of CSPA's claim is that the Regional Board has circumvented the legal water quality standards development process and applied the recommended water quality levels for Utah in NPDES permits. This claim is misplaced. The Regional Board is not specifically adopting the "Utah" criteria as a condition in only applying the acute criterion of 750 micrograms per liter in the tentative NPDES permit. It is entirely appropriate, as the Regional Board has done in this case, to use its best professional judgment to establish an acute criterion of 750 micrograms per liter to interpret the narrative toxicity standard in the Basin Plan. This approach was based upon applying EPA-recommended aluminum criteria as an interpretation of the narrative toxicity standard in the Basin Plan.

CSPA Comment 6: The Central Valley Regional Water Board (Region 5) NPDES Permits establish Effluent Limitations for metals based on the hardness of the effluent and/or the downstream water and rarely use the ambient upstream receiving water hardness as required by Federal Regulations, The California Toxics Rule (CTR, 40 CFR 131.38(c)(4)). Central Valley Regional Water Board's approach in using the downstream hardness to conduct a reasonable potential analysis (RPA) uses the allowance of a mixing zone prior to conducting the RPA, which is inappropriate and unprotective of the receiving water aquatic life beneficial use.

Response: The tentative Order has established the criteria for hardness-dependant metals based on the reasonable worst-case estimated ambient hardness as required by the SIP, the CTR, and Order No. R5-2008-0008 (City of Davis). The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4), Table 4, note 4.) The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. Therefore, the State Water Board concluded that where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Davis Order, p. 11).

In the Davis Order, the State Water Board points out that the requirements for selecting the appropriate hardness for calculating the CTR metals criteria is conflicting in the CTR and the SIP. The CTR requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones (e.g., 1Q10 and 7Q10 receiving water low flows); whereas, the SIP's steady-state method requires the selection of critical or worst-case parameters. These can be in conflict for hardness, because often in receiving waters the critical worst-case hardness conditions do not coincide with the design low flow conditions. The lowest hardness conditions typically occur during high river flows, due to the low hardness in surface runoff from precipitation or snowmelt. The State Water Board concludes that, "*Thus, the regional water boards have considerable discretion in the selection of hardness. Regardless of which method is used for determining hardness, the selection must be protective of water quality criteria, given the flow conditions under which the particular hardness exists.*" (*Id.*, p.10.).

In the tentative Order, the reasonable worst-case estimated downstream ambient hardness was used for calculating the CTR criteria. As shown in Tables F-6 through F-8, the calculated CTR criteria are protective under

all discharge and flow conditions assuming worst-case conditions for upstream ambient hardness and metals concentrations.

CSPA contends that the upstream ambient receiving water hardness must be used to calculate the CTR metals criteria. The approach used in the tentative Order establishes the hardness based on the downstream mixed hardness. This is appropriate, because the effluent includes metals and hardness. It is impossible to discharge one without the other. Not considering the hardness of the effluent can result in toxicity as the discharge mixes with the receiving water. Using the minimum observed upstream receiving water hardness in this case would result in more stringent criteria, but CSPA does not discuss what would happen in cases where the effluent hardness is lower than the upstream receiving water hardness. Following CSPA's advice, effluent limitations for metals would be set where the effluent is toxic and would need to be mixed with the higher hardness receiving water to meet the CTR criteria. Central Valley Water Board staff doubts CSPA would condone such a discharge.

CSPA quotes the CTR with regards to a concern when an effluent raises the hardness of the receiving watering. It states, "*A hardness equation is most accurate when the relationship between hardness and the other important inorganic constituents, notably alkalinity and pH, are nearly identical in all of the dilution waters used in the toxicity tests and in the surface waters to which the equation is to be applied. If an effluent raises hardness but not alkalinity and/or pH, using the lower hardness of the downstream hardness might provide a lower level of protection than intended by the 1985 guidelines.*" (Federal Register, Volume 65, No. 97/Thursday, May 18th 2000 (31692)) CSPA asserts this means that the upstream receiving water hardness must be used in the CTR equations. Effluents from municipal wastewater treatment plants have similar characteristics to the receiving water with regard to the relationships between hardness, alkalinity, and pH. Municipal wastewater treatment plants must maintain neutral pH and sufficient alkalinity for the biological processes to work properly, especially for nitrification. Therefore, the condition that the CTR warns against is not present in municipal wastewater treatment plant effluent. This language in the CTR confirms that "ambient" may be defined as downstream of the discharge after mixing with the effluent, thus, the use of downstream mixed hardness is appropriate under these conditions as the State Water Board found in the Davis Order.

CSPA takes the State Water Board's quotes out of context in the Davis Order (WQ 2008-0008). For the City of Davis NPDES permit, the upstream receiving water hardness was used. However, in the City of Davis NPDES permit the use of the lowest hardness during low flows was

used, rather than the lowest hardness during all flow conditions. The State Water Board found that in order to account for acute conditions that may occur even during high flows, the Central Valley Water Board must consider the hardness of the receiving water during all flow conditions, high and low. CSPA takes this statement as a requirement to only use the upstream receiving water hardness. However, the State Water Board actually concluded that where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Davis Order, p. 11).

CSPA contends that since a lower effluent limit would be required using the minimum observed upstream ambient hardness to calculate the CTR criteria, that this means a mixing zone and dilution is required. This is not accurate. Although a lower effluent limit can be calculated, dilution is not needed. The criteria are dependent on hardness, so the criteria changes as the hardness changes downstream. A mixing zone is a zone near the point of discharge where criteria are not met. A mixing zone is needed when the effluent exceeds criteria and requires mixing and dilution with the receiving water before the criteria are met. As shown in Tables F-6 through F-8 of the Fact Sheet (Attachment F), considering the known conditions and using worst-case assumptions, the effluent does not exceed the criteria and any mixture of effluent and receiving water does not exceed the criteria. A mixing zone is therefore not necessary in this situation.

CSPA further provides a discussion of the biological opinion from the US Fish and Wildlife Service and National Marine Fisheries Service on the promulgation of the CTR. Because the biological opinion was submitted on the proposed CTR rulemaking, US EPA would have considered the specific comment in the development of the final rulemaking of the CTR. Therefore, these comments by CSPA are directed at the CTR, not the tentative Order, which must comply with the final CTR and SIP. In addition, the biological opinion is not in the record for this permitting action. Central Valley Water Board staff properly applied the SIP and CTR when establishing WQBELs for the CTR metals with hardness-dependent criteria.

CSPA Comment 7: The Regional Board failed to use the most current criteria for copper resulting in the proposed permit containing an inadequate effluent limitation in accordance with 40 CFR 122.44.

Response: Copper is a CTR priority pollutant. The CTR contains water quality criteria for copper based on hardness, and also contains

conversion factors and WER to adjust the copper criteria. The default WER within the CTR is not outdated. For pollutants listed in the CTR, such as copper, the SIP establishes a step-by-step procedure for determining reasonable potential and developing water quality-based effluent limitations (WQBELs). Central Valley Water Board staff properly applied the CTR and SIP, following current guidance and direction from US EPA when establishing the WQBELs for the copper in the tentative NPDES Permit.

As CSPA commented, US EPA has also promulgated an objective for copper based on the BLM (*Aquatic Life Ambient Freshwater Quality Criteria—Copper 2007 Revision*). The BLM cannot be used in developing WQBELs in NPDES permits; a Basin Plan amendment allowing adjustment of an established criteria must be completed, or US EPA must change the CTR. Therefore, these comments by CSPA are directed at the CTR, not the tentative Order, which must comply with the final CTR and SIP.

CSPA Comment 8: The proposed Permit fails to contain a protective Effluent Limitation for copper in violation of the California Toxics Rule, Federal Regulations (40 CFR 122.44), the California Water Code (CWC), Section 13377 and the State's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP).

Response: As previously stated in the Response to CSPA's Comment #6, and as shown in Tables F-6 through F-8 in the Fact Sheet of the tentative Order, the copper effluent limitations contained in the tentative Order are protective under all discharge and flow conditions assuming worst-case conditions for upstream ambient hardness and metals concentrations. Central Valley Water Board staff properly applied the SIP and CTR when establishing WQBELs for the CTR metals with hardness-dependent criteria.

CSPA Comment 9: The proposed Permit fails to contain an Effluent Limitation for lead in violation of the California Toxics Rule, Federal Regulations (40 CFR 122.44), the California Water Code (CWC), Section 13377 and the State's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP).

Response: Lead is a hardness-dependant metal. As previously explained in the Response to CSPA's Comment #6, and as detailed in the Fact Sheet, the tentative Order has established the criteria for hardness-dependant metals based on the reasonable worst-case estimated ambient

hardness as required by the SIP, the CTR, and Order R5-2008-0008 (City of Davis). In this case for lead, two effluent concentration allowance calculations were used, one based on the minimum observed upstream receiving water hardness and one based on the maximum observed upstream receiving water hardness. Lead in the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life. Therefore, the tentative Order appropriately does not contain an effluent limitation for lead.

CSPA Comment #10: The proposed Permit fails to contain an Effluent Limitation for zinc in violation of the California Toxics Rule, Federal Regulations (40 CFR 122.44), the California Water Code (CWC), Section 13377 and the State's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP).

Response: Zinc is a hardness-dependant metal. As previously explained in the Response to CSPA's Comment #6, and as detailed in the Fact Sheet, the tentative Order has established the criteria for hardness-dependant metals based on the reasonable worst-case estimated ambient hardness as required by the SIP, the CTR, and Order R5-2008-0008 (City of Davis). Zinc in the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life. Therefore, the tentative Order appropriately does not contain an effluent limitation for zinc.

CSPA Comment #11: The proposed Permit fails to implement the requirements of the Basin Plan, *Implementation, Policy for Application of Water Quality Objectives* with regard to additive toxicity.

Response: Central Valley Water Board staff acknowledges the potential impact to aquatic life and human health as a result of additive toxicity. This impact would particularly be expected when discharges of the pollutants of concern (e.g., copper, lead, and zinc) are discharged at the same time and at levels that exceed applicable water quality objectives during critical low flow times. An accurate evaluation of additivity would therefore require extensive data collection and analysis. Alternatively, the Central Valley Water Board uses several mechanisms within a permit to protect against toxic and carcinogenic effects. For this Discharger, the Central Valley Water Board establishes WQBELs designed to be protective of receiving water quality (based on applicable water quality objectives established to protect against acute and chronic toxicity and human health carcinogenicity). In addition, the Central Valley Water Board requires

whole effluent toxicity (WET) testing designed specifically to determine whether the combination of pollutants contained in a discharge result in acute or chronic toxic effects.

CSPA Comment #12: The proposed permit contains an inadequate reasonable potential analysis (RPA) by using incorrect statistical multipliers as required by Federal regulations, 40 CFR § 122.44(d)(1)(ii).

Response: Until adoption of the State Water Board’s Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP), USEPA’s *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991 (TSD) was the normal protocol followed for permit development for all constituents. The SIP is required only for California Toxics Rule (CTR) and National Toxics Rule (NTR) constituents and prescribes a different protocol when conducting an RPA, but is identical when developing water quality based effluent limitations (WQBELs). For some time after SIP adoption, SIP protocols were used for CTR/NTR constituents, and TSD protocols were used for non-CTR/NTR constituents. While neither protocol is necessarily better or worse in every case, using both protocols in the same permit has led to confusion by dischargers and the public, and to greater complexity in writing permits. Currently there is no State Water Board or Central Valley Water Board policy that establishes a recommended or required approach to conduct an RPA or establish WQBELs for non-CTR/NTR constituents. However, the State Water Board has held that the Central Valley Water Board may use the SIP as guidance for water quality-based toxics control. The SIP states in the introduction “*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency.*” Therefore, for consistency in the development of NPDES permits, the Central Valley Water Board has begun to use the RPA procedures from the SIP to evaluate reasonable potential for both CTR/NTR and non-CTR/NTR constituents. Consistent with the RPA procedure from the SIP, the RPA for the tentative Order was not performed using statistical multipliers to determine if effluent limitations are needed.

CSPA Comment #13: The proposed Permit contains a compliance time schedule “effective immediately and ending on 30 November 2020” to meet the discharge limitations for BOD, TSS, ammonia, coliform organisms, chlorine and chlorpyrifos that exceeds the requirements of the Basin Plan. The Regional Board has not presented any reasonable defense that the allotted compliance schedule is “based on the shortest practicable time.”

Response: The tentative Order contains new effluent limitations for ammonia and chlorpyrifos, and more stringent effluent limitations for BOD, TSS, and coliform organisms. On 20 August 2010, the Discharger submitted a request and justification for a compliance schedule that is as short as practicable to implement actions to secure financing, designing, and constructing new facilities, or implementing new or expanded programs, to comply with these limitations. Based upon the Discharger's compliance schedule justification, the tentative Order includes an appropriate compliance schedule that complies with the State Water Board's Policy for Compliance Schedules in NPDES Permits (Resolution No. 2008-0025) and the Basin Plan. Upon further review of chlorpyrifos requirements in the Basin Plan, it has been determined that the compliance schedule for chlorpyrifos is not allowed in the permit and has been moved to the proposed Time Schedule Order.

CSPA Comment #14: The proposed Permit fails to contain an adequate effluent limitation for electrical conductivity (EC) in violation of federal regulation 40 CFR 122.44. The Regional Board's unique approach for determining reasonable potential is contrary to the regulations.

Response: The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for EC. There are no USEPA water quality criteria for EC; therefore, the SIP protocols to conduct a reasonable potential analysis (RPA) or establish WQBELs are not required. However, as previously discussed in Response to Comment #12, the Central Valley Water Board usually uses the RPA procedures from the SIP for consistency in development of the NPDES permits. But in this case, because the Sacramento River within the vicinity of the discharge has significant flows to dilute and mix the effluent discharge (See Section IV.C.2.d. of the Fact Sheet in the tentative Order) and assimilative capacity for EC or TDS (e.g. average receiving water concentration for EC and TDS were 160 μ mhos/cm and 98 mg/L, respectively), Central Valley Water Board staff determined that a site-specific condition analysis is more appropriate than the SIP's general procedures. USEPA allows a RPA conducted with "available effluent data and a water quality model," and as described in detail in the section IV.C.3.c of the Fact Sheet, Central Valley Water Board staff used USEPA's recommended mass-balance water quality model approach to determine the expected critical downstream receiving water concentrations. Based on the results of USEPA's approved RPA method, the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for EC or TDS. The tentative Order contains a

performance-based EC effluent limitation to limit the discharge to current salinity levels. Central Valley Water Board staff properly used RPA procedures and established the WQBEL in accordance with regulations.

CSPA Comment #15: The proposed Permit fails to contain an effluent limitation for total dissolved solids (TDS) in violation of federal regulation 40 CFR 122.44.

Response: See Response to CSPA Comment #14

CSPA Comment #16: The proposed Permit fails to meet the preconditions necessary to exempt waste storage, treatment and disposal ponds from California Code of Regulations Title 27 and fails to implement the requirements of CCR Title 27.

Response: The Discharger's emergency storage basins B and C (ESB-B and ESB-C) are exempt from the requirements of Title 27, pursuant to Title 27 CCR section 20090(a). Exemption 20090(a) Sewage states: *Discharges of domestic sewage or treated effluent which are regulated by WDRs . . . , or for which WDRs have been waived, and which are consistent with applicable water quality objectives, and treatment or storage facilities associated with municipal wastewater treatment plants, provided that residual sludges or solid waste from wastewater treatment facilities shall be discharged only in accordance with [Title 27].* The first part, *Discharges of domestic sewage or treated effluent which are regulated by WDRs . . . , or for which WDRs have been waived,* as correctly stated by the commenter, conditionally exempts the Facility's post-treatment activities provided the discharge complies with applicable water quality objectives. However, the second part, *and treatment or storage facilities associated with municipal wastewater treatment plants,* unconditionally exempts components within the treatment system.

During peak wet weather flows, untreated wastewater may be diverted to ESB-B and ESB-C to protect the treatment system from being washed-out. Untreated wastewater temporarily stored in ESB-B or ESB-C is then returned to the treatment systems headworks for treatment before being discharged. Thus, ESB-B and ESB-C are a necessary part of the wastewater treatment system and qualify for exemption from the requirements of Title 27 under the second part of exemption 20090(a). Therefore, ESB-B and ESB-C do not need to meet the preconditions of the first part of exemption 20090(a) to qualify.

CSPA Comment #17: The proposed Permit contains an allowance for a mixing zone that does not comply with the requirements of Federal Regulation 40 CFR Section 131.12(a)(1) and the *Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP)* or the Basin Plan.

Response: The mixing zones and dilution credits allowed in the tentative Order are in compliance with federal regulations, the SIP, and the Basin Plan; and are adequately protective of the beneficial uses of the receiving water. In summary, the mixing zones allowed in the tentative Order are as small as practicable, will not compromise the integrity of the entire water body, restrict the passage of aquatic life, dominate the water body or overlap existing mixing zones from different outfalls. The acute mixing zone is 400 feet wide and 60 feet long. (The acute mixing zone has been allowed, but proposed Order does not allow acute dilution credits for development of water quality-based effluent limits. See response to SRCSD Comments #41-46. The chronic aquatic life mixing zone is 400 feet wide and extends 350 feet downstream of the diffuser, and the human health mixing zone extends downstream of the discharge where complete mixing occurs, which is approximately 3 miles downstream of the discharge. The nearest drinking water intake is about 40 miles downstream of the discharge, which is 37 miles from the end of the mixing zone. The mixing zones and dilution credits are discussed in detail in the Fact Sheet in Section IV.C.2.d.

The Discharger's consultant, Flow Sciences Incorporated., conducted a dynamic model that consists of five models linked in series: 1) U.S. Bureau of Reclamation's Project Simulation Model, PROSIM, and Temperature Models; 2) Fischer Delta Model, FDM; 3) Flow Science's Computation Fluid Dynamics Model, FLOWMOD; 4) Flow Science's Longitudinal Dispersion Model, LD; and 5) U.S. EPA's Dynamic Toxicity Model, DYNTOX. Additionally the Discharger performed several field validation studies to corroborate the effectiveness of the modeling tools in representing water quality conditions in the Sacramento River. Due to the complexity of the mathematical models, the Central Valley Water Board used the services of Tetra Tech, a USEPA contractor, to assist with the review of the dynamic model. Tetra Tech's modeling experts concluded that the model study was conducted in a sound and scientifically defensible manner. The modeling experts determined that the linked dynamic modeling system is capable of providing an accurate probabilistic representation of receiving water quality conditions.

The chronic aquatic life and human health mixing zones meet the requirements of the SIP, and comply with the Basin Plan; subsequently, allowance of dilution credits were evaluated on a pollutant-by-pollutant

basis. The tentative Order allowed dilution credits for bis(2-ethylhexyl)phthalate, carbon tetrachloride, chlorodibromomethane, cyanide, dibenzo(ah)anthracene, dichlorobromomethane, manganese, methyl tertiary butyl ether, methylene chloride, pentachlorophenol, and tetrachloroethylene in compliance with the SIP and the Basin Plan. The resulting effluent limitations are protective of the beneficial uses of the receiving water as discussed in the Fact Sheet.

CSPA Comment #18: The proposed Permit contains Effluent Limitations less stringent than the existing permit, contrary to the Antidegradation requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (I)(1).

Response: The RPA was based on monitoring data collected from June 2005 through July 2008, which constitutes monitoring data that was not available at the time Order No. 5-00-188 was issued. Based on this updated monitoring data, chloroform, lindane, silver, lead, zinc, and cyanide do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. Therefore, relaxation of effluent limitations is allowed under CWA section 402(o)(2)(B)(i), which allows for relaxation where 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. CWA section 303(d)(4) allows for less stringent limitations in waters attaining water quality standards if the relaxation is consistent with antidegradation requirements. The discharge does not have the reasonable potential to cause or contribute to an exceedance of water quality standards for these parameters in the receiving water and all beneficial uses will be maintained.

Discontinuing effluent limitations for these parameters is consistent with the antidegradation provisions of 40 CFR part 131.12 and State Water Board Resolution 68-16. Any impact on existing water quality will be insignificant. Therefore, relaxation of effluent limitations is allowed under CWA section 303(d)(4).

CSPA Comment #19: The proposed permit carries forth a Thermal Plan exemption that degrades the aquatic life beneficial use of the receiving stream, the Sacramento River.

Response: See response to Water Agencies comment # 3 and SRCSD Comment #63.

CSPA Comment #20: The proposed Permit fails to assess compliance and require compliance with the Receiving Water Limitation for Toxicity, which is based on the Basin Plan narrative toxicity water quality objective. From recent scientific investigations and literature it is reasonable to conclude that “constituents of emerging concern” (CECs) are present in the wastewater discharge from the Sacramento Regional wastewater treatment plant. It is also reasonable to conclude that the wastewater discharge contains CECs in concentrations that at a minimum threaten to violate the Receiving Water Limitation for toxicity. Monitoring for CECs in the wastewater discharge, in the receiving stream (the Sacramento River) or in agricultural diversions taken from within the proposed mixing zones is not required in the proposed Permit. The Regional Board is required by 40 CFR 122.44 to develop Effluent Limitations if the discharge presents a reasonable potential to exceed a water quality standard, including the narrative toxicity objective. At a minimum, the proposed Permit should include a requirement for a study of the presence of CECs in the wastewater discharge, the receiving stream and in agricultural intakes within the proposed 3 mile mixing zone and the effectiveness of different treatment technologies to remove CECs.

Response: Central Valley Water Board staff is engaged with the scientific community to study and document impacts to water quality. When new defensible scientific information is developed, Central Valley Water Board staff incorporates this information into our proposed permits. The Fact Sheet within the tentative Order details the scientific studies, and the Central Valley Water Board staffs’ analysis, evaluations, and determinations conducted pollutant by pollutant to determine whether or not concentrations are discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above any water quality standard. For the most part, the data used was obtained during the term of previous Order No. 5-00-188; however, in some cases (e.g. mixing zone analysis or evaluation of ammonia effluent limitations) additional data was used to evaluate hydrologic conditions within the Sacramento River (e.g. critically dry, above normal, and wet) or to provide a higher degree of confidence. Additionally, Central Valley Water Board staff considered the nature of the Facility’s operations and scientific studies conducted by the Discharger’s consultants or by an independent scientific review to determine if the discharge demonstrates reasonable potential to exceed applicable water quality criteria or objectives. Using the method prescribed in Section 1.3 of the SIP, or other USEPA recommended RPA methods, Central Valley Water Board staff compared this data for each pollutant with the applicable water quality objectives in the Basin Plan or water quality criteria from USEPA, and the CTR. Based on these analyses, the tentative Order includes several mechanisms to protect the beneficial uses of the receiving water.

In addition, the tentative Order includes acute and chronic whole effluent toxicity (WET) testing conducted on the most sensitive of species to determine whether the effluent discharge causes adverse effects to the beneficial uses of the receiving water. Moreover, when new defensible, scientific information is developed, the tentative Order contains a reopener for the Central Valley Water Board staff to incorporate this information into our permits, and modify or amend the waste discharge requirements as appropriate.

CSPA Comment #21: The Basis for the proposed nitrate Effluent Limitation is not presented in the Fact Sheet as required by 40 CFR 124.8.

Response: Central Valley Water Board staff agrees. The tentative Order has been amended to establish the final effluent limits for nitrate based on the State Drinking Water standard resulting in an average monthly effluent limit of 10 mg/L nitrate as nitrogen. Reasonable facility upgrades can be constructed to maintain compliance with the proposed effluent limit for nitrate. See response to SRCSD Comments #23-28.

CSPA Comment #22: 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: Compliance with Clean Water Act section 101(a) and the state and federal anti-degradation requirements are covered in Response to SRCSD Comment #39. The reference in failing to comply with Water Code section 13146 and 13247 presumes that the Regional Board has failed to conduct an adequate anti-degradation analysis. As noted in Response to SRCSD Comment #39, because Regional Board staff believe that the anti-degradation analysis is adequate, there is no purported lack of compliance with either Water Code section 13146 or 13247.

CSPA Comment #23: The proposed Permit does not contain enforceable Effluent Limitations for chronic toxicity, and therefore does not comply with the Basin Plan, 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). The Proposed Permit contains a narrative Effluent Limitation prohibiting the discharge of chronically toxic substances; however a *Compliance Determination* has been added to the proposed Permit

that sampling and TRE/TIE Provision shall constitute compliance with effluent limitation. The *Compliance Determination* nullifies the Effluent Limitation and makes toxic discharges unenforceable.

Response: The chronic toxicity issue was addressed in State Water Board Water Quality Order (WQO) 2008-0008 (City of Davis) adopted on 2 September 2008, and WQO 2003-0012 (Los Coyotes). With regard to the need for a numeric chronic toxicity effluent limit, City of Davis Order states, “*We have already addressed this issue in a prior order and, once again, we conclude that a numeric effluent limitation for chronic toxicity is not appropriate at this time.*”

The tentative Order includes a narrative chronic toxicity effluent limitation in section IV.A.1.c which reads, “There shall be no chronic toxicity in the effluent discharge.” This is consistent with the SIP and the Los Coyotes Order. The State Board Orders, however, do not explain how to determine compliance with the limitation. Under the most literal interpretation, a result of even 1.1 chronic toxicity units (TUc) would be a violation of the narrative limitation. Determining compliance in this manner would not be appropriate, because to do so would essentially transform the narrative limitation into a numeric limitation of 1 TUc. This is impermissible, as the State Board has rejected the numeric approach in the Los Coyotes Order. This interpretation would also ignore dilution, making the limitation overly stringent. Disallowing dilution is inconsistent with effluent limitations for specific priority pollutants. Further, whole effluent toxicity (WET) testing is imprecise by nature, and one sample is not necessarily indicative of chronic toxicity. For this reason, the SIP and the Los Coyotes Order rely on toxicity reduction/toxicity identification (TRE/TIE) requirements to ensure that a discharge does not cause or contribute to toxicity.

The tentative Order also includes compliance determination language to implement the narrative limitation, in a manner suggested by both the City of Davis and Los Coyotes Orders. This language states, “*Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with the effluent limitation.*” This compliance determination language is consistent with the Los Coyotes and City of Davis Orders, which require narrative effluent limitations for chronic toxicity and also mandate numeric benchmarks for triggering accelerated monitoring, rigorous toxicity reduction evaluation/toxicity investigation evaluation conditions; and a reopener to establish numeric effluent limitations for either chronic toxicity or the chemical(s) causing toxicity.

The commenter states that, “The *Compliance Determination* nullifies the Effluent Limitation and makes toxic discharges unenforceable.” To the

contrary, Central Valley Water Board staff believe that the accelerated testing and TRE/TIE requirements should be viewed as an integral part of the effluent limitation, assuring consistency with the SIP and Los Coyotes Order. In the Los Coyotes Order, the State Water Board noted that best management practices (BMPs) may substitute for numeric effluent limitations when developing numeric limitations is infeasible. The State Water Board then concluded that numeric toxicity limitations are infeasible (Los Coyotes Order, pp. 9-10). The TRE/TIE is the key to addressing chronic toxicity under the Los Coyotes approach. Relying on accelerated testing and the TRE/TIE to satisfy the narrative effluent limitation is a BMP-based approach and therefore consistent with the reasoning in the Los Coyotes Order.

The State Water Board required the narrative effluent limitation in addition to BMPs because “*NPDES permits must contain effluent limitations that will achieve compliance with water quality standards that have . . . reasonable potential . . .*” (Los Coyotes Order, p. 9) The intent of the effluent limitation was to “*ensure that the requirements to perform a TRE/TIE and to eliminate toxicity are clear and enforceable.*” (Los Coyotes Order, p. 10) The compliance determination language is consistent with the State Water Board’s purpose for requiring the effluent limitation.

During the TRE/TIE process, the Discharger is subject to the acute toxicity effluent limitation and a chronic toxicity receiving water limitation. (Permit, section V.A.16.) Taken together, these provisions require the Discharger to promptly address any newly-discovered chronic toxicity, or the Discharger will be in violation of the permit. This is consistent with the State Water Board’s permitting approach for chronic toxicity.

CSPA Comment #24: It is important to not to rely upon linked proprietary models that have not been peer-reviewed and that cannot be independently calibrated and verified.

Response: The Discharger’s model was peer reviewed by a technical advisory committee and was also reviewed by modeling experts from Tetra Tech on behalf of the Central Valley Water Board. Based on these reviews it was determined that the Discharger’s model is technically sound and adequate for use in the NPDES permitting process.

CSPA Comment #25: With regard to the tentative NPDES permitting options, CSPA recommends adoption of Dilution Alternative 1 (no dilution), recommends the disinfection alternative that requires tertiary filtration, and recommends the ammonia and nitrate removal alternatives that require nitrification/denitrification.

Response: Comment noted.

CSPA Comment #26: There are a number of inaccuracies and deficiencies in the monitoring program.

a) Effluent temperature monitoring is listed twice in Table E3a, one as continuous monitoring and once as a daily grab sample. The sampling for temperature should be continuous. The proposed Permit, Monitoring and Reporting Program (MRP), allows for ammonia, a toxic constituent, to be removed prior to laboratory analysis.

Response: The effluent temperature monitoring has been corrected in the proposed Order. Central Valley Water Board staff agree that continuous effluent temperature monitoring is needed and have modified the MRP accordingly.

b) The Monitoring and Reporting program allows that the acute toxicity testing may be modified to eliminate ammonia-related toxicity until **30 November 2020**, at which time the Discharger shall be required to implement the test without modifications to eliminate ammonia toxicity. Ammonia is a toxic constituent. The currently available public documents do not detail whether ammonia was removed prior to analysis. The compliance summary is questionable as to whether there would have been additional reported toxicity based on the presence of ammonia. Toxicity and ammonia are also established as effluent Limitations subject to appropriate enforcement action and third party lawsuits. The removal of ammonia prior to laboratory analysis will mask the fact that the toxicity and ammonia limitations had been violated.

Response. Central Valley Water Board staff agree and modified the MRP accordingly. The proposed Order does no longer allows the removal of ammonia toxicity prior to conducting acute and chronic whole effluent toxicity testing.

c) The proposed Monitoring and Reporting Program should be modified to establish receiving water sampling location at each and every end of mixing zone location, assuming that mixing zones are approved.

Response. Central Valley Water Board staff disagree. It is not practicable to monitor at the edge of the acute and chronic mixing zones. Compliance with water quality objectives at the boundaries of the mixing zones is evaluated through effluent monitoring. Effluent limitations have been established to ensure compliance with water quality objectives at the

boundaries of the mixing zones. Therefore, compliance with the effluent limits ensures compliance at the mixing zone boundaries.

State and Federal Legislators

Mariko Yamada, Assemblymember, Eighth District, Comment #1: The SRCSD treats and safely discharges approximately 150 million gallons of wastewater into the Sacramento River. While the SRCSD acknowledges they are currently the largest single source of ammonia in the Delta, there are smaller wastewater treatment plants and agricultural dischargers that contribute to the ammonia level. The Central Valley Water Board has permitted the SRCSD to discharge relatively high concentrations of ammonia because the river has historically provided sufficient dilution and SRCSD has storage ponds when the river does not have sufficient dilution. Current Delta and SRCSD ammonia concentrations are significantly lower than USEPA guidelines on aquatic toxicity, designed to protect the most sensitive aquatic species. Recent scientific studies indicate that ammonia levels in the Sacramento River may be a threat to Delta Smelt and other native fish by disrupting the food web. The Central Valley Water Board Proposed Permit requires SRCSD to remove essentially all ammonia and nitrates from the discharge.

The SRCSD accepts current science that supports the need to remove about half of the ammonia from its effluent because in the future dilution will be less available. SRCSD disputes that total ammonia removal is justified without further study and argues that the higher standard should not be a condition of the proposed permit. In addition, since 2007, the Central Valley Water Board has issued 18 permits to other municipal treatment plants that provide the same ratio of dilution as the Sacramento River does for SRCSD at its discharge point. Further, scientists have not yet agreed on whether nitrate significantly harms the Delta ecosystem or fish. Assemblymember Yamada requests that the Central Valley Water Board reconsider the elements of the Proposed Permit that appear to hold the SRCSD to a higher standard without further scientific review.

Response: The knowledge of the aquatic impacts by ammonia is evolving, with new scientific research being done specifically on Delta waters and Delta aquatic species. For decades, USEPA's Aquatic Ammonia Criteria document was the primary assessment for ammonia toxicity. The District's current 2000 NPDES Permit granted significant dilution to SRCSD for ammonia so that the Sacramento River downstream of SRCSD's mixing zone does comply with the USEPA Ammonia Criteria. Over the last few years there have been numerous allegations that SRCSD ammonia has been harming the Delta, including being directly toxic to Delta Smelt. To address the allegations, new scientific studies were conducted by the Water Boards and by other groups, with more

studies in progress. One conclusion of the new research is that Delta Smelt are very sensitive to ammonia, but no more sensitive than other fish used by USEPA in developing the Ammonia Criteria; so it was concluded that SRCSD's discharge outside of the mixing zone is not acutely toxic to Delta Smelt. Some scientists are concerned that SRCSD's ammonia may be chronically toxic to Delta Smelt, but there is currently no definitive test for chronic toxicity to Delta Smelt.

Other research, however, shows that levels of ammonia in the Delta caused by SRCSD's discharge are harming the Delta food chain. Ammonia from SRCSD is stopping Diatom growth in Suisun Bay when there is not sufficient dilution to lower the ammonia concentration in the Bay. Diatoms may also be impacted in the freshwater parts of the Delta, although there is less scientific consensus on this. Recent research shows that ammonia in the Sacramento River is toxic to invertebrates for at least 30 miles downstream of the discharge. Diatoms and invertebrates are part of the food supply for larval fish and the rest of the ecosystem. Without an adequate food supply, fish populations decline.

In response to the proposed Permit, the Central Valley Board has received comments from the lead scientist with the Delta Stewardship Council, the California Department of Fish and Game, National Marine Fisheries Service and the National Fish and Wildlife Service, supporting the proposed Permit conditions and the science behind those conditions. Almost all the ammonia in the Delta is from the SRCSD discharge because *all other large wastewater treatment plants in the Delta already remove ammonia from their discharges*

Mariko Yamada, Assemblymember, Eighth District, Comment #2: To reduce the risk of infection from pathogens in the river, the Proposed Permit has a lower threshold for pathogens. SRCSD would require microfiltration to capture the pathogens. The Proposed Permit also requires the use of ultraviolet light (UV), instead of chlorination, to inactivate pathogens and other microorganisms. In all but two of the 18 permits discussed above, the Central Valley Water Board did not require filtration. In addition, the Central Valley Water Board and Department of Public Health have not yet demonstrated public safety is or will be at risk. Assemblymember Yamada requests that the Central Valley Water Board reconsider the elements of the Proposed Permit that appear to hold the SRCSD to a higher standard without further scientific review.

Response: The proposed Permit would require Tertiary Filtration of the effluent to produce a pathogen-free effluent, eliminating the risk of someone getting sick from contact with the wastewater. Generally Tertiary Filtration is required when there is little dilution available and there is a public health risk to the public coming into contact with the wastewater or

consuming crops irrigated with the wastewater. When there is some level of dilution available, the Water Board normally consults with the California Department of Public Health (CDPH) on the appropriate level of disinfection to protect public health. In SRCSD's case there is dilution in the Sacramento River, but it is a very large discharge and there is a very high level of body contact recreation, crop irrigation, and drinking water use of the River near the discharge and throughout the Delta. Thus, in developing the proposed Permit, we consulted with CDPH and required that a health risk assessment be conducted by SRCSD. The result of the study conducted by SRCSD indicated that, under conservative conditions, the Cryptosporidium and Giardia in the existing effluent discharge increases the risk of illness to downstream recreationists by 1.3 to 3.7 times. As an example, if 1000 people are exposed to the river water ten times (commonly done on a single day at the beach or water skiing), upstream of the SRCSD discharge 7 people would become ill from waterborne pathogens, however downstream of the SRCSD discharge 14 people would become ill.

The Central Valley Water Board is required to protect the beneficial uses of the Sacramento River, including recreational uses such as swimming and boating. Pathogen removal is proposed because it is not appropriate for a single controllable source of pathogens to be infecting the public contacting the Sacramento River. Tertiary Filtration will remove the increased concentrations of cryptosporidium and Giardia in downstream waters, eliminating any increased illness due to exposure to the discharged wastewater¹.

In addition to removing pathogens, Tertiary Filtration also removes solid particles and the pollutants attached to those particles, including metals, methyl mercury, some pesticides and some Constituents of Emerging Concerns (e.g. pharmaceuticals, health care products, etc.). As discussed above, all other large wastewater treatment plants in the Delta (Lodi, Manteca, Stockton and Tracy) have already installed Tertiary Filtration to remove pathogens.

Mariko Yamada, Assemblymember, Eighth District, Comment #3: The Central Valley Water Board Proposed Permit requires SRCSD to remove essentially all ammonia and nitrates from the discharge at an estimated cost of \$782 million. SRCSD estimates microfiltration would cost up to \$1.16 billion and

¹ It should be noted that, due to the nature of gastrointestinal illness, it would be extremely difficult to measure the actual reduction in illness that occurs from tertiary filtration. Most sewage-related illness, including cryptosporidiosis and giardiasis, cause general gastrointestinal illness symptoms several days after exposure. People contacting wastewater in the Sacramento River come from a wide geographic area, and there are many other sources of gastrointestinal illness, so it would require an extensive epidemiologic study to identify illness caused by river contact

UV disinfection would cost up to \$116 million. The Proposed Permit requires the SRCSD to spend up to \$2 billion to retrofit the treatment plant to meet the draft requirements. Assemblymember Yamada requests that the Central Valley Water Board reconsider the elements of the Proposed Permit that appear to hold the SRCSD to a higher standard without further scientific review. To do otherwise could result in unnecessary costs that neither public agencies nor the taxpayers can afford.

Response: The proposed Permit does not require the implementation of specific treatment technologies, but instead establishes discharges limits and allows the discharger to decide on the best treatment technology or compliance options to meet those requirements. The District will not know the final costs of plant upgrades until the NPDES Permit is adopted and engineering studies, probably including pilot scale treatment plant testing, are concluded. The preliminary District's cost estimates included microfiltration, which is a more expensive alternative than tertiary filtration or membrane reactors used by other treatment facilities. The District also includes Ultraviolet light disinfection in the cost estimates, which is not required by the proposed permit. In fact, the proposed permit grants dilution in the Sacramento River for trihalomethanes (chlorination byproducts) so that SRCSD can continue to use the existing chlorination system. Although the District can choose to install these more costly technologies, they are not required by the proposed permit.

A USEPA engineering contractor reviewed the District's cost estimates for the Central Valley Water Board and concluded that some modifications to the treatment system evaluated by SRCSD "could potentially reduce the cost by as much as \$859 million and achieve the same effluent quality goals." Another engineering consultant hired by the State Water Contractors provided a cost estimate about one-half of the District's estimate.

Central Valley Water Board staff has reviewed the relative per capita costs of upgrades by other communities compared to SRCSD's cost estimate. Such cost comparisons are not exact because not all upgrade projects are equivalent, but the comparison showed that SRCSD's estimate was in the mid-range of per capita costs, and that these other communities that have completed the plant upgrades and are operating the upgraded systems, without irreparable economic harm. Even if the \$2 billion costs projected by SRCSD are correct, the increased sewage treatment rate to \$60 per month for each household is not out of line for sewer bills. Many communities discharging to surface waters pay this amount or substantially more for sewer service. For example, households in the Folsom Lake Service Area pay approximately \$100 per month for sewage treatment and households in the North Auburn Service Area pay \$67 per

month for sewage treatment. Residents in Cascade Shores, a remote community in Nevada County that serves about 84 households, pay \$166.25 per month to cover the costs of their NPDES discharge that is treated through a newly constructed advanced treatment facility to meet requirements similar to those proposed for SRCSD. On the other hand, larger communities in the Sacramento/Delta area that have already upgraded their treatment facilities to advanced treatment also similar to that in the proposed NPDES Permit have sewer fees substantially less than the monthly fees projected by SRCSD, including Stockton (\$22.75/month), Roseville (\$27.90/month), Tracy (\$31.00/month), and Lodi (\$38.84/month).

California Senators Alex Padilla, Tom Harman, Bob Huff, Mimi Walters, Jeff Denham, Mark Wyland, Ron Calderon, Bill Emmerson, Dennis Hollingsworth, Roy Ashburn, Tony Strickland, Bob Dutton, Carol Liu, Gloria Negrete McLeod, Gilbert Cedillo, Roderick D. Wright, Curren Price, Alan Lowenthal, and Fran Pavley: Approve Proposed Permit

Response: Comment noted.

Dianne Feinstein, US Senate: Approve Proposed Permit

Response: Comment noted.

Jean Fuller, Assemblymember 32nd District and Anna M. Caballero, Assemblymember 28th District: Approve Proposed Permit

Response: Comment noted.

Ted Gaines, Assemblyman Fourth District: Assemblyman Gaines urges the Central Valley Water Board members to reject the Proposed Permit which would triple sewer rates resulting in an economic hardship on the entire Sacramento Region with little demonstrated ecological benefit to the Delta. Assemblyman Gaines understands that the Proposed Permit would impose new limits on SRCSD that would require construction of micro-filtration facilities at conservative cost of \$1.2 billion. The upgraded facilities would be required based on excessively restrictive effluent limits that go far beyond the 1999 California Department of Public Health guidelines and historical practice of the Board. Assemblyman Gaines is concerned that the Proposed Permit may be imposing restrictive limits based solely on speculation that undiluted treated wastewater may be used for agricultural irrigation. Permitting decisions must be based on sound objective science and not on unfounded justifications.

Response: See responses to Mariko Yamada, Assemblymember, Eighth District Comments # 1-3.

Alyson L. Huber, Assemblymember 10th District, Comment #1: The Proposed Permit would impose new pathogen standards, requiring SRCSD to upgrade the existing treatment facilities to “micro-filtration” to meet “tertiary treatment” levels.

Response: See response to Mariko Yamada, Assemblymember Comment #2.

Alyson L. Huber, Assemblymember 10th District, Comment #2: According to the Fact Sheet, Attachment F to the Proposed Permit, it is estimated that upgrading the SRCSD treatment facilities will cost more than \$2 billion, effectively tripling rates for residents and businesses. This is a significant burden to place on the ratepayers when the benefit of the upgrades has not been adequately demonstrated.

Response: See response to Mariko Yamada, Assemblymember Comment #3.

Alyson L. Huber, Assemblymember 10th District, Comment #3: The NPDES Permit for the City of Rio Vista (Waste Discharge Requirements Order No. R5-2010-0081) does not impose the same pathogen standards, despite the fact that both treatment plants discharge to the Sacramento River where dilution ratios are at least 20-to-1. Of 18 NPDES permits issued to municipal wastewater treatment plants issued by the Central Valley Water Board, all but two follow the approach of the Rio Vista Permit, instead of imposing the more restrictive levels proposed for SRCSD.

Response: The District’s treatment plant became operational in the early 1980’s, collecting the wastewater from more than 20 small treatment systems into a single wastewater treatment plant. The level of treatment provided today – secondary biologic treatment with chlorination disinfection – has not changed in 30 years. Over half of the treated municipal wastewater discharged into the Delta is discharged by SRCSD.

The requirements in the Central Valley Water Board’s proposed Permit for SRCSD are common to most small and large wastewater treatment plants that discharge to inland surface waters across the State. The tertiary filtration limits proposed for SRCSD are NOT MORE STRINGENT than the limits prescribed for any treatment plant needed tertiary filtration. All other large wastewater treatment plants in the Delta (Lodi, Manteca, Stockton and Tracy) have Tertiary Filtration to remove pathogens, and nitrification to remove ammonia. All of these treatment plants except

Stockton also have nitrogen reduction, although to a lesser degree than proposed for SRCSD. Lodi, Manteca, Stockton and Tracy have already completed wastewater treatment plant upgrades and the effluent that they are discharging is much cleaner than the SRCSD effluent. Tertiary filtration for pathogen removal is the treatment level needed if the wastewater is going to be recycled. *All large wastewater treatment plants in the Delta, with the exception of the Sacramento Regional facility, already provide tertiary filtration treatment.*

The treatment upgrades at Lodi, Manteca, Stockton and Tracy have significantly reduced the pathogens discharged to Delta waters, reduced the oxygen demand on Delta waters, overall reduced the loading of heavy metals and mercury to the Delta, and reduced aquatic toxicity caused by ammonia. Ammonia removal at the City of Stockton in particular has shown significant improvements in water quality. Historically there seasonally was extremely low dissolved oxygen in the San Joaquin River at Stockton, caused, in part, by the ammonia in the Stockton discharge. The low dissolved oxygen harmed both resident and migrating fish in the San Joaquin River. Since Stockton began removing ammonia, the extremely low dissolved oxygen events have not occurred.

Regarding the economic impacts of the advanced treatment, the advanced treatment certainly costs more to construct and operate than SRCSD's current treatment system. Lodi, Manteca, Stockton and Tracy have constructed and are operating similar advanced treatment systems and have not suffered significant adverse economic impacts as a result of these upgrades. The exact cost of SRCSD to upgrade depends in part on how much of the existing treatment facility can continue to be used and the exact type of treatment SRCSD chooses. SRCSD's cost estimate includes microfiltration (which is a more advanced and more expensive form of tertiary treatment than used by the other Delta dischargers), and Ultraviolet Light disinfection (which is used by many treatment systems, such as Tracy and Roseville, but is NOT required by the staff-recommended permit).

Joan Buchanan, Assemblymember 15th District: The Proposed Permit issued by the Central Valley Water Board requires SRCSD to remove all ammonia and nitrates from their discharge, as well as install micro filtration and UV disinfection processes to remove very small particles and pathogens from the treated effluent. SRCSD estimates the cost of these retrofitting requirements to be up to \$2 billion.

Response: See responses to Mariko Yamada, Assemblymember, Eighth District Comments # 1-3. And see response to Alyson L. Huber, Assemblymember 10th District, Comment #3.

Daniel E. Lungren, Member of Congress: The limits in the Proposed Permit for ammonia and pathogens would require SRCSD ratepayers to spend nearly \$2.1 billion for treatment plant upgrades and increased annual operations and maintenance cost of \$77 million per year. Every family will receive an *“increase from about \$20 per month into the range of \$60 per month. Local sewer collection service currently adds about an additional \$20 more to the total sewer bill for residents.”* New sewer hook-up fees will increase from approximately \$7500 for a new home to \$30,000 or more. Hook-up fees will also increase for industries and businesses. Connection fees for a typical new “dine-in” restaurant would increase from \$14,900 to \$70,000 per 1000 square feet.

Response: See responses to Mariko Yamada, Assemblymember, Eighth District Comments # 1-3. And see response to Alyson L. Huber, Assemblymember 10th District, Comment #3.

Doris Matsui, Member of Congress: The regulatory process must be consistent, fair, reasonable, protective of water quality and based on sound objective science. Unfortunately, the conditions in the Proposed Permit will result in costs associated with compliance (over \$2 billion) with expected minimal environmental gains for the Delta.

Response: See responses to Mariko Yamada, Assemblymember, Eighth District Comments # 1-3. And see response to Alyson L. Huber, Assemblymember 10th District, Comment #3.

Roger Niello, Assemblyman, Fifth District, Comment #1: The current estimated costs are roughly \$2.1 billion or more and homeowners, businesses, public entities would be burdened with the costs for these new facilities and their ongoing operation. Residential sewer bills would increase from \$20 a month to \$61.75. A new residential sewer hook-up fee will go from \$7,500 to as much as \$35,000. New businesses would see their sewer hook up fees go from \$15,000 to \$70,000 for a 1000 square foot restaurant and for a 1000 square foot dry cleaner, they would see their fees go from \$13,000 to \$60,000.

Response: See responses to Mariko Yamada, Assemblymember, Eighth District Comment # 3. And see response to Alyson L. Huber, Assemblymember 10th District, Comment #3.

Roger Niello, Assemblyman, Fifth District, Comment #2: The Central Valley Water Board proposes new ammonia limits that would require SRCSD to

completely remove all ammonia from its discharge and yet credible Delta scientists are unwilling to say that the SRCSD's ammonia discharge is causing harm to the Delta or endangered fish species. The Central Valley Water Board has acknowledged that the science is inconclusive and yet these requirements are being put on the SRCSD and its rate payers.

Response: See responses to Mariko Yamada, Assemblymember, Eighth District Comment # 1.

Roger Niello, Assemblyman, Fifth District, Comment #3: The regional board proposes new limits on pathogens that cannot be met without energy-intensive filtration systems.

Response: See responses to Mariko Yamada, Assemblymember, Eighth District Comment # 2. And see response to Alyson L. Huber, Assemblymember 10th District, Comment #3.

Water Agencies, Districts and Associations

Association of California Water Agencies (ACWA)

ACWA Comment #1: ACWA does not support using dilution to avoid full denitrification of the effluent. ACWA supports the Proposed Permit requirement for SRCSD to implement advanced wastewater treatment and the proposed Time Schedule Order (TSO) for compliance, with the added provision that interim ammonia limits should prohibit any increase in concentration or loading over current levels during the compliance period. ACWA does not support the Proposed Permit options that would depend on dilution to avoid full denitrification. ACWA believes such alternatives would not be sufficiently protective of receiving water quality, and there is strong scientific evidence that ammonia discharges are adversely impacting the Bay-Delta ecosystem.

The most recent scientific research continues to support the conclusion that a combination of environmental stressors is causing the ecological crisis in the Delta. This includes increased nutrient loading which is adversely impacting the Delta food chain.

The recently released report, “Effect of Ammonium and Wastewater Effluent on Riverine Phytoplankton in the Sacramento River, CA.” (May 29, 2010) by Alexander E. Parker, et al, of the Romberg Tiburon Center for Environmental Studies San Francisco State University provides clear scientific evidence of significant adverse impacts to plankton due to ammonia discharges from the SRWTP. Since plankton is at the base of the Delta food web it is clear that current ammonia discharge levels are having a detrimental effect on the Delta ecosystem.

Response: Comment noted.

ACWA Comment #2: ACWA encourages the Central Valley Water Board to explore feasible opportunities to accelerate the 10-year compliance period set forth in the proposed tentative Order.

Response: See response to USEPA comment #1.

Calleguas Water District (Calleguas)

Calleguas Comment #1: Calleguas supports the Proposed Permit. The SRCSD facility is the largest contributor of ammonia to the Delta and is the largest facility yet to undergo an upgrade to an advanced form of wastewater

treatment. Calleguas agrees with Central Valley Water Board staff that the growing body of scientific evidence points to ammonia as one of the stressors contributing to the current ecological crisis by altering the food web in ways that advantage non-native species and disadvantage species such as Delta Smelt, and concur with the recommendation for ammonia removal treatment.

Response: Comment noted.

Calleguas Comment #2: Calleguas supports the Proposed Permit. Calleguas echoes the recommendations of Central Valley Water Board staff and the California Department of Public Health to remove pathogens from the SRCSD facility's discharge stream. Pathogen removal is important for recreational uses downstream as well as for downstream drinking water uses.

Response: Comment noted.

Cocamonga Water District (CWD)

CWD Comment #1: CWD supports the Proposed Permit. The SRCSD facility is the largest contributor of ammonia to the Delta and is the largest facility yet to undergo an upgrade to an advanced form of wastewater treatment. CWD agrees with Central Valley Water Board staff that the growing body of scientific evidence points to ammonia as one of the stressors contributing to the current ecological crisis by altering the food web in ways that advantage non-native species and disadvantage species such as Delta Smelt, and concur with the recommendation for ammonia removal treatment.

Response: Comment noted.

CWD Comment #2: CWD supports the Proposed Permit. CWD echoes the recommendations of Central Valley Water Board staff and the California Department of Public Health to remove pathogens from the SRCSD facility's discharge stream. Pathogen removal is important for recreational uses downstream as well as for downstream drinking water uses.

Response: Comment noted.

CWD Comment #3: CWD supports comments submitted by the State Water Contractors.

Response: Comment noted.

Irvine Ranch Water District (IRWD)

IRWD Comment #1: IRWD urges the Central Valley Water Board to adopt the Proposed Permit for the SRCSD to meet standards for ammonia. The SRCSD facility is the largest contributor of ammonia to the Delta and has not received upgrades to provide advanced wastewater treatment for the removal of ammonia. There is a growing body of scientific evidence pointing to ammonia as one of the stressors contributing to the current ecological crisis in the Delta. These studies report that ammonia alters the food web in ways that give non-native species an advantage while harming native species. Removal of ammonia prior to discharge can help reduce ammonia's negative impacts in the Delta.

Response: Comment noted.

IRWD Comment #2: IRWD urges the Central Valley Water Board to adopt the Proposed Permit for the SRCSD to meet standards for pathogens. By removing pathogens from the discharge, recreational uses in the Delta and drinking water uses downstream will be protected.

Response: Comment noted.

Las Virgenes Municipal Water District (LVMWD)

LVMWD Comment #1: LVMWD supports the Proposed Permit. The SRCSD facility is a significant contributor of ammonia to the Delta and has yet to undergo an upgrade to an advanced form of wastewater treatment. The objectives of the federal Clean Water Act are clear and the impacts of ammonia on aquatic life are well established. There should be no further delay in adopting regulations to address this concern.

Response: Comment noted.

LVMWD Comment #2: LVMWD supports the Proposed Permit. LVMWD agrees with recommendations by Central Valley Water Board staff and the California Department of Public Health to remove pathogens from the SRCSD facility's discharge stream. Pathogen removal is important for recreational uses and for downstream drinking water consumers.

Response: Comment noted.

LVMWD Comment #3: LVMWD supports any viable option that is protective of the beneficial uses of the Delta. As identified in the NPDES Permitting Options document, there are several viable options for the SRCSD to explore, including the use of its treated effluent for agricultural use in the region, which would also offset the use of existing but limited water resources for that purpose.

Response: Comment noted.

LVMWD Comment #4: LVMWD supports compliance schedules so that SRCSD can comply with the requirements in a prudent manner.

Response: Comment noted.

Municipal Water District Of Orange County (MWDOC)

MWDOC Comment #1: MWDOC supports the Proposed Permit and concurs with Central Valley Water Board staff recommendation for ammonia removal treatment. A key element of the solution to the Delta crisis of improving water quality for the benefit of endangered species, water supply, and other issues is updating the SRCSD Order. MWDOC agrees with Central Valley Water Board staff that the growing body of scientific evidence points to ammonia as one of the stressors contributing to the current ecological crisis by altering the food web in ways that advantage non-native species and disadvantage species such as Delta Smelt, and concur with the recommendation for ammonia removal treatment.

Response: Comment noted.

MWDOC Comment #2: MWDOC supports the Proposed Permit and agrees with the recommendation to remove pathogens from the discharge stream for the benefit of recreational and drinking water uses.

Response: Comment noted.

MWDOC Comment #3: MWDOC agrees with comments submitted by the State Water Contractors and urge the Central Valley Water Board to factor these comments into the final decision.

Response: Comment noted.

Santa Ana Watershed Project Authority (SAWPA)

SAWPA Comment #1: SAWPA encourages the Central Valley Water Board to adopt the Proposed Permit as written. The wastewater needs to be essentially pathogen free, specifically from *Giardia* cysts and *Cryptosporidium*.

Response: Comment noted.

SAWPA Comment #2: SAWPA encourages the Central Valley Water Board to adopt the Proposed Permit as written. Ammonia and Nitrogen effluent limitations in the Proposed Permit must be adhered to for protection of water quality. The economy of the whole State is adversely affected without reliable clean water.

Response: Comment noted.

Southern California Water Committee (SCWC)

SCWC Comment #1: SCWC urges the Central Valley Water Board to approve the Proposed Permit to require SRCSD to implement advanced wastewater treatment.

Response: Comment noted.

SCWC Comment #2: The SRCSD is the largest discharger of wastewater into the Delta and it is one of the few remaining dischargers that has yet to upgrade to advanced tertiary wastewater treatment technologies.

Response: Comment noted.

SCWC Comment #3: Removing pathogens from this wastewater stream is a basic requirement for human health protection.

Response: Comment noted.

SCWC Comment #4: Ammonia and other pollutants have significantly altered the Delta food web and contributed to the overall decline of the health of the Delta. SCWC urges the Central Valley Water Board to adopt interim ammonia limits that would reduce the amount of ammonia loading over the next ten years.

Response: Comment noted.

Westlands Water District (Westlands) and San Luis and Delta-Mendota Water Authority (Authority)

Westlands and SLDM Comment #1: Westlands Water District (Westlands) and the San Luis and Delta-Mendota Water Authority (Authority) support the Proposed Permit's requirement for SRCSD to reduce the harmful ammonia/ammonium (ammonia/um) and nitrogen load by requiring full nutrient removal (nitrification and denitrification) to meet the final effluent limitations proposed in the permit.

The Proposed Permit properly supports this proposal – but there is additional, overwhelming scientific evidence that supports the findings that the untreated ammonia/um in the discharge is toxic to aquatic species and is a key contributor to the devastation of the food web that is essential to aquatic life in the Sacramento River, the Sacramento-San Joaquin River Delta, and San Francisco Bay (Bay-Delta).

Response: Comment noted.

Westlands and SLDM Comment #2: Although Westlands and the Authority support the final effluent limitations, the Tentative Permit's interim limits would authorize Sacramento Regional to continue (and in fact dramatically increase) discharges that cause the take of threatened and endangered species, in violation of the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA), not only from the ammonia/um and nitrogen load, but from the temperature of the effluent. SRCSD has no plan to minimize or mitigate for those effects.

Response: See response to Water Agencies Comment #2, 3 and 20.

Westlands and SLDM Comment #3: Because SRCSD's discharges harm, if not kill, threatened and endangered species, because SRCSD expects to continue and increase those adverse effects, and because SRCSD has no plan to minimize or mitigate those adverse effects, in the final permit, the Central Valley Water Board should remove the interim limits and 10-year compliance schedule that are currently proposed in the Proposed Permit. (Table 7 at p. 15, and Attachment F at F-99). The final effluent limits should be effective upon issuance of the permit.

Instead of a compliance deadline and interim limits being including in the Proposed Permit, the Central Valley Water Board should issue a Cease and Desist Order that restricts interim discharges of ammonia/um and nitrogen and includes an expedited schedule to construct full nutrient removal. It should also include a schedule for implementing the required measures to address the temperature of the discharge.

Response: See response to Water Agencies Comment #27.

Westlands and SLDM Comment #4: The Proposed Permit properly concludes that the discharge violates the state's antidegradation policy and requires the installation of Best Practicable Treatment or Control (BPTC), which includes nitrification and denitrification to remove ammonia/um and nitrogen. The Proposed Permit's interim limits would expressly permit dramatic increases in ammonia discharges that would further degrade water quality and impair beneficial use and are therefore contrary to the antidegradation requirements. The Proposed Permit would itself violate the antidegradation requirements.

Response: See response to Water Agencies Comment #2, 3 and 20.

Westlands and SLDM Comment #5: The alternatives to full nutrient removal presented in the document entitled “Tentative Permit Alternatives” should not be adopted. The data are clear that these alternatives would not adequately protect water quality and the beneficial uses of the Sacramento River, the Sacramento-San Joaquin River Delta, or the San Francisco Bay.

Regardless, if the Regional Board were inclined to adopt one of these alternatives, the Regional Board would be required to issue a new tentative permit, with appropriate supporting documentation, and to provide another opportunity for public comment.

Response: The appropriate supporting documentation has been added to the “Tentative Permit Alternatives”. If the Regional Board members chose to adopt an alternative instead of the staff recommendation, they can do so at the December 9, 2010 public hearing. No additional opportunity for public comment will be required.

Western Municipal Water District (WMWD)

WMWD Comment #1: WMWD urges the Central Valley Water Board to approve staff recommendations for the Proposed Permit for SRCSD.

Response: Comment noted.

WMWD Comment #2: The time has come for the Central Valley Water Board to issue an NPDES Permit that reduces or eliminates discharge of ammonia and other harmful products that threaten endangered species such as Delta smelt.

Response: Comment noted.

WMWD Comment #3: The SRCSD wastewater facility is the largest contributor of ammonia to the Delta and is the largest that has yet to undergo an upgrade to advanced wastewater treatment.

Response: Comment noted.

WMWD Comment #4: The growing body of scientific evidence points to ammonia as one of the stressors contributing to the current ecological crisis by altering the food web in ways that disadvantage native delta smelt.

Response: Comment noted.

WMWD Comment #5: WMWD applauds the recommendations of the Central Valley Water Board staff and the California Department of Public Health to remove pathogens from the SRCSD waste stream.

Response: Comment noted.

Three Valleys Municipal Water District (TVMWD)

TVMWD Comment #1: On behalf of the Three Valleys Municipal Water District, I urge the Central Valley Regional Water Quality Control Board to approve the Tentative Order to require the Sacramento Regional County Sanitation District (SRCSD) to implement advanced treatment of their wastewater. Maintaining a high-quality source supply is fundamental for sound water management. The California Department of Public Health has relayed to you its well-reasoned concerns about the untreated pathogens that are presently contained in the discharge from this facility. Removing pathogens from this wastewater stream is a basic requirement for human health protection, both for recreational purposes in the Delta as well as for downstream drinking water uses. Downstream drinking water treatment plants, such as the one operated by TVMWD, rely on multiple barriers to ensure public health protection. Controlling sources of contamination is the first barrier.

Response: Comment noted.

TVMWD Comment #2: Given the growing body of evidence that current ammonia discharge levels are having a detrimental effect on the Delta ecosystem, we urge the Regional Board not to adopt the interim ammonia limits in the Tentative Order that would allow a significant increase in ammonia loading over the next ten years. Instead, the Regional Board should approve interim ammonia limits prohibiting any increase in concentration or loading over current levels.

Response: Central Valley Water Board staff do not concur that the interim ammonia limits allow for an increase in ammonia loading. See response to Water Agencies Comment #2.

Sacramento County Water Agency

Sacramento County Water Agency Comment #1: The State relies on various agencies, such as the State and Regional Boards, to help define and implement policy to carry out the Delta solution. The proposed permit requires removal of all ammonia. The regional board must ensure that this investment will provide a commensurate level of benefit to the Delta. Another objective is to ensure that science supports the draft permit findings. SCWD is unsure that either of these objectives are met with this draft permit. Ammonia removal and microfiltration exceeds the level of treatment elsewhere in the state and goes beyond “reasonable and necessary” as required in the Clean Water Act. It appears that this requirement is being promulgated only to enhance the ability to increase water exports from the Delta. As such these costs should not be borne solely by those in the Sacramento Area.

Response: See response to SRCSD Comment #1 and Agrium Comment #1. In addition to the comment that others should pay for the upgrades, the polluter pays for cleaning their own waste. The Southern California water agencies interested but are not driving this permit.

Farmers and Associations

Agricultural Council of California; California Cotton Ginners and Growers Associations; California Farm Bureau Federation; California Poultry Federation; Western Growers (ACC, et al)

ACC, et al Comment #1: ACC, et al urge the Central Valley Water Board to approve the Proposed Permit requirement for SRCSD to implement advanced wastewater treatment, however, the ACC, et al urge the Central Valley Water Board to not adopt the interim ammonia limits that would allow a significant increase in ammonia loading over the next ten years. The Central Valley Water Board should approve interim ammonia limits prohibiting any increase in concentration or loading over current levels.

Response: Comment noted.

California Farm Water Coalition

California Farm Water Coalition Comment #1: Our primary comments focus on the “take” of federally listed Delta smelt and the destruction or adverse modification of the Delta smelt’s critical habitat which will result from the permit’s conditions. The Endangered Species Act and its implementing regulations prohibit take of Threatened and Endangered Species. The definition of ‘take’ includes significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering. Destruction of critical habitat rises to the level of take due to the essential nature of the functions which are affected.

Response: Central Valley Water Board staff do not concur. See response to CSPA Comment #1.

Doug Anderson Farms

Doug Anderson Farms Comment #1: Maintaining a high-quality source supply is fundamental for sound water management. The California Department of Public Health has relayed to you its well-reasoned concerns about the untreated

pathogens that are presently contained in the discharge for the facility. Removing pathogens for the wastewater stream is a basic requirement for human health protection, both for recreational purposes in the Delta as well as for downstream drinking water uses.

Response: Comment noted.

Doug Anderson Farms Comment #2: Given the growing body of evidence that current ammonia discharge levels are having a detrimental effect on the Delta ecosystem, we urge the Regional Board not to adopt the interim ammonia limits in the Tentative Order that would allow a significant increase in ammonia loading over the next ten years. Instead, the Regional Board should approve interim ammonia limits prohibiting any increase in concentration or loading over current levels.

Response: Central Valley Water Board staff do not concur that the interim ammonia limits allow for an increase in ammonia loading. See response to Water Agencies Comment #2.

Waymire Family Farms (Waymire)

Waymire Comment #1: SCWC urges the Central Valley Water Board to approve the Proposed Permit to require SRCSD to implement advanced wastewater treatment.

Response: Comment noted.

Waymire Comment #2: The SRCSD is the largest discharger of wastewater into the Delta and it is one of the few remaining dischargers that has yet to upgrade to advanced tertiary wastewater treatment technologies.

Response: Comment noted.

Waymire Comment #3: Removing pathogens from this wastewater stream is a basic requirement for human health protection.

Response: Comment noted.

Waymire Comment #4: Ammonia and other pollutants have significantly altered the Delta food web and contributed to the overall decline of the health of the Delta. SCWC urges the Central Valley Water Board to adopt interim ammonia limits that would reduce the amount of ammonia loading over the next ten years.

Response: Comment noted.

Valley Industry and Commerce Association (VICA)

VICA Comment #1: SCWC urges the Central Valley Water Board to approve the Proposed Permit to require SRCSD to implement advanced wastewater treatment.

Response: Comment noted.

VICA Comment #2: Given the growing body of evidence that current ammonia discharge levels are having a detrimental effect on the Delta ecosystem, we urge the Regional Board not to adopt the interim ammonia limits in the Tentative Order that would allow a significant increase in ammonia loading over the next ten years. Instead, the Regional Board should approve interim ammonia limits prohibiting any increase in concentration or loading over current levels.

Response: Central Valley Water Board staff do not concur that the interim ammonia limits allow for an increase in ammonia loading. See response to Water Agencies Comment #2.

Kings County Farm Bureau

Kings County Farm Bureau Comment #1: We urge you to approve the tentative order to require SRCSD to implement advanced treatment of their wastewater. The DPH has relayed to you its well reasoned concerns about the untreated pathogens and there is growing evidence that ammonia from the discharge is having a detrimental effect on the Delta ecosystem.

Response: Comment noted.

Cities, Sanitation Districts and Associations

Central Valley Clean Water Association (CVCWA)

CVCWA Comment #1: The renewal of the Permit for the SRWTP does not require an antidegradation analysis. The state’s antidegradation policy (Resolution No. 68-16) provides that existing high quality waters “will be maintained until it has been demonstrated to the State that any change” will meet certain criteria. As the Proposed Permit recognizes, SRCSD is not requesting an increase in discharge capacity nor does the Proposed Permit allow for an increase in flow or mass of pollutants to the receiving water, except with regard to cyanide.

Respecting cyanide, SRCSD performed a dynamic modeling analysis representing a more accurate picture of the mixing zone concentrations and justifying a less stringent effluent limitation that provides reasonable protection of the aquatic life beneficial use. The subject effluent limitation will not result in an increase in the concentration of cyanide. (Id. at p. F-89.) Accordingly, no reduction in water quality requiring SRCSD to complete an antidegradation analysis will occur under the Tentative Order.

Response: See response to SRCSD Comments #37-39 and 54.

CVCWA Comment #2: Statements and conclusions in the Proposed Permit regarding BPTC are fundamentally flawed. Because no new antidegradation analysis is required to renew SRCSD’s permit and SRCSD withdrew its request for increased capacity, the Proposed Permit should not use the antidegradation analysis prepared for that request. Even though the Proposed Permit would not allow for increased pollutant loading, the Proposed Permit uses the antidegradation analysis to determine if the currently permitted discharge would result in significantly increased pollutant loading. The Proposed Permit concludes that the existing discharge degrades the receiving water and therefore requires Best Practicable Treatment or Control (BPTC). This represents an antidegradation baseline of zero for SRCSD instead of a baseline equivalent to existing water quality. This new approach sets forth a precedent that is of concern for CVCWA. Moreover, the approach violates state policy regarding the definition of baseline quality. Neither the evidence in the record nor the Proposed Permit’s findings support that BPTC as identified in the Proposed Permit is reasonable. Indeed, the socio-economic data in the record prevents any finding of reasonableness. Further, the Proposed Permit does not provide the requisite legal and technical analyses as to why nitrification, denitrification and the equivalent of Title 22 filtration with ultraviolet light or chlorine disinfection

treatment constitutes BPTC for this discharge. The Proposed Permit is also to address the economic and social costs (tangible and intangible) of the proposed discharge compared to the benefits. In this case, the Proposed Permit fails to analyze the proposed requirements accordingly, and as a result, the technology that would be required is wholly out of proportion to the cost that SRCSD's ratepayers would incur and thus is not best "practicable" treatment or control. Statements made in the Tentative Order alleging the need for BPTC as identified therein are not proper findings nor do they support the new treatment requirements. None of the statements substantiate the proposed requirements in the name of BPTC as necessary to protect beneficial uses or that the Sacramento River is high quality for the constituents identified.

Response: See response to SRCSD Comments #37-39.

CVCWA Comment #3: The requirement for the SRWWTP to treat its effluent in accordance with the reclamation criteria of Title 22 for unrestricted reuse or equivalent should be removed from the Proposed Permit. The antidegradation policies do not justify the requirement of this treatment level as BPTC. Further, the Title 22 criteria apply to the treatment and use of recycled water for specified beneficial use—not to discharges to surface waters. The data and findings do not satisfy this threshold. The Proposed Permit references a new risk threshold (1 in 10,000 risk and 1 log removal) from the Department of Public Health (DPH) that has no legal or regulatory basis as another reason for requiring compliance with Title 22 filtration requirements. This risk threshold is not met in the receiving waters upstream of the SRWTP. In addition, DPH's risk threshold is significantly greater than those applicable to bathing beaches and USEPA's recommended risk thresholds for E. coli and fecal coliform. The Proposed Permit fails to bridge the analytic gap between the raw evidence and permit requirement to treat to Title 22 standards or the equivalent.

Response: See response to SRCSD Comments #1-6.

CVCWA Comment #4: The Effluent Limitations for ammonia and nitrate should be revised. The SRWTP should receive acute and chronic aquatic life dilution credit for ammonia, and the effluent limitations for ammonia and nitrate should be revised accordingly. The Proposed Permit denies dilution credits based on hypotheses related to whether ammonia might contribute to pelagic organism decline (POD) in the Delta and criteria being considered (but not yet adopted) by US EPA. There is no scientific consensus on a causal link between ammonia and the POD. The Proposed Permit includes overly stringent effluent limitations for ammonia given the uncertain state of the science and in the absence of a demonstrated causal link between the SRWTP's discharge and the POD or other

use impairments. As a result of the overly stringent ammonia limitations, the Proposed Permit would require the SRWTP to nitrify its effluent fully, substantially increasing the nitrate levels in the effluent. These levels would not exist absent full nitrification. The Proposed Permit then orders full denitrification of the fully nitrified effluent. The Proposed Permit's mandate for denitrification is not based on sound science. Further, the effluent limitation for nitrate is not a water quality-based effluent limitation (WQBEL) as claimed. Rather, the limitation derives from a cost-benefit attainability study which was not prepared with the purpose of establishing effluent limits, making the limitation a technology-based requirement that exceeds federal law and violates the state prohibition against dictating the manner of compliance.

Response: See response to SRCSD Comments #8-28.

CVCWA Comment #5: The Proposed Permit should base WQBELs on the dilution credits that have been justified for use in the permitting process. The Proposed Permit inappropriately denies dilution credits for Bis(2-ethylhexyl) phthalate, carbon tetrachloride, chlorodibromomethane, dichlorobromomethane, pentachlorophenol, tetrachloroethylene, cyanide, manganese, and methyl tertiary butyl ether. The Proposed Permit states that dilution is allowed for these constituents, but denies granting the allowable dilution based on the use of assimilative capacity and antidegradation concerns. While the Regional Water Board may deny or limit mixing zones and dilution credits, it may do so only to protect beneficial uses, meet the conditions of the SIP, or comply with other regulatory requirements. The Central Valley Water Board must fully consider the information in the record, the high cost to meet the effluent limitations without allowing the dilution credit and lack of evidence of any harm associated with a mixing zone.

Response: See response to SRCSD Comments #41-46.

CVCWA Comment #6: CVCWA requests that you remove the Proposed Permit's requirement for SRCSD to conduct a study to develop procedures for conducting whole effluent toxicity testing using *Hyalella azteca* as the test species. While we do not agree that *Hyalella azteca* is a "common species for determining toxicity in the Delta," we are more concerned about the Central Valley Water Board placing an enforceable requirement on a single POTW to develop an analytical test method having substantial implications for other POTWs in the Region. Toxicity test-method development is a major undertaking that requires significant resources and expertise and is best left to an iterative and accountable public rulemaking process of an agency such as USEPA. USEPA has already developed test methods for toxicity at 40 C.F.R. part 136.

The federal regulations require that monitoring under an NPDES permit be “conducted according to test procedures approved under 40 CFR part 136 unless another method is required under 40 CFR subchapters N or O.” Further, the federal regulations provide processes by which a state may apply for approval of an alternate test procedure. (40 C.F.R. § 136.4.) Even if the test procedure would not be an “alternate” in this case, the regulations are informative in that they establish a high threshold for the approval of a test procedure not listed in 40 C.F.R. part 136 or 40 C.F.R. subchapters N or O. Namely, the applicant must provide data justifying that different procedures are necessary together with published studies establishing the applicability of the new procedure to the subject effluents.

Response: See response to SRCSD Comments #67 and 69.

CVCWA Comment #7: The Total Mercury mass load limit should be an interim limitation, an approach which is consistent with the Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento-San Joaquin River Delta Estuary. Final approval of the total maximum daily load (TMDL) for Delta Methylmercury will eventually replace—not add to—this total mercury load limitation with a methylmercury load limitation. Further, the term “mass load” is redundant, as load is expressed in units of mass per time. Accordingly, we ask that you remove the final effluent limitation for mercury and include an interim total mercury load limitation as follows:

Mercury, Total Recoverable. Effective immediately, the total calendar-year load of total mercury discharged to the Sacramento River shall not exceed XX pounds.

In addition, we ask that you revise the reopener provisions (Proposed Permit at pp. 23-25) to include a reopener clause for total mercury limitations as follows:

Mercury. If the Delta Methylmercury TMDL is approved by USEPA, this Order may be reopened and the interim effluent total mercury load limitation replaced with a final methylmercury load limitation (if attainable). If the Regional Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the mercury load limitation and/or the need for a mercury offset program for the Discharger.

Response: The reopener does not need to be rewritten to include the proposed language. If the TMDL allows a mercury offset program, changes to the permit will be evaluated at that time.

CVCWA Comment #8: The Central Valley Water Board should re-calculate SRCSD's total mercury load limitation based on an earlier period of record that accounts for higher loads. While there is an inherent expectation that source control will reduce effluent loads, and source control appears to have been effective over the past several years at the SRWWTP, other factors beyond SRCSD's control could increase loads—i.e., regionalization, long-term climate cycles, service area growth, etc. By basing the limit on the most recent time period, SRCSD receives less credit for its early, proactive source reduction efforts accomplished since 2001. The repercussions of this choice will be to discourage any other POTW from taking early action for fear of similar penalties.

Response: See response to SRCSD Comment #56.

CVCWA Comment #9: The monitoring and reporting program of the Proposed Permit would require SRCSD to monitor the SRWWTP's effluent at least once a week for *Cryptosporidium* and *Giardia*. Such a requirement is inappropriate given the absence of significant risk to either drinking water or recreational users. SRCSD has performed sufficient monitoring to understand the levels of these organisms in its effluent. Additional ongoing monitoring for *Cryptosporidium* and *Giardia* is not necessary to characterize the discharge or to ensure compliance with the effluent limitations for total coliform. *Cryptosporidium* and *Giardia* are subject to environmental fate processes in the ambient environment, and thus are not necessarily present when downstream waters are used for drinking water purposes. Protozoa are inactivated by exposure to UV light from sunlight and are removed from rivers via sedimentation. *Giardia* and *Cryptosporidium* are not detected frequently in State Water Project intake facilities according to the State Water Project Sanitary Survey.

Response: See response to SRCSD Comment #79.

Tri-Tac and California Association of Sanitation Agencies (CASA)

Tri-Tac and CASA, Comment #1: The Proposed Permit includes inappropriate use of Title 22 treatment requirements, there are inconsistencies in the fact sheet, requires an unfunded mandate, and is not consistent with US EPA's approved risk criterion.

Response: See response to SRCSD comments #1-5.

Tri-Tac and CASA, Comment #2: The Proposed Permit includes ammonia, nitrate and nitrite limits not based on sound science or WQBELs. The proposed limits are also in conflict with Water Code section 13360(a).

Response: See response to SRCSD Comments #8-28.

Tri-Tac and CASA, Comment #3: The Proposed Permit denies dilution which deviates from SIP and does not offer a fact based decision for denying mixing zone.

Response: See response to SRCSD Comments #41-46.

Tri-Tac and CASA, Comment #4: The Proposed Permit requirement of developing and completing a whole effluent toxicity (WET) using *Hyaella azteca* as the test species is typically done by a large government organization, not a discharger; developing these test procedures for *Hyaella* would require significant staff and funding resources. A test method may have consequences for the entire POTW community without giving them a chance to participate or comment on its development. An approved toxicity test procedure exists in Federal regulations via 40 Code of Regulations (40 CFR), and these should not be deviated from. Task V on page 28 would require 40 CFR part 136 promulgation of the test method before it could be implemented into the WET program.

Response: See response to SRCSD Comments #67 and 69.

Central Contra Costa Sanitary District (CCCSD)

CCCSD Comment #1: The Proposed Permit requirement for full Title 22 treatment for contact recreation to meet a 2.2 total coliform standard far exceeds the fecal coliform water quality objective specifically adopted by the Basin Plan to protect this beneficial use. While the RWQCB may choose, on a case-by-case basis, to develop a more stringent water quality objective, it must consider the economic impacts of doing so, in accordance with Water Code Sections 13241. Given the significant cost of providing the additional level of treatment required above the water quality objective, it does not appear that there was a consideration of cost versus benefit in applying this requirement.

Response: See response to SRCSD Comments #1-5.

CCCSD Comment #2: The Proposed Permit's ammonia limits and requirement for nitrification are not founded on a solid understanding of the impact to the aquatic system. The body of work on this topic is growing, as evidenced by many of the citations in the permit renewal package. There is ongoing work and

analysis that will continue to inform the ammonia/nitrate/nitrite permitting process. As such, the studies cited do not provide a complete understanding of the impact of ammonia/nitrate and nitrite discharges on the aquatic system. We support the ongoing efforts to develop a more comprehensive understanding of these impacts, taken in context with all of the other stressors in the Delta and the Suisun Bay. These other stressors include, but are not limited to, variations in salinity caused by seasonal flow fluctuations and water exports, and seasonal changes in turbidity and clarity. We request the Central Valley Water Board to look at this issue holistically and be convinced that the significant resources required for nitrification to the level proposed are justified in light of the expected water quality improvements.

Response: See response to SRCSD Comments #8-28.

CCCSD Comment #3: SRCSD effluent currently has a low concentration of nitrates which will increase substantially if the plant is required to fully nitrify in order to comply with the proposed ammonia limits. As a result of this increase, the Proposed Permit concludes that reasonable potential exists for the discharge to cause or contribute to an exceedance of applicable water quality standards, and a numeric effluent limit is required. The bases for the nitrate effluent limits, however, are questionable, consisting solely of preserving the current effluent ratio of nitrogen to phosphorous. We remind the Central Valley Water Board to recognize that achieving these very low nitrate concentrations reliably is beyond the limits of current technology and will require the addition of substantial amounts of carbon, such as methanol, and significantly increase the greenhouse gas footprint of the SRCSD plant with no demonstrated water quality benefits.

Response: See response to SRCSD Comments #23-28.

CCCSD Comment #4: The basis for denying a dilution credit based on mixing zone studies for ammonia is not well documented. While regional water boards have discretion in determining the amount of dilution credit to be allowed, a permit can only limit or deny dilution credit if there is a defensible technical basis for the limitation. The State Water Board has affirmed that regional boards “must explain the denial of a mixing zone based on the facts of the discharge” (in the Matter of Yuba City, Order WQ 2005-013 at p 10). It does not appear that this standard has been met.

Response: See response to SRCSD Comments #41-46.

CCCSD Comment #5: The tentative permit requires multiple special studies, including one intended to “develop procedures for conducting whole effluent toxicity (WET) testing using *Hyalella azteca* as the test species” (Tentative Permit at p. 28). The development of test procedures requires significant resources and expertise and is a role appropriately undertaken by large governmental agencies,

e.g. US EPA. We are concerned that the Central Valley Water Board is requiring a permittee to single-handedly develop a test procedure that could have consequences for the entire POTW community. Requiring SRCSD to develop test procedures as described in the tentative permit is not practical nor is it justified. We are concerned that this sets a precedent and we request that this requirement be removed from the Tentative Permit.

Response: See response to SRCSD Comments #67 and 69.

City of Davis

City of Davis, Comment #1: The City of Davis believes it is misleading to identify the planning level cost estimate of \$140 million for replacement of the existing treatment plant with an entirely new state of the art facility as a “tertiary conversion” cost. We request that reference to the City of Davis be removed from the table, or that the table be deleted.

Response: Central Valley Water Board staff agree and the City of Davis planning level cost estimate has been removed from the tentative permit.

Delta Diablo Sanitation District

Delta Diablo Sanitation District, Comment #1: The requirement for SRCSD to treat its wastewater to Title 22 standards for total coliform is unprecedented and lacks adequate findings or rationale. It has not been demonstrated that the current Basin Plan water quality objectives for total coliform are insufficient for protecting recreational water contact beneficial uses. Meeting Title 22 standards would require significant capital and operating costs with unknown and possibly little environmental benefit.

Response: See response to SRCSD Comments #1-5.

Delta Diablo Sanitation District, Comment #2: While regional water boards have the discretion in determining the amount of dilution credit to be allowed, the Central Valley Water Board’s denial of a mixing zone does not have a defensible basis for the limitation. The State Implementation of Toxic Standards in Inland Surface Water, Enclosed Bays and Estuaries is intended to establish statewide consistency for permitting and dilution credits have been granted to other dischargers for ammonia and other non-bioaccumulative pollutants.

Response: See response to SRCSD Comments #41-46.

Ironhouse Sanitary District

Ironhouse Sanitary District, Comment #1: The tentative permit lists Ironhouse Sanitary District (ISD) as one of the agencies included in Table F18. In a column headed “tertiary conversion costs” the table lists ISD’s cost as \$54.5 million. In ISD’s case, the \$54.5 million is the total cost of constructing an entirely new treatment facility along with major influent and effluent piping and new river outfall to meet all permit requirements for a new surface water discharge—not an incremental cost for upgrading an existing secondary treatment facility to tertiary. There is concern that listing this cost figure in a column headed “tertiary conversion costs” is misleading and may result in “apples to oranges” comparisons. Therefore, ISD recommends that the table either be revised to include relevant facts to place the costs in context or deleted from the Fact Sheet.

Response: Table F-18 is now Table F-17 and the heading reads Upgrade and Expansion costs.

Partnership for Sound Science in Environmental Policy

Partnership for Sound Science in Environmental Policy, Comment #1: The Proposed Permit would require SRCSD to treat its wastewater to meet so-called “Title 22” recycled water standards in a way that conflicts with applicable guidance from the California Department of Public Health, as well as the practice of Regional Boards throughout the state - - including the Central Valley Water Board. It is well-known and commonly accepted that current CDPH guidance recommends adherence to the US EPA risk standard for pathogens exposure where receiving waters provide at least 20:1 dilution, as is the case for SRCSD’s discharge. According to the “Fact Sheet” that accompanies the Proposed Permit, your staff seeks to justify these unreasonable permit limits on the ground that “undiluted effluent may be used for the irrigation of food crops and/or body-contact recreation.” Since the 1999 DPH guidance addresses potential health risks associated with “body-contact recreation”, and since the Central Valley Water Board’s recent permit decisions make clear that the more restrictive micro-filtration treatment is unnecessary to provide adequate protection for recreational uses in receiving waters that provide for greater than 20:1 dilution (as the Sacramento River does with respect to the SRCSD discharge), it can only be that your staff is imposing the more restrictive pathogens standard because “undiluted effluent may be used for the irrigation of food crops.” The Sacramento Region can ill-afford the economic devastation that would be thrust upon it to build a Billion Dollar micro-filtration treatment plant just because the Central

Valley Water Board staff thinks it “might be a good idea,” based on a poor understanding of actual conditions.

Response: See response to SRCSD Comments #1-5.

Partnership for Sound Science in Environmental Policy, Comment #2: If there was compelling evidence that the ammonia discharges from SRCSD were having a negative impact on the Delta ecosystem, then it would be appropriate to consider imposing further regulatory constraints on those discharges. But there is no such compelling evidence, as your own staff has acknowledged. Indeed, requiring SRCSD to nitrify and denitrify its discharge may not positively affect the Delta, but once a decision has been made that requires a commitment of nearly \$800 Million in ratepayer money, it will be nearly impossible to undo it.

Response: See response to SRCSD Comments #8-28.

City of Roseville

City of Roseville, Comment #1: The city strongly objects to any reference in Table F-18 to the City-owned and operated Dry Creek and Pleasant Grove Wastewater Treatment Plants (DCWWTP and PGWWTP). The footnote on Table F-18 indicates that these data came from a “Telephone Survey by Elizabeth Lee, CVRWQCB”. While the city concurs that Ms. Lee spoke to Mr. O'Brien about tertiary treatment at both DCWWTP and PGWWTP, the information presented in Table F-18 does not reflect the conversation between Mr. O'Brien and Ms. Lee. Mr. O'Brien informed Ms. Lee that he did not have a breakdown of just the tertiary treatment upgrades at each plant. Ms. Lee did not inform Mr. O'Brien that her inquiry was to be used in the fact sheet within the Proposed Permit rather Mr. O'Brien understood that Ms. Lee was gathering general information only. We request that all references to the City of Roseville in Table F-18 be removed and we strongly recommend that this table be deleted on its entirety.

Response: See response to Ironhouse Sanitary District Comment #1. Central Valley Water Board staff disagree on removing the table. The table illuminates the fact that the costs for SRCSD's cost to comply with the tentative permit is similar to other communities.

City of Folsom

City of Folsom, Comment #1: The Proposed Permit will substantially reduce the economic viability of growth in Sacramento County and West Sacramento

that will create market pressures for growth to move elsewhere in the region and beyond.

The Proposed Permit does not consider economic objectives as required under the Porter-Cologne Act.

Response: See response to SRCSD Comment #1.

City of Folsom, Comment #2: The costs to the SRCSD customers for the Proposed Permit is estimated by SRCSD to exceed \$2-billion. In recognition of these costs, the CVRWQCB is proposing to give SRCSD 10 years to comply. This impact would likely triple the monthly costs to existing Sacramento communities and adversely impact the region's economic viability as a result of these new monthly costs.

The Proposed Permit does not consider the economic objectives as required under the Porter-Cologne Act.

Response: See response to SRCSD Comment #1.

City of Folsom, Comment #3: The Sacramento region, in 2004, adopted a blue print plan for growth in the region that recognizes environmental protection and the need to strategically allow growth in recognized areas. A significant element for the economic vitality of the Sacramento region is to allow for planned growth and to remain competitive with fees in order to allow smart growth to occur.

The Proposed Permit will adversely impact the regional housing through decreasing the economic viability in a region targeted for one of the highest growth rates. The conditions in the Proposed Permit do not consider the economic objectives as required under the Porter-Cologne Act.

Response: See response to SRCSD Comment #1.

City of Folsom, Comment #4: The cost increases from the Proposed Permit will have an adverse impact on the affordable and less expensive housing products in which there is a growing market demand, and does not consider the need for developing housing within the region as required under Porter Cologne §13241.e.

Response: See response to SRCSD Comment #1.

City of Folsom, Comment #5: Porter-Cologne §13241.c recognizes that the water quality may be changed and considered when establishing water quality objectives. §13241.c also recognizes that the water quality conditions could be

achieved through controls which affect water quality. §13241 requires that reasonable judgment should be used to determine the benefits and impacts in considering establishing water quality objectives.

The conditions in the Proposed Permit does not consider the reasonable objectives as required under §13241 of the Porter-Cologne Act.

Response: See response to SRCSD Comment #1.

City of Folsom, Comment #6: There is no recognition of the innovative, community-based solutions and the subsequent millions of dollars spent on ecological enhancements by the American River community.

Despite commitments to protect the American River, SRCSD River customers would be forced to fund the conditions in the Proposed Permit, which have no scientific basis to demonstrate economical and environmental benefits to the Delta. SRCSD has proposed ammonia reduction improvements by modifying their secondary treatment process to get partial ammonia removal that will address future water quality conditions in the Sacramento River conditions that may be caused by growth in the region.

Response: See response to SRCSD Comments #8-28.

City of Folsom, Comment #7: The Central Valley Water Board needs to allow the communities impacted by the Proposed Permit to provide insight in developing innovative and economical solutions. For example, the American River agencies, through the Water Forum, have restored and enhanced the water quality and have maintained water flows to protect the American River ecosystem, a contributing waterway into the Delta.

Response: Perhaps during the 10 year compliance schedule, the District will be able to find “innovated and economical” solutions to comply with the permit.

City of Folsom, Comment #8: There is significant debate in the regulatory and scientific arenas regarding the impacts of ammonia from SRCSD’s effluent into the Sacramento River and the associated ecological health of the Delta. There is no scientific consensus on whether ammonia is truly the primary factor in the Delta's decline.

Response: See response to SRCSD Comments #8-28.

City of Folsom, Comment #9: Questions regarding impacts from agricultural and mining activities and the cumulative impacts from southern California Delta diversions have been overshadowed. The conditions in the Proposed Permit do

not consider the reasonable protection objectives as required under §13241 of the Porter-Cologne Act.

Response: See response to SRCSD Comment #1.

City of Folsom, Comment #10: It is not reasonable for the Central Valley Water Board to be compelled to pursue a permit focused at SRCSD, as the largest upstream wastewater discharger into the Sacramento River, while acknowledging that they will not wait until there is scientific validation and consensus on ammonia impacts from SRCSD.

Imposing the Proposed Permit onto SRCSD when there is not enough evidence to justify ammonia regulation will have significant impacts to the Sacramento region and establish an unnecessary trend to prematurely impose costly mandates prior to conclusions of the need, benefits and reasonableness to California communities.

Response: See response to SRCSD Comments #8-28.

City of Folsom, Comment #11: The Porter-Cologne Act requires the Central Valley Water Board to establish water quality objectives to ensure the reasonable protection of beneficial uses and the prevention of nuisance while also recognizing that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses.

A Proposed Permit based on unresolved science and speculative projections is not reasonable and does not consider the reasonable protection objectives as required under §13241 of the Porter-Cologne Act.

Response: See response to SRCSD Comment #1.

City of Vacaville

City of Vacaville, Comment #1: The Proposed Permit identifies the City of Vacaville to have had a “tertiary conversion” cost of \$150 million. The City of Vacaville believes the \$150 million cost to be for permit compliance for all plant upgrades, which include tertiary filtration, denitrification, elimination of bypass (including construction storage) and demolition of outdated facilities.

In summary, we believe including these costs in a table under the heading “tertiary conversion” is inaccurate. It appears that for Vacaville, the table is reflective of new permit compliance costs and should be revised to reflect that.

Response: See response to City of Roseville Comment #1

City of West Sacramento

City of West Sacramento, Comment #1: To meet the demands of the Proposed Permit an estimated \$2 billion in capital cost would be needed to complete the upgrades and an additional \$70 million for annual operations and maintenance. These costs, if borne by the region's rate payers would result in the tripling of sewer use rates and connection fees skyrocketing over 4.5 times their current level. The resulting impact to the local economy could be devastation, especially in these already tough economic times.

We urge the Central Valley Water Board to reexamine the Proposed Permit and attempt to balance the competing but equally serious impacts to the region and revise the permit limits to keep with the spirit and tenants of the federal Clean Water Act.

Response: See response to SRCSD Comment #1.

City of West Sacramento, Comment #2: The Proposed Permit requires complete removal of ammonia and nitrates. These requirements are a of particular concern to the City of West Sacramento as they exceed limits applied elsewhere in the state, and may go beyond "reasonable and necessary" as required by the Clean Water Act. The city of West Sacramento supports Central Valley Water Board interests in protecting the water quality and ecosystem of the Sacramento-San Joaquin Delta. As such, it is imperative that regulatory requirements be based on sound science and proven environmental benefit. In the case of the proposed ammonia limit, there is tremendous debate on whether ammonia discharges from the SRCSD treatment plant are directly linked to the decline in the delta ecosystem.

We urge the Central Valley Water Board to reexamine the Proposed Permit and attempt to balance the competing but equally serious impacts to the region and revise the permit limits to keep with the spirit and tenants of the federal Clean Water Act.

Response: See response to SRCSD Comments #8-28.

City of West Sacramento, Comment #3: The Proposed Permit introduces new limits on pathogens (Giardia and Cryptosporidium). These requirements are of particular concern to the City of West Sacramento as they exceed limits applied elsewhere in the state, and may go beyond "reasonable and necessary" as required by the Clean Water Act. The city of West Sacramento supports Central

Valley Water Board interests in protecting the water quality and ecosystem of the Sacramento-San Joaquin Delta. As Such, it is imperative that regulatory requirements be based on sound science and proven environmental benefit. In the case of the proposed pathogen limit, this would mean treating the wastewater to the same standard as drinking water, then discharging the treated water body in which background levels already exceed the pathogen limits.

We urge the Central Valley Water Board to reexamine the Proposed Permit and attempt to balance the competing but equally serious impacts to the region and revise the permit limits to keep with the spirit and tenants of the federal Clean Water Act.

Response: See response to SRCSD Comments #1-5.

City of Rancho Cordova

City of Rancho Cordova, Comment #1: The Proposed Permit could cause rate payers sewer rates to more than triple. Sewer impact fees for construction of new homes and businesses would also have to be increased dramatically. This is a significant burden to place on the city's rate payers when the benefit of the upgrades has not been adequately demonstrated. The Proposed Permit requires advanced treatment that is not fully vetted or compelling enough to make informed regulatory decisions. Therefore, the cost to the community is not appropriately balanced against the uncertain improvements to the environment and public health.

Response: See response to SRCSD Comments #1-5.

City of Rancho Cordova, Comment #2: The Proposed Permit goes beyond what is "reasonable and necessary" as required by the Clean Water Act, and enters into policy-setting based on perception and not based on a documented public health problem or existing standards. For example, the permit threshold requirements for Cryptosporidium and Giardia exceed the standards established by the United States Environmental Protection Agency (USEPA). USEPA standards are used for protection of California's public beaches, so why are they not appropriate for the Sacramento River? We also understand that, of 18 NPDES permits issued to municipal wastewater treatment plants by the Central Valley Water Board since 2007, all but two impose less restrictive pathogen standards than the ones recommended for SRCSD.

Response: See response to SRCSD Comments #1-5.

City of Rancho Cordova, Comment #3: SRCSD has studied and acknowledged the scientifically established need to remove about half of the ammonia from its effluent based on the potential for future low dissolved oxygen condition in the river under rare circumstances. Before our region is forced to construct massive facility improvements, we believe it would be prudent to perform additional studies, pilot testing and obtain better consensus around the science.

Response: See response to SRCSD Comments #8-28.

Rancho Cordova Chamber of Commerce

Rancho Cordova Chamber of Commerce Comment #1: The demands in the permit go beyond what is “reasonable and necessary” as required by the Clean Water Act. Although the SRCSD has acknowledge the scientifically established need to remove about half of the ammonia from its effluent, the cost to the community for the additional requirements is not appropriately balanced against the uncertain improvements to the environment and public.

Response: See response to SRCSD Comments #1-5.

Atlantic Consultants

Atlantic Consultants Comment #1: Though I serve on the Folsom City Council and represent Folsom on the SRCSD Board, currently as Vice Chair, my commentary is largely on the technical side, and based upon my education and experiences as a licensed Civil Engineer.

The Draft Permit requires significant additional treatment for removal of ammonia, de-nitrification, cryptosporidium, giardia and numerous other discharges that are either not currently regulated by existing water quality standards or are required to be reduced to previously unseen levels. The installation of the additional treatment facilities are currently estimated by SRCSD Staff at approximately \$2 Billion dollars, and that does not account for the ongoing operations and maintenance of those facilities and processes.

Though SRCSD would agree that removal of some of the ammonia would be prudent, there is no scientific basis for removal of ammonia to the extent required in the Draft Permit. With regard to cryptosporidium and giardia, the requirements of the permit are an attempt to solve a problem that does not currently exist upstream or downstream of the plant.

The requirements in the Draft Permit are not warranted and should be revised to reflect current science and sound engineering principals. The revision of the permit should also include consideration of the economic impacts to the Sacramento Region, as the CVRWQCB is required to do in their analysis.

Response: See response to SRCSD Comments #1-5.

Sacramento County Taxpayer's League

Sacramento County Taxpayer's League Comment #1: The permit attempts to reduce 'pollutants' that have not been proven to be harmful to the delta ecology and are significantly in excess of well established standards of treatment by health officials and the federal Environmental Protection Agency.

Response: See response to SRCSD Comments #1 - #5 regarding disinfection requirements and #8 and #12 for ammonia requirements.

Sacramento County Taxpayer's League Comment #2: The initial cost of additional capital improvements and annual operating expenses will create a great hardship to the economically distressed Sacramento County, costing ratepayers between \$400 to \$500 dollars a year. This impact will be extremely hard on those individuals that are least able to afford these rate increases.

The capital improvement costs will likely increase new economic development costs by approximately 5%. Many economic experts, as cited in the Wall Street Journal, believe that until housing and other economic development resumes, the economy of the Sacramento region will continue to lag, further harming the ratepayers within the District.

If implemented, the increases in costs will encourage relocation of economic resources and housing to outside the boundaries of the District. Such relocation will lead to an increase in travel requirements of the communities, resulting in increased air pollution and other problems associated with increased transportation needs.

Response: See response to SRCSD Comments #1.

Sacramento County Taxpayer's League Comment #5: The technical capital improvements required to implement the permit requirements will require a significant increase in energy requirements. The permit does not acknowledge the potential environmental impact of such a significant increase in power requirements.

Response: See response to SRCSD Comments #1.

Sacramento Hispanic Chamber of Commerce

Sacramento Hispanic Chamber of Commerce Comment #1: The recommendations go well beyond what is “reasonable and necessary” under the federal Clean Water Act. Additionally, they do not appear to give appropriate consideration to the economic impact of these measures. Implementation of the “Tentative Discharge Permit” would have a significant impact on local ratepayers and businesses here in the Sacramento Region.

We understand and support the need to be environmental stewards. It is to the benefit of our region, our quality of life and even our economy that we take measures to protect our environment and our ecosystem. Such efforts, however, must be based upon established science and must also be balanced with their economic impacts. We feel the Tentative (draft) Permit, issued to SRCSD, fails to meet those standards. Implementation of its requirements will result in excessive burden to the greater Sacramento Region. This cost is not appropriately balanced given the inconclusive benefits to the environment or public health.

Response: See response to SRCSD Comments #1 - #5 regarding disinfection requirements and #8 and #12 for ammonia requirements.

Sacramento County Municipal Services Agency

Sacramento County Municipal Services Agency Comment #1:

Thank you for the opportunity to respond to the Sacramento Regional County Sanitation District’s (SRCSD) Tentative Discharge Permit. While water is a precious resource and it is your role to protect water quality by regulating potentially water polluting practices, the manner in which the Board enforces these regulations needs to be balanced with the economic realities certain solutions bring. As the Infill Development Coordinator for Sacramento County I am charged with facilitating and incentivizing sustainable infill development. As I’m sure you are well aware the federal and state governments recognize that one of the key solutions to addressing climate change, green house gas reductions and development of sustainable communities is to focus new growth within our urban and suburban areas, rather than promoting sprawl and greenfield development. In doing this we rely on our existing infrastructure within our existing communities. There are many challenges to doing infill development and as a county we are doing all we can to reduce development costs in order to incentivize new development.

As a compromise I request your Board consider a phasing plan, over a period of 25-30 years. Granted any rate increases in our current economy will make things even harder, but I understand that some improvements need to be initiated. I ask you consider a reasonable more manageable and incremental approach to implementation of the new permit. Perhaps there will be opportunities for SRCSD and the Region to obtain other federal or state funding to assist with permit implementation to minimize the impacts to our hundreds of thousands of residents.

Response: See response to SRCSD Comment #1.

Sacramento Area Council of Governments (SACOG)

SACOG Comment #1: The possibility of substantially increased development fees and monthly charges stemming from the renewal of the NPDES permit threatens the implementation of Blueprint growth strategy important to our region's transportation system, economy, and overall quality of life. The costs of compliance with the permit will make housing and business growth substantially less economically viable in exactly the part of the region we are targeting for the highest growth rates. The cost increase also will have their greatest impact on the less expensive housing produces for which we believe there is high and growing market demand

Response: See response to SRCSD Comment #1.

City of Corona

City of Corona Comment #1: The City urges approval of the staff recommendation for the NPDES permit for the SRCSD. The City imports approximately 50% of its drinking water from Western Municipal Water District uses the Delta as source water. The City has been required to discharge only tertiary treated water to the Santa Ana Watershed for decades. The costs have long impacted residents, but the long term benefits of a clean water supply and environment has benefitted Corona and the region. Corona understands SRCSD will face difficulties with implementation of the permit. Action to protect the Delta ecosystem and drinking water supplies that affect California as a whole is necessary. The SRCSD discharge is a stressor contributing to the ecological crisis and we agree to DPH recommendations to remove pathogens.

Response: Comment noted.

City of Sacramento

City of Sacramento Comment #1: The tentative permit will require unprecedented capital and operational costs without commensurate benefit to the environment or public health. There is no scientific consensus to support the proposed treatment requirements for full removal of ammonia, the proposed pathogen standards go well beyond what is needed to protect public health, and the costs to comply will be devastating to ratepayers and the regional economy. Imposing such costs also will indirectly affect the City's ability to raise rates paid by the same ratepayers to fund maintenance and improvement of the City's aging water and sewer systems. Prior to establishing advanced treatment requirements for individual permittees, such as SRCSD, the beneficiaries of such measures should be identified through an open process and incorporated into a plan that equitably spreads the capital and operational costs to those who benefit.

Response: See response to SRCSD Comment #1 and Agrium Comment #1. In addition to the comment that others should pay for the upgrades, the polluter pays for cleaning their own waste just as those upstream of the City must pay for treating their wastes.

State and Federal Agencies

United States Fish and Wildlife Service (USFWS)

USFWS Comment #1: The US Fish and Wildlife Service (Service) supports the draft permit and believes it would result in reductions in aquatic pollution in the Sacramento River and Delta.

Response: Comment noted.

USFWS Comment #2: If the permit is adopted with less improved environmental conditions, the Service will seek opportunity to provide additional clarification and comments.

Response: Should there be substantial changes in the permit a revised tentative permit would be available for stakeholder comments.

USFWS Comment #3: The Service identifies the science-based need and requests that the Central Valley Water Board make it a priority to work with stakeholders to develop and implement numeric nutrient criteria for Delta water bodies.

Response: Comment noted.

USFWS Comment #4: The Service recommends that the Central Valley Water Board and SRCSD conduct field studies and modeling efforts to determine the fate and transport of nitrogen and ammonia from effluent in the Delta.

Response: The Ammonia and Nitrogen study has been removed from the permit as a requirement. Studies on this topic are currently being performed.

USFWS Comment #5: The Service recommends water quality criteria be met at the end of pipe and that no dilution or mixing zones be permitted.

Response: Dilution for an acute mixing zone for any constituent is not included in this permit. Dilution is allowed for a chronic mixing zone for cyanide alone. The dynamic model was used to determine if a mixing zone would be protective of beneficial uses. The chronic mixing zone is approximately 400 feet by 350 feet.

USFWS Comment #6: There appears to be no chronic mixing zone permitted. The fact sheet and effluent limitations table contradictions make the determination unclear. If a chronic mixing zone is intended for chlorpyrifos and cyanide, concentrations of these chemicals have potential impacts on aquatic life, and the Service requests no mixing zones or dilution be granted for these chemical constituents.

Response: See response to US Fish and Wildlife Service Comment #5.

USFWS Comment #7: The Service strongly recommends ammonia and nitrate removal. Removal is needed to reduce phytoplankton uptake inhibition, effluent oxygen demand, and nutrient loading in the Delta.

Response: The tentative permit requires full nitrification and denitrification of the effluent to provide for ammonia and nitrate removal.

USFWS Comment #8: If promulgated, the 2009 ammonia criteria should be included in the final permit to protect freshwater mussels.

Response: Comment noted.

USFWS Comment #9: The Service supports the “Ammonia and Nitrogen” special studies.

Response: See response to US Fish and Wildlife Comment #4.

USFWS Comment #10: Effluent limits for BOD should result in compliance with the Basin Plan objective for dissolved oxygen of 7.0 mg/L.

Response: The tentative permit includes a BOD limitation of 10 mg/L which technologically achievable with tertiary filtration.

USFWS Comment #11: The Service requests that efforts be made during the interim effluent limitations to address oxygen depletion in the Sacramento River prior to the 2020 compliance deadline.

Response: See response to Water Agencies Comments # 2 and 22.

USFWS Comment #12: The Service acknowledges and appreciates the incorporation of our thermal recommendations into the Proposed Permit.

Response: Comment noted.

USFWS Comment #13: The Service will work with the Central Valley Water Board to insure that the required temperature studies meet information needs in a reasonable and timely manner.

Response: Comment noted.

USFWS Comment #14: The Service encourages long-term planning for thermal influence for the SRWTP.

Response: Comment noted.

USFWS Comment #15: The Service requests increased monitoring upstream of the facility at the Freeport Bridge to facilitate understanding of the baseline conditions upstream of the SRWTP and its effects on the Sacramento River and downstream waters.

Response: At this time additional monitoring at Freeport upstream of the discharge is not required. However, if this data is needed for the required fish studies it can be incorporated into the workplan.

USFWS Comment #16: The Service requests continuous monitoring for three parameters: 1) dissolved oxygen, 2) temperature, and 3) ammonia. These three water quality parameter should be monitored continuously at RSWD-003 and RSWD-004 or -005 through the interim effluent limitation period. This monitoring is needed to understand the SRWTP effects on the Sacramento River and downstream waters.

Response: See response to USFWS Comment #15.

USFWS Comment #17: The Service supports the use of *Hyalessa azteca* and rainbow trout as appropriate toxicity testing organisms.

Response: Comment noted.

USFWS Comment #18: The Service does not support the removal of ammonia from effluent during WET testing in determination of compliance. Ammonia removal is reasonable to remove for further toxicity identification.

Response: See response to Water Agencies Comment #44.

USFWS Comment #19: The Service acknowledges the inclusion of pyrethroid effluent monitoring and appropriately sensitive toxicity testing organisms.

Response: Comment noted.

USFWS Comment #20: The Service appreciates all efforts by the Central Valley Water Board and SRCSD to control pyrethroids in the SRWTP effluent.

Response: Comment noted.

USFWS Comment #21: The Service encourages the Central Valley Water Board and SRCSD to provide an interim plan which improves BOD and ammonia prior to the 2020 final effluent limitations.

Response: See response to Water Agencies Comments # 2 and 22

USFWS Comment #22: To be adequately protective of listed fish species, the Central Valley Water Board should adopt the Proposed Permit with the modifications provided by our comments. The proposed alternatives would not address endangered species needs or critical habitat concerns.

Response: See response to USFWS Comments #1-22.

United States Environmental Protection Agency Region IX (USEPA)

USEPA, Comment #1: The Proposed Permit includes 10-year compliance schedules for Title 22 requirements (BOD, TSS, total coliform), ammonia, chlorine residual, and chlorpyrifos, which may not be as short as possible, and may therefore be inconsistent with both State and Federal compliance schedule policies. Page F-99 of the fact sheet states the Discharger's infeasibility report proposes a 6-year compliance schedule for chlorpyrifos, a 9-year schedule for BOD, TSS, and total coliform, and a 10-year compliance schedule for ammonia. As the Central Valley Water Board provides 10-year compliance schedules for all the above pollutants, it appears the compliance schedules for chlorpyrifos, BOD, TSS, and total coliform are not as short as possible. The Central Valley Water Board must justify the specific length of any compliance schedule, considering the steps needed to modify or install treatment facilities, operations, or other measures and the time those steps would take. Please include this information in the fact sheet.

Response: Compliance with the proposed Order will require substantial structural changes at the SRWTP. The SRWTP is an activated sludge treatment plant that uses pure oxygen instead of typical aeration for their

biological treatment process. The use of pure oxygen has unique problems that make it difficult to make simple operational changes for ammonia and nitrate removal, as well as, filtration. Because of the magnitude of changes required, the District needs to evaluate the best way to construct a facility that will meet requirements. This may include a plant that is substantially a new facility. All the changes have to fold into a seamless wastewater treatment plant. The 10-ten year compliance schedule allows the District to both evaluation and construction time.

US EPA, Comment #2: The tentative order should include appropriate milestones for the BOD, TSS, total coliform, ammonia, and chlorpyrifos compliance schedules. The Clean Water Act (CWA) and its implementing regulations define a compliance schedule as, “an enforceable sequence of actions or operations leading to compliance with an effluent limitation.” US EPA regulations require any compliance schedule longer than a year to “set forth interim requirements and the dates for their achievement,” (40 CFR 122.47). Milestones can include actions such as breaking ground, partial construction completion, or obtaining the necessary permits. By themselves, annual progress reports are generally not considered sufficient compliance schedule milestones. Please provide appropriate milestones in the tentative order for each of the compliance schedules.

Response: Specific milestones for BOD, TSS, total coliform, and ammonia have been added to the proposed Order. The compliance schedule for chlorpyrifos has been moved to the proposed Time Schedule Order.

US EPA, Comment #3: The Central Valley Water Board should include a numeric water quality-based effluent limit (WQBEL) for chronic whole effluent toxicity. The CWA, NPDES regulations, and US EPA’s Technical Support Document for Water Quality-based Toxics Control all envision that effluent limits should be expressed numerically. An effluent limitation is a restriction imposed...on quantities, discharge rates, and concentrations of ‘pollutants’. Limits on whole effluent toxicity are necessary when chemical-specific limits are not sufficient to attain and maintain applicable numeric or narrative water quality.

US EPA does not object to WQBELs for toxicity serving to trigger initiation of a toxicity reduction evaluation/toxicity identification evaluation (TRE/TIE) process, but those WQBELs must be enforceable. Following 40 CFR 122.44(d)(1), without WET limits, permitting authorities cannot assure that water quality standards for chronic toxicity will be attained.

Pending adoption of toxicity policy amendment to the State Implementation Plan, the Central Valley Water Board has been following State Water Resources Control Board guidance by including a narrative chronic toxicity effluent limit in

permits where there is reasonable potential for the discharge to exceed water quality standards and requiring accelerated monitoring. The TRE/TIE accelerated monitoring requirements in the existing permit did not result in the identification of the sources of toxicity in the effluent; however, as the Central Valley Water Board described in the Aquatic Life and Wildlife Preservation issue paper, pyrethroid pesticides are present in toxic amounts in the effluent and ammonia toxicity is a major concern. As all sources of toxicity in the effluent have not been identified, the Central Valley Water Board should impose an enforceable numeric chronic toxicity limit in this permit.

Response: Central Valley Water Board staff do not concur. See response to CSPA Comment #23.

US EPA, Comment #4: Please update the whole effluent toxicity reopener provision to reflect the State's upcoming *Policy for Whole Effluent Toxicity Assessment and Control*. The current WET reopener states the permit *may* be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions. The reopener should state the permit *will* be reopened as necessary to include or amend numeric effluent limits for toxicity and implementation provisions for major POTWs.

Response: Reopeners are included in the proposed Order. When a NPDES permit is reopened based on new information, new regulations or policies depends on the priorities of the Board at that time. Thus the reopener will remain as stated.

US EPA, Comment #5: The Proposed Permit allows the Discharger to remove ammonia during acute and chronic WET testing while the compliance schedule for ammonia is in effect (until 2020). However, it is unclear whether the Discharger has performed any TIEs to determine the causes of acute and chronic effluent toxicity, and whether the Discharger has provided evidence to show ammonia treatment will not cause removal of other constituents contributing to toxicity. The Proposed Permit should require the Discharger to perform at least a Phase 1 TIE, according to the WET methods and TRE/TIE manuals, which lay out procedures to follow when ammonia toxicity is suspected. The Discharger should determine and document all constituents causing toxicity in the effluent, and that treatment of WET samples to remove ammonia, for the purpose of revealing the contribution to toxicity of other constituents, does not remove those constituents. If the results of this evaluation confirm the WET test modification allowed in the Proposed Permit is appropriate, we recommend the Central Valley Water Board require the Discharger to thereafter periodically repeat the Phase 1 TIE during the 10-year ammonia compliance schedule to continue to show the WET test modification is only removing ammonia.

Response: Central Valley Water Board staff concur. See response to Water Agencies Comment #44.

US EPA, Comment #6: US EPA is updating its CWA Section 304(a) ammonia criteria to include additional criteria for waters when freshwater mussels are present (*Draft 2009 Update Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater*). It appears the updated criteria will be more stringent than the current criteria, upon which the final effluent limitations for ammonia are based. The revised criteria will be applicable to the discharge, due to the presence of mussels in the receiving waters. Therefore, the tentative order should include a specific reopener providing the permit will be reopened once the updated criteria are available. This reopener will provide the Discharger clear guidance to design the nitrification/denitrification treatment system to meet the new criteria.

Response: See response to SRCSD Comment #20.

US EPA, Comment #7: The Proposed Permit includes exceptions to the thermal plan that were included in the previous permit as effluent and receiving water limits. However, the receiving water limits in the Proposed Permit appear to allow for a temperature mixing zone. The exceptions, as quoted in the Fact Sheet, do not include any reference to a zone of initial dilution (mixing zone). As we were unable to identify a mixing zone provision in the Thermal Plan, it appears that allowance of a temperature mixing zone, in addition to the exceptions, conflicts with Thermal Plan requirements. The Central Valley Water Board should clarify how a temperature mixing zone is consistent with the Thermal Plan.

Response: The proposed Order continues the Thermal Plan exception from the current NPDES permit. This not a mixing zone issue, because the Thermal Plan requirements are not being implemented in the proposed Order. Instead, the Discharger developed alternative effluent and receiving water temperature requirements to use in place of the Thermal Plan's requirements. The Discharger conducted a study prior to adoption of the current NPDES permit that demonstrated that these alternative temperature requirements were protective of beneficial uses. The National Marine Fisheries Service reviewed the study and concurred with the findings. Therefore, a Thermal Plan exception was allowed. The proposed Order carries forward the Thermal Plan exception and requires a new study as recommended by the US Fish and Wildlife Service to evaluate the temperature requirements under current conditions.

US EPA, Comment #8: The Proposed Permit requires the Discharger to conduct studies for perchlorate, ammonia and nitrogen, *Hyalella azteca*, and

temperature, which have open-ended time schedules for completion. The Central Valley Water Board should include more specific time schedules with final deadlines.

Response: The Ammonia and Nitrogen study has been removed from the permit, because the permit requires the wastewater is fully nitrified and denitrified. Central Valley Water Board staff believe the permit requirements adequately address ammonia and nitrate. Schedules with definitive deadlines for completion of the perchlorate and 1,2-diphenyl hydrazine and *Hyalella azteca* studies have been included in the proposed Order.

US EPA, Comment #9: We recommend the Central Valley Water Board include a special study for constituents of emerging concern (CECs). CECs, including pharmaceuticals and personal care products, are increasingly being detected at very low concentrations in POTW effluents, surface waters, fish tissue, and drinking water. A recent study found CECs to be present in the Sacramento River downstream from the outfall. There is concern that these constituents may have a detrimental effect on aquatic life and human health, at very low levels.

CEC monitoring already occurs in some recycled water Waste Discharge Requirements issued by the Los Angeles and Santa Ana Regional Water Quality Control Boards. In recently issued NPDES permits, the Los Angeles Water Board required POTWs to conduct special studies to evaluate the presence and concentrations of CECs in effluent. The permit language currently used by the Los Angeles Water Board is attached (see attachment to US EPA comments). We recommend the Central Valley Water Board require the Discharger to conduct a special study for CECs similar to that required by the Los Angeles Water Board for POTWs.

Response: Central Valley Water Board staff do not concur. See response to Water Agencies Comment #51.

US EPA, Comment #10: We strongly support the staff recommendations in the Proposed Permit. With the exception of alternatives for dilution, there is insufficient information in the record to support findings that the tentative options/alternatives to the Proposed Order are sufficient to meet water quality standards. Therefore, we may object to their adoption.

Response: Comment noted.

US EPA, Comment #11: Although unclear, it seems none of the dilution alternatives decrease the stringency of the effluent limitations imposed in the Proposed Permit. Alternative #1 would apply no dilution, thereby increasing the

stringency of the effluent limitations in the Proposed Permit, and US EPA would therefore support the adoption of this alternative. We are concerned the mixing zone justifications in the fact sheet are not sound. In justifying the allowance of mixing zones, the Central Valley Water Board determined the mixing zone “shall 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; cause nuisance” due to the Title 22 tertiary filtration requirements imposed by the Proposed Permit, but these requirements are not fully in effect for 10 years. Allowing a mixing zone for the next five-year permit term should not be justified by requirements that will not be met during the next permit term.

Although the Central Valley Water Board justifies the allowance of mixing zones for both chronic aquatic life and human health criteria, the Central Valley Water Board does not apply dilution credits in deriving WQBELs for each pollutant, except for dibenzo(a,h) anthracene, due to antidegradation concerns, and instead, applies performance-based effluent limitations. We prefer Alternative #1; however, since the facility will be limited, at minimum, to current performance to comply with the antidegradation policy, we can also support Alternatives #2 and 3 and the tentative order, as proposed.

Response: Comment noted.

US EPA, Comment #12: We strongly object to the disinfection alternative. The disinfection alternative removes the Title 22 tertiary filtration requirements and imposes secondary treatment effluent limitations for BOD, TSS, and less stringent total coliform limits. The Central Valley Water Board must require the Discharger to provide tertiary filtration, which is necessary for the protection of beneficial uses, specifically municipal and domestic supply. Without this requirement, the permit will not meet water quality standards.

Response: Comment noted.

US EPA, Comment #13: We strongly object to the ammonia and nitrate removal alternatives, which significantly relax the effluent limitations from those proposed in the Proposed Permit. Based on the Discharger’s antidegradation analysis, at current performance, the discharge is using up to 15% of the assimilative capacity of the Sacramento River for ammonia. This depletion of the assimilative capacity causes serious antidegradation concerns. The current loading is contributing to the ammonia toxicity occurring in the Sacramento San Joaquin River Delta, as documented by numerous researchers. We support the Central Valley Water Board staff’s conclusion not to allow a mixing zone for ammonia and to require nitrification/denitrification as best practicable treatment and control (BPTC).

Response: Comment noted.

National Oceanic And Atmospheric Administration - National Marine Fisheries Service (NMFS)

NMFS Comment #1: SRWTP is a major polluter that discharges into the Sacramento River near Freeport Bridge which is designated critical habitat for five federally listed species and essential fish habitat for three species. Removal of ammonia and nitrates would considerably reduce the toxic effects of ammonia along with potentiating interactions with copper to listed species, and would also diminish biological oxygen demand and the likelihood of eutrophication in the Sacramento River and delta waters. In combination, ammonia and copper compounds have been demonstrated to produce a synergistic toxic effect. Olfactory function becomes impaired if salmon are unable to avoid copper pollution with the first few minutes of exposure. Even transient exposure, lasting just a few minutes, to copper at level typical for surface waters from urban and agricultural watersheds, and within the EPS's water quality criterion for copper, will cause greater than 50 percent loss of sensory capacity among resident coho salmon in freshwater habitats. NMFS reiterates its recommendation from its September 7, 2010, letter that a predation study be performed in the action area.

Response: Comment noted.

NMFS Comment #2: A series for human health mixing zones are being granted for contaminants, NMFS recommends that the permit explain how the proposed mixing zone is protective of aquatic life. NMFS recommends requiring simultaneous nitrate and ammonia sampling and testing to be conducted once daily with toxicity testing. NMFS recommends the development of WET protocols that utilize white sturgeon and would accept fathead minnow as a stopgap surrogate for green sturgeon.

Response: The human health mixing zone extends to approximately 3 miles downstream of the discharge. Aquatic life water quality criteria are reviewed before allowance of mixing zones. In this case, constituent concentrations will not exceed aquatic life water quality criteria with the human health mixing zone. At this time the acute and chronic toxicity testing will be limited to rainbow trout, *hyalella azteca*, *ceriodaphnia dubia*, *pimphales promelas* and green algae.

NMFS Comment #3: NFS supports the staff recommendations for TRE's, pollution plans for ammonia and chlorpyrifos, ammonia/nitrogen study, tertiary treatment and nitrification/denitrification, *hyalella azteca* study, acute testing with

rainbow trout, comprehensive monitoring up and downstream of the discharge, temperature study and prohibition of acute mixing zone.

Response: Comments noted. The ammonia/nitrogen study has been removed as a requirement.

Delta Stewardship Council

Delta Stewardship Council, Comment #1: We agree with the staff of the Central Valley Water Board that there is sufficient evidence of total ammonia and nitrogen impairment of the aquatic ecosystem to warrant the limits in the tentative permit. The proposed permit is consistent with the best available science and, when implemented, should improve water quality and the Delta ecosystem.

Response: Comment noted.

Delta Stewardship Council, Comment #2: The permit should contain a more explicit requirement to identify and implement operational changes to minimize total ammonia discharge in the period between the time the permit is adopted and the time that the proposed ammonia discharge limits take effect. The monitoring record shows considerable variation in the amount of ammonia discharged, which suggests that there may be opportunities to reduce ammonia discharge through changed plant operations. This analysis of interim opportunities should include a schedule and reporting requirements.

Response: See response Water Agencies Comment #22.

Delta Stewardship Council, Comment #3: Associated with comment No. 1, the permittee should be required to conduct continuous total ammonia monitoring of the SRWTP effluent. The technology for continuous total ammonia monitoring at the range of existing effluent concentrations is readily available and relatively inexpensive. This will enable the permittee to analyze the effects of process changes on total ammonia concentration in the effluent.

Response: The tentative permit requires ammonia be monitored daily. The effectiveness of process changes will be detected at this monitoring frequency. Continuous ammonia monitoring will not provide any more useful data than once a day grab sample.

Delta Stewardship Council, Comment #4: We support the tentative permit alternative for total ammonia and related issues as listed in the “Tentative Permit Alternatives” document.

Response: Comment noted.

Department of Fish and Game

Department of Fish and Game, Comment #1: Available science suggests current SRWTP ammonia and nitrate effluent concentrations do not result in acute or chronic toxicity outside the mixing zone, but that ammonia loading in the Delta ecosystem may be inhibiting phytoplankton nitrogen uptake and that existing EPA criteria may not be protective of ammonia sensitive species on the Delta. DFG recommends that ammonia and nitrate be removed from the SRWTP effluent to ensure protection of aquatic life and supports the additional studies on nitrogen and ammonia included in the Proposed Permit. Additionally, DFG recommends that the Central Valley Water Board and permittee investigate the fate and transport of ammonia and nitrogen to help determine what effluent concentrations or loads can be discharged without inhibiting nitrogen uptake by Delta phytoplankton.

Response: See response to USEPA Comment #8.

Department of Fish and Game, Comment #2: Because the Sacramento River and Delta is a unique and critical habitat upon which the mixing zone the mixing zone would impinge, the Proposed Permit must be protective of beneficial uses. Therefore, DFG supports the exclusion of mixing zones and dilution as per the Effluent Limitations Table and fact sheet justifications.

Response: See response to USFWS Comment #5.

Department of Fish and Game, Comment #3: DFG appreciates and supports the inclusion of *Hyalella azteca* and rainbow trout to the Proposed Permit for toxicity testing purposes. DFG does not support the allowance of modifications to eliminate ammonia-related toxicity in the toxicity testing. Toxicity monitoring should be required of raw effluent in Proposed Permit to test possible synergistic effects with other chemicals and allow for the evaluation of whole effluent on aquatic biota.

Response: See response to Water Agencies Comment #44.

Department of Fish and Game, Comment #4: DFG supports the inclusion of a temperature study to evaluate the protection of delta smelt and the Sacramento River biota.

Response: Comment noted.

Department of Fish and Game, Comment #5: DFG supports the biological oxygen limits in the effluent limitations table and strongly supports the Basin Plan objective of 7 mg/L year round. We recommend additional efforts are made prior to the 2020 compliance deadline to address effluent oxygen demand such as those suggested in SRCSD’s “Low Dissolved Oxygen Prevention Assessment”.

Response: See response to Water Agencies comments #2 and 22.

Department of Fish and Game, Comment #6: DFG recommends that additional continuous monitoring requirements be added to monitoring points RSWD-003 and RSWD-004 or -005 during the interim effluent limitations period for dissolved oxygen, temperature and ammonia. Continuous monitoring capabilities are available for these parameters and DFG believes the addition will provide for a more complete and better understanding of the effluent discharge to the river.

Response: See response to USFWS Comment #15.

Department of Fish and Game, Comment #7: Recognizing the many required future studies identified in the tentative permit, DFG recommends that the Central Valley Water Board be diligent in the acceptance and enforcement of the “to be determined” time schedules and study completion dates. The Delta is a highly impacted water body with many stressors causing or contributing to adverse impacts. Any increase in or continued discharge of effluent with unknown impacts could negatively impact unique or critical habitats, especially for listed species that inhabit the Sacramento River and Delta.

Response: Comment noted.

Department of Water Resources

Department of Water Resources, Comment #1: DWR supports and appreciates the Central Valley Water Board staff efforts in incorporating best available science into the development of the Proposed Permit. Accordingly, we strongly support adoption of Water Quality Based Effluent Limits and implementation of Best Practical Treatment Controls in the form of nitrification/de-nitrification and Title 22 (or equivalent) tertiary filtration. We also support inclusion of expanded monitoring requirements, special studies, and

reopener provisions to allow for modification of the Proposed Permit if new information becomes available.

Response: Comment noted.

Department of Water Resources, Comment #2: Organic carbon concentrations in the Sacramento River downstream of the SRCSD discharge are relatively low with a median total organic carbon concentration of 2.1 mg/L at Hood for the period covering Water Years 2004-2009 (DWR, 2010). Dissolved organic carbon concentrations, however, have shown an increasing trend in the Sacramento River at Hood during the 10-year period running from 1999-2008 (DWR, 2010b). Additionally, the SRCSD's total organic carbon effluent concentration was more than eight times higher than ambient Sacramento River levels with a median effluent concentration of 17 mg/L (CVRWQCB, 2009).

Response: Comment noted.

Department of Water Resources, Comment #3: DWR supports the inclusion of Reopener Provision G and monitoring requirements for organic carbon in the permit. DWR recommends that the monitoring frequency be increased from monthly to daily to better capture the variability of the discharge, especially during the winter storm season when the plant receives a considerable volume of urban runoff. To accommodate a broader range of potential outcomes from the Central Valley Water Board's future drinking water policy we suggest rewording Reopener Provision G. As written, Reopener Provision G would only take effect if the Central Valley Water Board adopts water quality objectives for certain drinking water constituents, but a drinking water policy could lead to other actions that would necessitate reopening the permit.

Response: Daily monitoring of total organic carbon is not typical for a constituent that does not have an effluent limitation and can not be justified at this time. The permit can always be reopened based on new information even if it is not specifically identified in the tentative permit.

Department of Water Resources, Comment #4: DWR supports the inclusion of the monitoring requirements and effluent limits for NDMA that are contained in the Proposed Permit. Additionally, we believe that the proposed requirements for nitrification/de-nitrification will reduce the potential for nitrosamine formation during the disinfection at the wastewater treatment plant and during the drinking water treatment process.

Response: Comment noted.

Department of Water Resources, Comment #5: Ammonium accounted for approximately half of the total nitrogen in the Sacramento River at Hood and was

more than ten times the levels recorded at three sites upstream of the SRCSD discharge. When nutrient enriched waters enter the State Water Project, the eutrophication effect can be amplified as hydraulic residence time increases. We therefore support requirements for nitrification/denitrification in the Proposed Permit and DWR continues to support ongoing and future ammonia studies and the use of *Hyalella azteca* and rainbow trout test species.

Response: Comment noted.

Department of Water Resources, Comment #6: Both state and federal guidelines state that mixing zones shall not restrict the passage of aquatic life. DWR recommends a high frequency discrete or continuous monitoring of water quality parameters in the outfall area to validate plume dispersion. The Proposed Permit requirement would allow for a thermal mixing zone which would be 50 percent of the cross-sectional area of the river, and evaluated as a daily average. Under this requirement, plume scenarios may occur where passage of aquatic life is in fact restricted. Accordingly, we support the more stringent requirements contained in the Proposed Permit which limit the thermal mixing zone to 25 percent of the cross-sectional area of the river.

Response: The Central Valley Water Board staff along with the USFWS, NOAA and DFG did not accept the District's request for less stringent thermal plan exception from the existing permit. The tentative permit carries over the existing thermal exception from the existing permit.

Department of Water Resources, Comment #7: While contaminants of emerging concern (CECs), including pharmaceuticals and personal care products (PPCPs) are not currently regulated, additional studies could provide information about expression of PPCP exposure in whole effluent to species of concern. To this end, the Central Valley Water Board should consider incorporating permit conditions requiring monitoring and special studies related to the effects of CECs on aquatic life.

Response: See response from the Water Agencies Comment # 51.

Department of Water Resources, Comment #8: The Proposed Permit prescribes Title 22 (or equivalent) tertiary filtration for the control of pathogens. DWR supports the inclusion of tertiary treatment in the Proposed Permit, however, DWR recommends that the monitoring requirements be revised to require analysis of infectivity for *Giardia* and genotyping for *Cryptosporidium* and *Giardia*. This would provide information on the sources of *Cryptosporidium* and *Giardia* and the effectiveness of treatment, which ultimately could lead to better and/or more cost effective control.

Response: Central Valley Water Board staff can not justify analysis of infectivity or genotyping for *giardia* or *cryptosporidium*. If this testing would lead to better or more cost effective control, then the District may chose to conduct the additional monitoring for their own purposes.

Department of Water Resources, Comment #9: Major drinking water intake facilities are located both downstream and upstream of the SRCSD discharge point. Intake facilities upstream could be affected by the discharge when low river flows coincide with high tides and the flow of the Sacramento River is reversed. The Central Valley Water Board is burdened to consider the State Water Resources Control Board’s “Sources of Drinking Water Policy” as incorporated into the Central Valley Water Board’s Basin Plan. Accordingly, the entire Sacramento River had been designated as having municipal and domestic supply beneficial uses. Anti degradation policy (Resolution 68-16) requires that existing high quality waters be maintained to the highest extent possible. The tentative permit, with the revisions recommended herein, will likely satisfy these stringent requirements and go along way towards the overall protection of the municipal and aquatic life beneficial uses of the Sacramento River and Delta.

Response: Comment noted.

Department of Water Resources, Comment #10: DWR supports the requirement for higher treatment opposed to the reliance of dilution. Determining the possible future dilution flows is speculative and cannot be relied upon to protect beneficial uses. Future scenarios outlined in the draft Bay-Delta Conservation Plan, the Woodland/Davis Joint Powers Authority proposal for a Sacramento intake and recent construction of the Freeport diversion all point to a potential for severely limited or temporarily different dilution capacity. The burden of protecting water quality falls on SRCSD, not on water supplies provided for beneficial uses.

Response: Comment noted.

Bureau of Reclamation

Bureau of Reclamation, Comment #1: Use of outdated and non-standard modeling tools to determine the appropriate mixing zone and potential dilution credit allowance for various constituents- CALSIM II, DSM2, and Reclamation’s revised temperature model are the recognized standard modeling tools used today to characterize the project area. These models incorporate the latest regulatory requirements and were developed to represent the combined operations of the state and federal projects. The use of PROSIM and the outdated version of Reclamation’s temperature model, result in an inadequate

analysis that does not properly reflect the current conditions of the basin. Since PROSIM output drives the other four linked models, the overall analysis does not meet the test of “Best Available Science” and quality information.

Response: The modeling work for the SRCSD discharge began nearly a decade ago, at which time the PROSIM model was the best representation of Sacramento River flows. Modeling of Central Valley flows has evolved and PROSIM is no longer in general use. For the purposes of this modeling, however, it was judged that the differences between PROSIM and current models in predicted flow in the Sacramento River at Freeport is minor, and redoing an extensive modeling effort is not warranted.

Bureau of Reclamation, Comment #2: Use of an incomplete period of record to determine the appropriate mixing zone and potential dilution credit allowance for various constituents- The Central Valley Water Board’s analysis was based on a period of record from 1922-1991 that does not represent the current conditions in the project area. Since 1991, additional regulatory obligations have been placed on the Sacramento River and the Delta for flows, temperature, and water quality; for example, the Water Quality Control Program, Central Valley Project Improvement Act, and the listing of numerous species as endangered. In addition, from 1991-1992, California experienced its most severe drought to date. By excluding the period from 1992- to the present, the analysis does not properly characterize the current receiving water flow pattern, which is an integral component of the dilution equation.

Response: Comment noted.

Bureau of Reclamation, Comment #3: Best management practices and a pollution prevention plan for salinity- Although this Proposed Permit requires the SRCSD to develop and implement pollution control measures, the effort should be consistent with the activities of CV-SALTS and should evaluate the impact discharges have on salinity at the state and federal export pumps and the Delta.

Response: Comment noted.

Bureau of Reclamation, Comment #4: Clarifications of Table F-2, “Historic Effluent Limitations and Monitoring Data”, Attachment F- Fact Sheet, page F-6 & 7- Under the “Effluent Limitations” column, the sub column titled “Average Daily” appears to be mislabeled and should be listed as “Daily Maximum”.

Response: The current permit limitation is for “average daily” not “daily maximum”.

Bureau of Reclamation, Comment #5: Request the opportunity to review the revised Proposed Permit based on current information.

Response: The revised tentative permit will be available for review prior to the public hearing on December 9, 2010. The Department of Water Resources is welcome to provide oral testimony at the public hearing, however, written comments will not be accepted for the record.

Environmental Society

Coalition for a Sustainable Delta

Coalition for a Sustainable Delta Comment #1: On behalf of the Coalition for a Sustainable Delta (Coalition), I urge the Central Valley Regional Water Quality Control Board (Regional Water Board) to approve the Tentative Order to require the Sacramento Regional County Sanitation District (SRCSD) to implement advanced treatment of its wastewater. The Coalition consists of persons and entities engaged or interested in agricultural activities in the Central Valley, and its members depend on the Sacramento-San Joaquin Delta (Delta) for a large portion of their water supplies. The Coalition is engaged in efforts to protect the Delta and is committed to promoting a strategy to ensure its sustainability.

Response: Comment noted.

Coalition for a Sustainable Delta Comment #2: We understand that SRCSD is stridently opposing these new limits, primarily on the basis of cost. As a legal matter, cost is not a sufficient reason to not require technology-based and water quality-based limits in a permit issued under the Clean Water Act. A recent study conducted by the University of the Pacific, determined that the necessary upgrades will cost the average Sacramento household an additional \$10-\$15/month, which would raise the total average monthly wastewater bill in the region to approximately \$35. Dr. Jeffrey Michael and Dr. Thomas Pogue, University of the Pacific, Eberhardt School of Business, Business Forecasting Center, Advanced Wastewater Treatment for Nutrient Reduction: Impact on Sacramento Income and Employment (August 23, 2010) (“UOP Study”). A monthly charge for services at the amount anticipated in the UOP study is not out of line with what is paid by residents across the State for comparable services.

Response: Comment noted.

Coalition for a Sustainable Delta Comment #3: Given the growing body of evidence that current ammonia discharge levels are having a detrimental effect on the Delta ecosystem, we urge the Regional Water Board to reject the interim ammonia limits in the Tentative Order that would allow a significant increase in ammonia loading over the next 10 years. Instead, the Regional Board should approve interim ammonia limits prohibiting any increase in concentration or loading over current levels and require the SRCSD to implement new treatment technologies as quickly as technically feasible.

Response: Central Valley Water Board staff do not concur that the interim ammonia limits allow for an increase in ammonia loading. See response to Water Agencies Comment #2.

California-Nevada Chapter, American Fisheries Society

California-Nevada Chapter, American Fisheries Society, Comment #1: American Fisheries Society (AFS) supports the need for tertiary treatment of the discharge from the SRCSD SRWTP because its large size (181 mgd) and its large potential to significantly impact water quality downstream in the Sacramento-San Joaquin Delta.

Response: Comment noted.

California-Nevada Chapter, American Fisheries Society, Comment #2: AFS supports the removal of ammonia via full nitrification because:

- 1) It can be toxic to fish and aquatic invertebrates at sufficient concentrations, and it is likely that SRCSD will not be able to comply with the draft proposed EPA criteria for freshwater mussels when these are implemented.
- 2) Recent research has demonstrated that ammonia is inhibiting nitrogen uptake in diatoms in Suisun Bay, potentially changing the food web in Suisun Bay of the Sacramento-San Joaquin Delta.
- 3) It consumes oxygen as it is oxidized to nitrite and nitrate, lowering dissolved oxygen levels in the Sacramento-San Joaquin Delta.
- 4) Numerous other POTWs that discharge into the Sacramento-San Joaquin Delta with significantly less volume than SRCSD SRWTP practice full nitrification as the best practical treatment.

Response: Comment noted.

California-Nevada Chapter, American Fisheries Society, Comment #3: AFS supports nitrate removal through the treatment process of denitrification because excessive nitrogen can contribute to excessive or changed algae growth in a water body and change the ratio of nitrogen to phosphorus, and likely the ecology of a water body.

Response: Comment noted.

California-Nevada Chapter, American Fisheries Society, Comment #4: AFS supports Title 22 (or equivalent) tertiary filtration. Filtration will reduce heavy

metals, total organic carbon, BOD, TSS and phosphorus in effluent, resulting in better water quality for aquatic life in the Sacramento-San Joaquin Delta.

Response: Comment noted.

California-Nevada Chapter, American Fisheries Society, Comment #5: AFS does not support dilution credits being allowed to develop the WQBELs for: Ammonia-Acute and chronic aquatic life criteria (see comments 2) and Chlorpyrifos- Chronic aquatic life criteria because of its impact on aquatic invertebrates.

Response: Comment noted.

California-Nevada Chapter, American Fisheries Society, Comment #6: AFS supports the proposed current thermal limits on the discharge and river conditions in the permit and the need for a study to determine if permitted conditions are protective of delta smelt and other native Sacramento River biota.

Response: Comment noted.

California-Nevada Chapter, American Fisheries Society, Comment #7: AFS supports the use of rainbow trout as the test species in flow through acute toxicity tests because of their increased sensitivity to ammonia. AFS also supports conducting monthly chronic toxicity testing of the whole effluent.

Response: Comment noted.

Families Protecting the Valley

Families Protecting the Valley Comment #1: We urge you to approve the tentative order to require SRCSD to implement advanced treatment of their wastewater. The DPH has relayed to you its well reasoned concerns about the untreated pathogens and there is growing evidence that ammonia from the discharge is having a detrimental effect on the Delta ecosystem.

Response: Comment noted.

Business Rate Payers

Agrium Comment #1: Agrium’s annual treatment costs are approximately \$12,000. Under the proposed permit requirements, this cost would triple to approximately \$36,000 per year. In our business, these costs will lead to increased expenses for our farm customers and ultimately higher prices on the grocery store shelves. The proposed requirements go far beyond the Clean Water Act standards already exceeded by SRCSD. Further, the costs associated with a new microfiltration system and other provisions of the proposed regulation must be based on sound science. Issues such as the impact of ammonia concentrations may not meet this basic standard.

Response: The tentative permit is based on State Implementation Plan and the Basin Plan. The requirements are based on science, law and best professional judgment. The proposed NPDES Permit does not require the implementation of specific treatment technologies, but instead establishes discharge limits and allows the discharger to decide on the best treatment technology or compliance options to meet those requirements. The District will not know the final costs of plant upgrades until the NPDES Permit is adopted and engineering studies, probably including pilot scale treatment plant testing, are concluded. The District’s preliminary cost estimates included microfiltration, which is a more expensive treatment alternative than tertiary filtration or membrane reactors used by other treatment facilities. The District also includes Ultraviolet light disinfection in the cost estimates, which is not required by the proposed permit. In fact, the proposed permit grants dilution in the Sacramento River for trihalomethanes (chlorination byproducts) so that the District can continue to use the existing chlorination system. Although the District can choose to install these more costly technologies, they are not required by the proposed permit.

A USEPA engineering contractor reviewed the District’s cost estimates for the Central Valley Water Board and concluded that some modifications to the treatment system evaluated by the District “could potentially reduce the cost by as much as \$859 million and achieve the same effluent quality goals.” Another engineering consultant hired by the State Water Contractors provided a cost estimate about one-half of the District’s estimate.

Central Valley Water Board staff has reviewed the relative per capita costs of upgrades by other communities compared to District’s cost estimate. Such cost comparisons are not exact because not all upgrade projects are equivalent, but the comparison showed that SRCSD’s estimate was in the mid-range of per capita costs, and that these other communities that have

completed the plant upgrades and are operating the upgraded systems, without irreparable economic harm. Even if the \$2 billion costs projected by the District are correct, the increased sewage treatment rate to \$60 per month for households, and the corresponding equivalent for businesses, is not out of line for sewer bills.

Many communities discharging to surface waters pay this amount or substantially more for sewer service. For example, households in the Folsom Lake Service Area pay approximately \$100 per month for sewage treatment and households in the North Auburn Service Area pay \$67 per month for sewage treatment. Residents in Cascade Shores, a remote community in Nevada County that serves about 84 households, pay \$166.25 per month to cover the costs of their NPDES discharge that is treated through a newly constructed advanced treatment facility to meet requirements similar to those proposed for SRCSD.

On the other hand, larger communities in the Sacramento/Delta area that have already upgraded their treatment facilities to advanced treatment with less-costly treatment technologies than proposed by the District, to address discharge requirements similar to that in the proposed NPDES Permit have sewer fees substantially less than the monthly fees projected by SRCSD, including Stockton (\$22.75/month), Roseville (\$27.90/month), Tracy (\$31.00/month), and Lodi (\$38.84/month).

See response to SRCSD Comment #1.

Alta Planting/The Metalfinishing Group Comment #1: We are a local and established business that employs 45 people down from 100. Consider the costs of compliance in deciding the need to go forward with the requirements.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

American River Dental Comment #1: Businesses are struggling in this economy and we can absorb a whopping \$30-40 per month increase. Given the strong disagreements by experts on this issue, I am not convinced that there is sufficient scientific evidence to justify this proposal.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

North State Building Industry Association Comment #1: The proposed permit will have major economic impacts to our members and the region. The study by Economic and Planning Systems (EPS) on the proposed impacts of the draft permit show economic impacts on the implementation of the draft permit.

The Sacramento Region's economy is in a very deep and prolonged recession. We don't anticipate any improvements in the near term. We believe the Regional Water Quality Control Board's contemplation of adherence to a "precautionary principle" would result in the implementation of a permit costing our Region over \$2 billion and over \$240 million in annual payments for the existing rate payers to pay for the operations and upgrades to the SRWTP. This transfer from rate-payers to SRCSD would further decrease long term economic activity in the Sacramento Region.

The EPS provides compelling evidence that the proposed permit cannot be considered to require best practical treatment or control. The costs can in no way be considered practical –especially considering the negligible environmental benefit to be gained. Under Porter Cologne Water Quality Control Act the Regional Board is required to balance the needs of the environment with social and economic impacts. The Regional Board has exceeded its discretion and has not made an appropriate balance.

With an increase in development fees to implement the draft permit, housing projects would move from infeasible to even more infeasible.

Response: Central Valley Water Board staff has reviewed the EPS study and agree that the Sacramento region is in an economic down turn like other adjacent communities. The EPS study was considered in the socioeconomic analysis (See response to SRCSD Comment #1). Also see Agrium Comment #1.

Brookfield Land Comment #1: Implementation of the draft permit will increase impacts to \$27,550 per home, a 470% increase. It is clear that staff, in preparing the permit, failed to analyze the effect of the permit conditions on the economic vitality of the region and its citizens.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Cambridge Management Company Comment #1: Businesses are struggling in this economy and we can absorb a whopping \$30-40 per month increase. Given the strong disagreements by experts on this issue, I am not convinced that there is sufficient scientific evidence to justify this proposal.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Campbell's Soup Supply Company L.L.C. Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what

is “reasonable and necessary” under the Clean Water Act, and is not based on either a documented public health risk or existing standards/criteria.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Carson development Company, Inc. Comment #1: The proposed regulation is very wrong because, there is not a consensus on the science that it is necessary; the new development fees would flat stop all new development; and the rate increase would go from \$20-61.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Sacramento Coca-Cola Bottling Co., Inc. Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all raterpayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, and is not based on either a documented public health risk or existing standards/criteria.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Cordova Hills Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all raterpayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, and is not based on either a documented public health risk or existing standards/criteria.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Downtown Sacramento Partnership Comment #1: The required upgrades will stall economic recovery in the Sacramento region. Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all raterpayers. This 370% increase will prevent numerous smart growth infill projects. We urge you to work with SRCSD and stakeholders to approve a permit based on “reasonable and necessary standards”.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Dr. Pepper Snapple Group Comment #1: As a bottling company we that uses lots of water, the increased cost would be difficult to pay. Reconsider the extra charges.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Folsom Chamber of Commerce, the Folsom Economic Development Corporation and the Folsom Tourism Bureau Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, and is not based on either a documented public health risk or existing standards/criteria.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

FPI Management Inc. Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, and is not based on either a documented public health risk or existing standards/criteria.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Granite Construction Incorporated Comment #1: Future development of Granite aggregate mining property within the County for adaptive reclamation and re-use would likely be prevented due to the potential increased impact fees resulting from the costs to increase the level of wastewater treatment as outlined in the draft permit. Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, and is not based on either a documented public health risk or existing standards/criteria.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Guardian Entities, Inc. Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, and is not based on either a documented public health risk or existing standards/criteria.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

G.W. Williams Co. Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, and is not based on either a documented public health risk or existing standards/criteria.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Heller Pacific Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria or science, should be paid for by those benefiting from clean water and must be based on legitimate science.

Response: See response to SRCSD Comment #1 and Agrium Comment #1. In addition to the comment that others should pay for the upgrades, the polluter pays for cleaning their own waste.

HP Hood LLC Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria or science and must be based on legitimate science.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

JPB Properties LLC Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria or science and must be based on legitimate science.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Los Rios Community College District Comment #1: The district currently pays \$400,000 per year in sewer costs. The District is undergoing a \$1 billion construction project that will create jobs and student capacity. The significant rate increase will impair our ability to complete the construction project.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Magnolia Suites Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria or science and must be based on legitimate science.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Metrochamber Comment #1: The Metrochamber adopted Delta Policy Principles to guide the organization’s participation, advocacy, and development of solutions for the Delta. The Metro Chamber supports a Comprehensive Delta Solution that must include all aspects of a comprehensive Delta solution move forward concurrently including ecosystem restoration, water quality enhancements, water conveyance infrastructures, investments in local and regional water supply improvements and development of water storage. The problems are multifaceted and the state cannot and should not attack this through a piecemeal approach.

Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria or science and must be based on legitimate science.

Response: The SRCSD NPDES permit must be renewed every 5 years. Unfortunately, the permit renewal is 6 years too late and can not be delayed. See response to SRCSD Comment #1 and Agrium Comment #1.

Mission Linen Supply Comment #1: The high cost of water and sewer is a factor considered for a plant closing. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria or science and must be based on legitimate science.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Nor-Cal Beverage Co., Inc. Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers and would cause irreparable harm to our already fragile economy. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria or science and must be based on legitimate science.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Proctor and Gamble Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria and must be based on legitimate science. We urge you to delay the draft permit.

Response: The SRCSD NPDES permit must be renewed every 5 years. Unfortunately, the permit renewal is 6 years too late and can not be delayed. See response to SRCSD Comment #1 and Agrium Comment #1.

Pinsetters Inc. Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria and must be based on legitimate science. We urge you to delay the draft permit.

Response: The SRCSD NPDES permit must be renewed every 5 years. Unfortunately, the permit renewal is 6 years too late and can not be delayed. See response to SRCSD Comment #1 and Agrium Comment #1.

Ray Stone Incorporated, AMO Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria and must be based on legitimate science.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Sacramento Regional Builders Exchange Comment #1: On behalf of SRBX, I would like to express our strong opposition to the CVRWQCB's tentative draft permit recommendations. We find this permit to be lacking in scientific credibility, and to be devastating to our regions construction industry and economy. Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all raterpayers. We believe that this permit goes beyond what is "reasonable and necessary" under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria and must be based on legitimate science.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Signature Homes, Inc. Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all raterpayers. We believe that this permit goes beyond what is "reasonable and necessary" under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria or science, should be paid for by those benefiting from clean water and must be based on legitimate science.

Response: See response to SRCSD Comment #1 and Agrium Comment #1. In addition to the comment that others should pay for the upgrades, the polluter pays for cleaning their own waste.

Silgan Containers Mfg. Corp. Comment #1: It is not clear that risk reward cost benefit has been satisfied. There needs to be specific scientific cause and effect, identifying what will or will not happen.

Two of the techniques are generally used for drinking water treatment, namely micro filtration and ultra violet radiation. Why are we treating wastewater like drinking water? Not only is there a high initial investment cost in equipment, but there is an ongoing operating cost, which will be substantial. UV systems require constant cleaning to assure energy transmission, and replacement of filters and UV appliances will need to occur regularly. Both of these processes are very energy intensive, Electrical use for operating the UV systems and the various pumps required to push the water through the filters will add to the regions high energy demands and contribute to increased generation of greenhouse gasses.

Has the environmental impact of building and operating the new equipment and processes been compared to the alleged risks the systems are proposing to treat been weighed.

With the proposed use of technologies normally used for drinking water treatment, one cannot help but wonder if the assertion, made by the Sacramento Bee, that the proposed treatment is being required to satisfy water use interests in Southern California, may well be driving some of the new requirements. While we understand the desire to require improvements when a permit is open for renewal, the scope and scale of the proposed requirements is clearly excessive and not supported by existing beneficial use of the Sacramento River.

Response: Microfiltration and UV disinfection are also processes used for wastewater treatment. The costs to operate these systems were considered in the socioeconomic analysis. The Southern California water agencies interested but are not driving this permit. See response to SRCSD Comment #1 and Agrium Comment #1.

The River District Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria or science, should be paid for by those benefiting from clean water and must be based on legitimate science. New and infill development will come to a halt, impacting jobs and economic recovery.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Woodmont Real Estate Services Comment #1: Requiring SRCSD to make \$2 billion worth of treatment upgrades would result in overly burdensome cost increases for all ratepayers. We believe that this permit goes beyond what is “reasonable and necessary” under the Clean Water Act, is not based on either a documented public health risk or existing standards/criteria or science, should be paid for by those benefiting from clean water and must be based on legitimate science.

Response: See response to SRCSD Comment #1 and Agrium Comment #1.

Summarized Residential Rate Payers Comments

Residents, Rental Property Managers and Owners, and Residential Developers

Elizabeth Ames	Allan Davis	Margaret Lipson
Liezet Arnold	Judith B. Green	Joan Longenecker
Karl Balday	Marilyn A. Greig	Scott Lookingbill
Ken Barnett	Merete Gilbert, Village	M. Mahoney
Julie Hitt Barrow	Green Apartments	Boa Mai
Bob Bennett	Christina Silva,	M. Ohaire
Ken Erna	Greystar Properties	Charlie Martins, Raging
Rick Bettis	Rick and Jan Griggs	Waters, Inc., Sacramento
Glenn Bielefelt	Kathryn Haddock	John McInnes
Hugo Blaney	Paula Hadox	Otho J. Mintz
Ronald and Delores Buck	M/M Haynes	Patrick T. Moran
Claudia Fitzgerald	Brendan Hilburn	Michael Mulkerin
Claudia Bordin	Dan Hodson	Michael J. Paperalla
Albert and Cathy Buck	Brian Holloway, Holloway	Ted Pendlebury
Timothy F. Cahill	Land Company	Lorraine Pendlebury
Randall Cain	Catherine Hon	Dimitris Papageorge
V. Cardona	Ida Lee	Maurice Ragusa
Chris Carvin	Debi Hanley	Linda Reznick
Gerry Clark	Scott Morken	Steve Rider
Cleo Hecnt	Concerned Citizens of Elk	Eugene E. Robles and Helen
Clin Prdr (illegible signature)	Grove, including	A. Robles
Nancy L. Clyde	Randel Wilson	Parviz and Pamela Sadrian
Christine Lu	John Ravera	Stephany Sgro
Helen Hu	Elvira Reese	Gary W. Taylor
Patrick McKenzie	Barbara Wilcox	Ken R. (illegible signature)
Lhi Lam	Dixie Tatge	Jan Rider,
Kelli Weiner	Fran Marshall	Mediterranean Village
M. Mitchel	M. Lynn Nichols	Apartments
David Lencioni	Mary Snyder	Robert Shanks
Jerry Teh	Deborah Palmer	Frank and Kay Silva
Sally Alsad	Robert Braun and Robert	Jon L. Smith
Raphaela Ramirez	Steeves, Huhtamaki, Inc.	Michael Smith
Kathy Cook	Lan Huynh	James A. Souza
David W. Crump,	P. Bruce Booher	Roger Stebner
Ray Stone Inc.	Bob Johnson	M/M Stevemte
Timothy R. Crush, Wood	Larry and Angelita	Margaret Anaya Tan
Rodgers, Inc.	Bessenbacher,	Kar'Lei Tan
Nichole Davisson	JPB Properties	Annie Tan
Robert Dayton	Darlene Jackson	Clarissa Tendero
John Drenth	Susan Kellner	Heather Sheffler Valdez
Tien Dunger	Dana Keniry	Frank Valls
Della Dyck	John Killey	Cindy Walker
Michael LaFortune, Eastern	Angela Kumar	Robert Winger
Development Co.	Terry Lewallen	Eric E. Woodman
Ron Ellis	Jim and Linda Lichtenberg	W. Yoppe
Nancy Emerson		Tory Yope
		Ron and Lorna Ziller

The Central Valley Water Board received 102 comment letters from local sewer ratepayers that are not in agreement with the tentative NPDES Permit requirements for nitrification, denitrification, microfiltration and Ultraviolet Light (UV) disinfection of the discharge to the Sacramento River. The commenters are stating that the the SRCSD is complying with current Federal and State requirements, the proposed requirements are not scientifically proven to be necessary, and the \$2 billion costs for proposed facility upgrades are unreasonable. Compliance with the proposed permit places a huge financial burden on the residents, home owners, rental property owners and managers, and residential land developers, as the proposed \$30 to \$40 increase in monthly sewer rates (among other unrelated fee and cost of living increases) will cause financial hardship during these difficult economic times.

Additionally, the commenters support the SRCSD's involvement in many environmental efforts including water recycling, methane gas recycling, biosolids recycling, mercury, pesticide and other pollutant reduction efforts to protect the Sacramento River, the Delta and the environment. These residential sewer rate payers request reconsideration of the costly permit requirements, and request the Central Valley Water Board to compromise with the SRCSD for the benefit of the general public served by the District.

Response: Central Valley Water Board staff acknowledges the District's efforts to seasonally recycle up to 5 million gallons per day(MGD) of its current 141 MGD discharge into the Sacramento River, and the District source control and recycling efforts of other pollutants.

The tentative NPDES permit, however, and the associated effluent limitations, prohibitions and provisions are based on Federal and State policies, the State Water Resources Control Board, State Implementation Plan and the Central Valley Water Board's Basin Plan for the Sacramento and San Joaquin River Basins. The requirements are based on science, law and best professional judgment. The proposed NPDES Permit does not require the implementation of specific treatment technologies, but instead establishes discharges limits and allows the discharger to decide on the best treatment technology or compliance options to meet those requirements. The District will not know the final costs of plant upgrades until the NPDES Permit is adopted and engineering studies, probably including pilot scale treatment plant testing, are concluded. The District's preliminary cost estimates included microfiltration, which is a more expensive treatment alternative than tertiary filtration or membrane reactors used by other treatment facilities. The District also includes Ultraviolet light disinfection in the cost estimates, which is not required by the proposed permit. In fact, the proposed permit grants dilution in the Sacramento River for trihalomethanes (chlorination byproducts) so that the District can continue to use the existing chlorination system. Although

the District can choose to install these more costly technologies, they are not required by the proposed permit.

A USEPA engineering contractor reviewed the District's cost estimates for the Central Valley Water Board and concluded that some modifications to the treatment system evaluated by the District "could potentially reduce the cost by as much as \$859 million and achieve the same effluent quality goals." Another engineering consultant hired by the State Water Contractors provided a cost estimate about one-half of the District's estimate.

Central Valley Water Board staff has reviewed the relative per capita costs of upgrades by other communities compared to District's cost estimate. Such cost comparisons are not exact because not all upgrade projects are equivalent, but the comparison showed that SRCSD's estimate was in the mid-range of per capita costs, and that these other communities that have completed the plant upgrades and are operating the upgraded systems, without irreparable economic harm. Even if the \$2 billion costs projected by the District are correct, the increased sewage treatment rate to \$60 per month for households, and the corresponding equivalent for businesses, is not out of line for sewer bills.

Many communities discharging to surface waters pay this amount or substantially more for sewer service. For example, households in the Folsom Lake Service Area pay approximately \$100 per month for sewage treatment and households in the North Auburn Service Area pay \$67 per month for sewage treatment. Residents in Cascade Shores, a remote community in Nevada County that serves about 84 households, pay \$166.25 per month to cover the costs of their NPDES discharge that is treated through a newly constructed advanced treatment facility to meet requirements similar to those proposed for SRCSD.

On the other hand, larger communities in the Sacramento/Delta area that have already upgraded their treatment facilities to advanced treatment with less-costly treatment technologies than proposed by the District, to address discharge requirements similar to that in the proposed NPDES Permit have sewer fees substantially less than the monthly fees projected by SRCSD, including Stockton (\$22.75/month), Roseville (\$27.90/month), Tracy (\$31.00/month), and Lodi (\$38.84/month).

See response to SRCSD Comment #1.