

Central Valley Regional Water Quality Control Board
9/10 June 2011 Board Meeting
(continued from 3 February 2011 Board Meeting)

Response to Comments
for the
City of Live Oak
City of Live Oak Wastewater Treatment Plant
Tentative Waste Discharge Requirements

On 3 February 2011, the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) conducted a hearing to consider adoption of the proposed Waste Discharge Requirements (NPDES Permit) renewal, and the proposed amended Cease and Desist Order (CDO) for the City of Live Oak Wastewater Treatment Plant. At the end of the hearing, the Board chose to table the item. However, prior to tabling the item the Board was presented with Late Revisions to the NPDES permit and CDO proposed by staff. The Board was also presented Late-Late revisions proposed by the City of Live Oak (Discharger) representatives. Through discussion, the Board verbally agreed with the Late and Late-Late Revisions.

The following are Central Valley Water Board staff responses to comments submitted by interested parties regarding the tentative NPDES Permit and tentative amended CDO issued for public comment on 27 July 2010. (27 August 2010 was ordered by the governor's office to be a furlough day and the Central Valley Water Board office was closed, therefore, comments became due on the next business day which was 30 August 2010.) The Central Valley Water Board received public comments regarding the tentative NPDES Permit by the due date from the Discharger, the California Sportfishing Protection Alliance (CSPA), and the Central Valley Clean Water Association (CVCWA). Minor changes were made to the tentative NPDES Permit based on public comments received. Additional changes were made to the tentative NPDES Permit and CDO based on the Late and Late-Late Revisions presented to the Board on 3 February 2011. Modifications to the following Staff Response to Comments based on these additional changes are shown in underline-strike font (with yellow highlighted text denoting Late-Late Revisions).

The submitted comments were accepted into the record, and are summarized below, followed by Central Valley Water Board staff responses.

DISCHARGER COMMENTS

Discharger Comment No. 1. Application of Municipal and Domestic Supply (MUN) Beneficial Use to the Receiving Water, Reclamation District 777 Lateral Drain No. 1 (RD777), is Inappropriate.

The Discharger comments that the application of MUN to the RD777 is based on the Central Valley Water Board's incorporation of the State Water Resources Control Board's (State Water Board's) adoption of Resolution 88-63. The Discharger contends that 1) Resolution 88-63 was invalidated by the Office of Administrative Law (OAL) and is not a legal policy, and therefore, the incorporation of Resolution 88-63 is also invalid,

2) even if Resolution 88-63 is valid, it contains a specific exception for systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters, such as RD777, 3) Resolution 88-63 exceptions are self-executing, and therefore, a Basin Plan Amendment should not be necessary to implement them, and 4) the implementation language in the Basin Plan contradicts Resolution 88-63. Thus, the Discharger comments that the MUN-based effluent limitations should not be adopted until the Discharger has the opportunity to consider whether a basin plan amendment or additional upgrades to the wastewater treatment plant are more appropriate. The Discharger further comments that, at the very least, the Central Valley Water Board should refrain from adopting water quality-based effluent limitations based on the MUN beneficial use designation until after considering a Basin Plan amendment that applies the constructed agricultural drain exception to RD777.

RESPONSE: Central Valley Water Board staff concurs that the receiving water may have been constructed or modified for the purpose of conveying agricultural drainage water, as specified in the criteria of Exception No. 2.b. of Resolution No. 88-63. However, the Central Valley Water Board staff does not concur that the MUN designation is inappropriate. The Central Valley Water Board does not have the authority to grant an exception to Resolution No. 88-63 through an individual NPDES Permit adoption. As discussed in Finding II.H of the proposed NPDES Permit, the MUN beneficial use is applied to the receiving waters based on Resolution No. 88-63, which establishes that all waters (with certain exceptions) should be considered suitable or potentially suitable for municipal or domestic supply. The Central Valley Water Board implemented this policy by designating all unnamed waterbodies as having the MUN use. Basin Plan, page II-2.01, states that the Central Valley Water Board may de-designate MUN based on the applicability of one or more of the Resolution No. 88-63 exceptions; however, as specified in page VI-9.00, de-designation of a MUN use must occur through a formal basin plan amendment process.

Moreover, this approach is consistent with subsequently adopted State Board orders. As recognized in the Vacaville Order, the Central Valley Water Board chose to implement 88-63 through a blanket MUN designation for all unidentified waterbodies in the region. Therefore, given that the Central Valley Water Board has made such a designation, the Central Valley Water Board would be required to go through another rulemaking process to change the designation. (WQ Order No. 2002-0015 at pp. 16-17.) See also *In the Matter of the Petition of Curtis D. Quinones and Vapor Cleaners, Inc.* WQ Order No. 2006-0010 at p. 2, noting that (1) beneficial uses are designated in the Basin Plan through a quasi-legislative process rather than on a case-by-case basis, as in a permit or cleanup order; (2) a Basin Plan amendment is the appropriate vehicle to designate or de-designate uses and that Resolution 88-63 is a tool in designations; and (3) it is not self-implementing.)

Discharger Comment No. 2. Receiving Water Limit for Temperature Does Not Apply to Lateral Drain No. 1.

The Discharger comments that the State Water Board's Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (1975) (Thermal Plan), defines, in part, the natural receiving water temperature as unaffected by irrigation return waters. The Discharger further comments that since the Reclamation District 777 Lateral Drain No. 1 (RD777) has no identifiable natural flow and its purpose is to convey agricultural drainage, the proposed receiving water limit is not appropriate.

RESPONSE: Central Valley Water Board staff does not concur. The Thermal Plan does not apply to intrastate waters. The Basin Plan states that "the natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the [Central Valley] Water Board that such alteration in temperature does not adversely affect beneficial uses." As such, the Discharger may conduct a site-specific temperature study to propose temperature limitations or other temperature controls to protect the beneficial uses of the receiving water. The tentative NPDES Permit contains a reopener clause (Special Provision VI.C.1.a.ii.) that allows the permit to be reopened for modification based upon the new information from the site-specific study.

Discharger Comment No. 3. Arsenic Effluent Limitation Should Be an Annual Average Not a Monthly Average

The Discharger comments that the effluent limitation for arsenic should be an annual average because the maximum contaminant level (MCL) is to protect people from the long-term exposure to arsenic. The Discharger also comments that a compliance schedule for arsenic should be included in the proposed permit.

RESPONSE: Central Valley Water Board staff does not concur that the arsenic effluent limitation should be based on an annual average instead of the water quality based effluent limitations in the proposed Order. Arsenic is a California Toxic Rule (CTR) constituent. The State Water Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP) governs establishment of effluent limitations for CTR priority pollutants. Therefore, the arsenic effluent limitation was established in accordance with section 1.4 of the SIP, which requires CTR constituent limitations as average monthly and maximum daily effluent imitations. However, Central Valley Water Board staff ~~also does not~~ concurs that a compliance schedule should be included in the proposed NPDES Permit. The water quality-based effluent limits for arsenic implement the Basin Plan's chemical constituents objective using the USEPA primary MCL, which is was adopted after September 1995 an existing numerical standard in the Basin Plan. Therefore, a late revision is proposed to modify the proposed NPDES permit to contain an interim effluent limitation and a time schedule for achieving compliance

with the final arsenic effluent limitation ~~must be in a separate enforcement order and is proposed as an amendment to the Discharger's Cease and Desist Order.~~

Discharger Comment No. 4. Compliance Schedule for Ammonia Must Be Extended from 2015 to 2017.

The Discharger comments that the compliance schedule for ammonia in the proposed NPDES permit is based on the effectiveness of the new treatment facility, and that they may need an additional two years to construct treatment system improvements if the new facility cannot comply with the proposed ammonia effluent limitations.

RESPONSE: No change has been made to the length of the compliance schedule for ammonia. The Discharger is required to demonstrate that the time needed to implement specific actions (e.g. construction of new facilities, implementing significantly expanded programs, or securing financing.) is as short as practicable. The Central Valley Water Board adopted the existing NPDES Permit that contained the floating ammonia limit and an accompanying cease and desist order (CDO) in 2004 to provide a time schedule until 1 April 2009 for compliance. In 2009, a CDO was adopted to provide additional time to comply (30 September 2012) with the floating ammonia limit and to establish an interim limit of 23.7 mg/L. The Discharger started construction of the new treatment facility designed to meet the final floating ammonia limit. However, the proposed NPDES permit contains more stringent fixed ammonia limits. Because the new facility was not designed to meet the new limits, additional measures may be required to meet the new more stringent ammonia effluent limits. However, because construction of the new facility is not complete, it is unknown what upgrades are necessary and how long is needed to complete the upgrades. Thus, it is not known at this time if the additional time requested by the Discharger is as short as practicable. Therefore, the proposed compliance schedule in the CDO for ammonia has been amended to be effective 5 years from the date of adoption, which is proposed as February 2016. The additional time requested is not warranted at this time. After construction of the new treatment facilities, the Discharger can re-evaluate the need for additional treatment, if needed, and submit an infeasibility analysis requesting additional time.

Discharger Comment No. 5. Hardness Dependent Metals Effluent Limitations

The Discharger comments that using minimum receiving water hardness as the method to determine the proposed limits for copper and chronic cadmium is inaccurate, and that the proposed limits for copper and chronic cadmium are over-protective. Thus, the Discharger contends that these effluent limits must be recalculated using minimum effluent hardness.

RESPONSE: Based on the comments provided by Dr. Robert Emerick provided by the Discharger, Central Valley Water Board staff concurs that the 2006 Emerick Paper¹ is applicable for concave down metals² regardless of whether the receiving water exceeds the CTR criteria. The discharge can not cause or contribute to a violation of water quality criteria/objectives in the receiving water. Although based on the information for the City of Live Oak discharge, the copper and cadmium concentrations downstream of the discharge may exceed CTR criteria, the cause of the exceedance is not due to the discharge, it is due to the elevated metals concentrations upstream of the discharge. Implementing the procedures of the 2006 Emerick Paper does not result in an increase in toxicity downstream of the discharge, and in fact reduces the amount of toxicity already present in the receiving water. This is demonstrated in the example for copper contained in Table F-7 of the NPDES Permit Fact Sheet and shown below.

Table F-7: Chronic Copper ECA Evaluation

Minimum Observed Effluent Hardness		220 mg/L (as CaCO₃)		
Minimum Observed Upstream Receiving Water Hardness		30 mg/L (as CaCO₃)		
Maximum Observed Upstream Receiving Water Copper Concentration		6.2 µg/L¹		
Copper ECA_{chronic}²		18.3 µg/L		
Effluent Fraction	Mixed Downstream Ambient Concentration			
	Hardness³ (mg/L) (as CaCO₃)	CTR Criteria⁴ (µg/L)	Copper⁵ (µg/L)	Percent exceedance
0%	30	3.3	6.2	86%
1%	31.9	3.5	6.32	80%
5%	39.5	4.2	6.81	61%
15%	58.5	5.9	8.02	36%
25%	77.5	7.5	9.23	23%
50%	125	11.3	12.3	9%
75%	172.5	14.9	15.3	3%
100%	220	18.3	18.3	0%

¹ Maximum observed upstream receiving water copper concentration.

² ECA calculated using Equation 1 for chronic criterion at a hardness of 220 mg/L (as CaCO₃).

³ Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 3.

⁴ Mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

⁵ Mixed downstream ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction using Equation 3.

¹ Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.

² The 2006 Emerick Paper refers to copper, chronic cadmium, zinc, and nickel as “concave down” metals.

As reported in Table 1, above, prior to the discharge the copper has been observed to exceed water quality criteria by up to 86%. When the receiving water contains some fraction of effluent, the percent exceedance is reduced. The greater the amount of effluent in the receiving water, the lower the percent exceedance, until a fully compliant state is achieved when the effluent constitutes the entire flow. The effluent limitation associated with copper, therefore, was sufficient to assure that the discharge never causes or contributes to a violation of a water quality criterion, and in fact reduces the amount of toxicity already present in the receiving water. The results for chronic cadmium are similar.

A late revision is proposed to modify the effluent limitations for copper and cadmium using the procedures identified in the 2006 Emerick Paper and to make associated changes to the hardness discussion in the Fact Sheet.

~~Central Valley Water Board staff does not concur. In the proposed permit, where appropriate, the methodology developed in a 2006 Study was used to establish the appropriate receiving water hardness to develop protective water quality-based effluent limitations for CTR metals with hardness-dependent criteria. As discussed in the Fact Sheet, the proposed NPDES Permit 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 (City of Davis Order WQO 2008-0008, p. 11).~~

~~The hardness values must also be protective under all flow conditions (*Id.*, pp. 10-11). As discussed in the proposed NPDES Permit, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces criteria that ensure these metals do not cause receiving water toxicity, while avoiding criteria that are unnecessarily stringent.~~

~~One key assumption made in the 2006 Study is that the background metals concentration is at the criteria (e.g., does not exceed the criteria). The 2006 Study does not discuss the situation when the background receiving water metal concentrations exceed the criteria. And this is the situation with the City of Live Oak. The receiving water, RD777, has been shown to exceed the CTR criteria for copper and cadmium, based on paired hardness and metals receiving water data from July 2002. Therefore, the methodology described in the 2006 Study was not used for copper and cadmium. As discussed in the State Water Board's Davis Order, the Central Valley Water Board has considerable discretion in determining ambient hardness (*Id.*, p.10.) Due to concerns with elevated copper and cadmium in the~~

~~receiving water exceeding the CTR criteria, Central Valley Water Board staff used a more conservative approach for establishing the CTR criteria for these constituents, by using the lowest upstream receiving water hardness to calculate the criteria. Based on the site-specific conditions for this discharge, this approach is reasonable and necessary to protect the beneficial uses of the receiving water.~~

Discharger Comment No. 6. Tentative Permit Public Review Period

The Discharger recommends that the Tentative Permit be re-circulated for public review and comment due to considerable discrepancies between the Fact Sheet and the actual proposed limits.

RESPONSE: Central Valley Water Board staff does not concur. While there are discrepancies in various sections of the tentative NPDES Permit including the Fact Sheet and effluent limits, none of the corrections require delaying the proposed action or an additional public comment period. The changes to the tentative NPDES Permit as a result of comments received during the required public review period are being made to address the comments received, and for clarity and continuity of the tentative NPDES Permit. Any additional comments regarding the tentative NPDES Permit can be presented at the Central Valley Water Board Meeting.

Discharger Comment No. 7. Attachment A, Maximum pH Effluent Limit.

The Discharger contends that the instantaneous maximum permitted effluent limit for pH should be changed from 8.5 to 8.0 since the new Facility is designed to nitrify the wastewater, and thus, the effluent pH is not expected to exceed 8.0.

RESPONSE: Central Valley Water Board staff concurs that the nitrification process lowers the effluent pH and a lower maximum effluent pH limit may be appropriate after the new facility is constructed. However, since it is difficult to estimate the maximum pH for the new facility, staff reviewed existing effluent pH data to determine if a lower maximum effluent pH is appropriate for the existing facility. The maximum pH over the past 3 years was 8.3. Therefore, the instantaneous maximum effluent pH limit has been reduced to 8.3 and the ammonia limit was recalculated. Due to the method of calculating the ammonia effluent limits, using a lower pH has no affect on the ammonia limitations.

Discharger Comment No. 8. Attachment A, Mercury Annual Mass Limit.

The Discharger contends that the mercury mass limit should be recalculated based on an annual average flow of 1.73 mgd.

RESPONSE: Central Valley Water Board staff does not concur. The mercury mass limitation as an annual average was calculated based on the permitted average dry weather flow rate and the maximum effluent mercury concentration, which is the

same calculation used for numerous NPDES Permits in the Central Valley Region. The Discharger should be able to comply with the limit, therefore, no changes were made to the proposed limitation.

Discharger Comment No. 9. Attachment A, Specific Editorial Comments.

In addition to previously discussed issues noted in Attachment A, the Discharger provided additional clarifications and edits to the tentative NPDES Permit.

RESPONSE: Central Valley Water Board staff reviewed and considered each comment in Attachment A. Some recommendations by the Discharger were accepted and others have been discussed and resolved.

CSPA COMMENTS

Designated Status Request: CSPA requested designated party status for the Regional Water Board hearing scheduled for 2/3/4 February 2011 with regard to the proposed Order amending the NPDES permit for the City of Live Oak Wastewater Treatment Plant (WWTP). The commenter will be granted designated party status for the subject hearing.

CSPA Comment No. 1. Mass-based Effluent Limits

CSPA comments that the tentative NPDES Permit fails to contain mass-based effluent limitations for ammonia, aluminum, arsenic, copper, cadmium, dibromochloromethane, dichlorobromomethane, alpha BHC, 4,4-DDE, alpha Endosulfan, endrin aldehyde, and nitrate as required by 40 CFR 122.45 (b) and 40 CFR 122.45 (f).

RESPONSE: Central Valley Water Board staff does concur that the tentative NPDES Permit should contain mass-based effluent limitations for ammonia, and therefore, it was modified accordingly. However, Central Valley Water Board staff does not concur that the tentative NPDES Permit should contain mass-based effluent limitations for the remaining constituent listed in CSPA's comment No. 1. 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 for aluminum, arsenic, copper, cadmium, chlorodibromomethane, dichlorobromomethane, and nitrate in the tentative NPDES Permit 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. The effluent limitations for 4,4-DDE, alpha BHC, alpha Endosulfan, and endrin aldehyde are based on the Basin Plan water quality objective of no detectable concentrations, and therefore, calculating a mass-based effluent limitation is impracticable for these constituents.

Mass limitations for oxygen demanding substances, bioaccumulative substances, and constituents with an associated 303(d) listing are included in the tentative NPDES Permit. The tentative NPDES Permit specifically includes mass limitations for 1) BOD₅, TSS, and was modified to include a mass limitation for 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 objectives and criteria that are concentration-based (i.e aluminum, arsenic, cadmium, copper, chlorodibromomethane, dichlorobromomethane, alpha BHC, 4,4-DDE, alpha endosulfan, endrin aldehyde and nitrate), mass-based effluent limitations are not included in the tentative NPDES Permit.

CSPA Comment No. 2. Effluent Limitations for Aluminum, Electrical Conductivity (EC), Iron, Manganese, and Total Trihalomethanes

CSPA comments that the effluent limitations for aluminum, electrical conductivity (EC), iron, manganese, and total trihalomethanes are improperly regulated as an annual average contrary to Federal Regulations 40 CFR 122.45(d)(2). CSPA also comments that iron is not properly regulated to protect the beneficial uses of the receiving stream as required by Federal Regulation 40 CFR 122.44, and that the proposed Permit does not contain an Antidegradation Policy assessment for aluminum or iron.

RESPONSE: Central Valley Water Board staff does not concur. The effluent limitations for aluminum, iron, and manganese are based on the Secondary Maximum Contaminant Levels (MCLs), therefore, the tentative NPDES Permit includes annual average effluent limitations for these constituents. 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 Municipal and Domestic Supply (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.

With respect to compliance with the Surface Water Limitations in the tentative NPDES Permit (e.g. chemical constituents, color, taste and odor, and toxicity), the tentative NPDES Permit requires receiving water compliance monitoring weekly. For compliance with the Basin Plan's water quality objective for toxicity, the tentative NPDES Permit contains acute whole effluent toxicity and chronic whole effluent toxicity limits. In addition, for aluminum the tentative NPDES Permit contains average monthly and maximum daily effluent limitations to protect the beneficial uses of the receiving water (See response to CSPA comment #4 for additional information). Additionally, Central Valley Water Board staff does not concur that the Fact Sheet should contain an antidegradation assessment for iron because the proposed iron limit is newly imposed, and thus, more stringent; therefore, compliance with the iron limitation will not cause any degradation of surface water quality. However, Central Valley Water Board staff concurs that the Fact Sheet should contain an antidegradation assessment for aluminum since the proposed limit is less stringent than the aluminum limits contained in the existing permit; for this reason, the tentative NPDES Permit was modified accordingly. .

Central Valley Water board staff also concurs with the public comment regarding total trihalomethanes (THMs). Total THMs are based on the Primary MCLs adopted by the California Department of Public Health and a sum of four GTR priority pollutants: chloroform, bromoform, dibromochloromethane, and dichlorobromomethane. The SIP applies directly to the control of CTR priority pollutants and for the protection of human health, total trihalomethanes are regulated as a monthly average. Therefore, Central Valley Water Board staff recalculated the total THMs effluent limitation in accordance with Section 1.4 of the SIP. As a result, the proposed NPDES Permit has been changed to contain a monthly average and maximum daily effluent limitations for total THMs, instead of the annual average effluent limitation. The previously proposed maximum daily limitation has been removed.

For EC refer to CSPA comment No. 5.

CSPA Comment No. 3. Proposed Permit Contains an Inadequate Reasonable Potential Analysis

The proposed permit contains an inadequate reasonable potential analysis (RPA) for aluminum, EC, iron, manganese, and total trihalomethanes by failing to use statistical multipliers as required by Federal Regulations 40 CFR 122.44 (d)(1)(ii).

RESPONSE: Central Valley Water Board staff does not concur. Until adoption of the SIP by the State Water Board, USEPA's Technical Support Document for Water Quality-based Toxics Control (TSD) was the normal protocol followed for permit development for all constituents. The SIP is required only for CTR and National Toxics Rule (NTR) constituents and prescribes a different protocol when conducting a Reasonable Potential Analysis (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 greater complexity in writing permits. Currently there is no State or Regional 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 Regional 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, we use the RPA procedures from the SIP to evaluate reasonable potential for both CTR/NTR and non-CTR/NTR constituents.

CSPA Comment No. 4. Effluent Limitations for Aluminum

CSPA comments that 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. CSPA argues that the chronic criterion (87µg/L) recommended by the USEPA Ambient Water Quality Criteria for Aluminum should be applied for this discharge.

RESPONSE: Central Valley Water Board staff does not concur. USEPA's recommended chronic criterion is based on studies conducted on waters with low pH (6.5 to 6.8 pH units) and hardness (<10 mg/L as CaCO₃), which are conditions not commonly observed in Central Valley receiving waters like the Reclamation District 777 Lateral Drain No. 1 (RD777). Consequently, the criterion is likely overly protective for this application. For similar reasons, the Arid West Water Quality Research Project produced its technical report, *Evaluation of the EPA Recalculation*

Procedure in the Arid West Technical Report, to update USEPA's recommended criterion based on more recent data, and to recalculate the criterion to reflect the resident species and water quality observed in arid West surface waters. For conditions where the hardness is equal to 200 mg/L as CaCO₃, the Arid West recalculated the Aluminum (total) Chronic Criterion Value at 1623 µg/L. RD777 hydrology, water characteristics, and aquatic species are similar to streams in the Arid West Technical Report. In the case of RD777, the new monitoring data obtained from June 2006 through June 2009 indicates that the receiving water hardness ranged from 30 to 520 mg/L with a mean of 284 mg/L as CaCO₃. Thus, it is likely that application of the stringent chronic criteria (87µg/L) to RD777 is overly protective. Therefore, using best professional judgment, only the acute criterion (750 µg/L) was applied to interpret the Basin Plan's narrative toxicity objective to protect the aquatic life beneficial use. This results in water quality-based effluent limitations established as average monthly and maximum daily effluent limitations of 260 mg/L and 750 mg/L, respectively, in the proposed NPDES Permit.

CSPA Comment No. 5. Final Effluent Limitation for EC

CSPA comments that the tentative NPDES Permit does not contain a final effluent limitation for EC as required by federal regulation 40 CFR 122.44 (d) (1). CSPA further comments that the tentative NPDES Permit does not protect the beneficial uses of the receiving water and does not comply with federal regulations and the California Water Code.

RESPONSE: Central Valley Water Board staff concurs that the EC limit in the tentative NPDES Permit should be a final limitation instead of an interim limitation. However, EC fluctuates in the City's potable drinking water supply, which subsequently causes EC concentrations in the effluent discharge to fluctuate. Consequently, it is impracticable to calculate performance-based effluent limitations for EC on a shorter averaging period. Therefore, the final limitation is an average annual performance-based EC effluent limitation.

Central Valley Water Board staff does not concur that the tentative NPDES Permit is not protective of the beneficial uses. To protect the beneficial uses of the receiving water and to maintain the EC levels at current facility performance, the tentative NPDES Permit was changed to contain a final performance-based effluent limitation of 1,100 µmhos/cm as an annual average. Furthermore, the tentative NPDES Permit requires the Discharger to implement a salinity evaluation and minimization plan to reduce the salinity in its effluent discharge and requires the Discharger to report on progress in reducing salinity discharges to Reclamation District 777 Lateral Drain No. 1. Moreover, after one year following completion of construction of the tertiary treatment upgrades, should EC levels in the effluent discharge not attain compliance with the agricultural water quality goal of 700 µmhos/cm (which applies the Basin Plan's narrative chemical constituents objective), the tentative NPDES Permit also requires the Discharger to conduct site specific studies to determine the appropriate EC level

to protect beneficial uses. It is the intent of the Central Valley Water Board to modify the final EC effluent limitation or include additional requirements for salinity or EC in a subsequent permit renewal or amendment, based on the results of approved site-specific studies. These waste discharge requirements in the tentative NPDES Permit are protective of the beneficial uses of the receiving water.

CSPA Comment No. 6. Effluent Limitations for Metals Based on Hardness

CSPA comments that the tentative NPDES Permit established effluent limits for some hardness dependent metals on the hardness of the effluent or the downstream water contrary to Federal Regulations, the California Toxics Rule (CTR, 40 CFR 131.38(c)(4)). CSPA further contends that the Central Valley 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: Central Valley Water Board staff does not concur. The tentative NPDES Permit 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 snowmelt¹. 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*

¹ This has been documented for the San Joaquin River near the Manteca discharge. The lowest receiving water hardness occurs during flood flows when there is massive dilution.

selection must be protective of water quality criteria, given the flow conditions under which the particular hardness exists.” (Id., p.10.).

In the tentative NPDES Permit, 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 proposed NPDES Permit 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 proposed NPDES Permit, 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 No. 7. Effluent Limitations and Compliance Determination for Chronic Toxicity

CSPA comments that the proposed Permit does not contain enforceable Effluent Limitations for chronic toxicity and therefore, does not comply with the Basin Plan and Federal Regulations at 40 CFR 122.44 (d)(1)(i).

RESPONSE: Central Valley Water Staff does not concur. The effluent limitation, special provision, and compliance determination requirement for chronic whole effluent toxicity (WET) are in accordance with State Water Board WQO 2003-0012 (Los Coyotes and Long Beach) and WQO 2008-0008 (City of Davis).

In these water quality orders, the State Water Board requires the following when a discharge has reasonable potential to cause or contribute to an exceedance of the narrative toxicity objective based on chronic WET testing:

- a) a chronic WET narrative limit;
- b) chronic WET numeric benchmarks for triggering accelerated monitoring; and
- c) rigorous toxicity reduction evaluation/toxicity identification evaluation conditions.

The tentative NPDES Permit contains these requirements and fully complies with the State Water Boards' water quality orders.

CSPA Comment No. 8. Effluent Limitations for Aluminum, Diazinon, Cyanide, and Settleable Solids are Contrary to the Antibacksliding Requirements of the Clean Water Act and Federal Regulations.

CSPA comments that the tentative NPDES Permit contains effluent limitations for aluminum, diazinon, cyanide, and settleable solids less stringent than the City's existing permit or the limitations have been removed contrary to the Antibacksliding requirements of the Clean Water Act and Federal Regulations 40 CFR 122.44 (I) (1).

RESPONSE: Central Valley Water Board staff does not concur. The aluminum effluent limitations in the tentative NPDES Permit have been relaxed from previous Order No. R5-2004-0096 based on new information regarding the toxicity of aluminum in the site-specific receiving water. (see response to CSPA Comment No. 4). Therefore, the tentative NPDES Permit is consistent with the antibacksliding provisions.

Based on new monitoring data obtained from June 2006 through June 2009, as discussed in the tentative NPDES Permit, Fact Sheet Section IV. C.3., there is not a reasonable potential for the effluent from the Facility to cause or contribute to an excursion above applicable water quality standards for diazinon, cyanide, or settleable solids. CSPA contends that because two out of 1100 total monitoring samples for settleable solids showed concentrations at 0.1 mL/L, the effluent discharge demonstrates reasonable potential. Central Valley Water Board staff does not concur. The effluent limit for settleable solids is 0.2 mL/L as a maximum daily and 0.1 mL/L as a monthly average. Thus, the effluent discharge complied with the settleable solids effluent limitations. Therefore, the tentative NPDES Permit appropriately does not contain an effluent limitation for diazinon, cyanide, and settleable solids since the discharge does not demonstrate reasonable potential for these constituents.

CSPA Comment No. 9. Antidegradation

CSPA comments that the proposed Permit contains an inadequate antidegradation analysis and 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, and California Water Code Sections 13146 and 13247. CSPA further comments that the groundwater quality has not been assessed to whether the decades old discharge has degraded groundwater quality.

RESPONSE: Central Valley Water Board staff does not concur. The tentative NPDES Permit does not allow for an increase in flow or mass of pollutants, and contains new effluent limitations, or effluent limitations that are at least as stringent as in previous Order No. R5-2004-0096 with the exception of the aluminum effluent limitations that have been relaxed in the tentative NPDES Permit. Therefore, a complete antidegradation analysis is not necessary; but, as discussed in the Fact Sheet (pp. F-54 through F-55), staff conducted an antidegradation analysis for aluminum. However, Central Valley Water Board staff concurs that section V.B of the Fact Sheet should contain a thorough discussion and analysis of groundwater quality (pp F-60 through F-62) based on past monitoring results. Thus, the Fact Sheet was modified accordingly.

CSPA Comment No. 10. The Proposed Permit does not Contain Groundwater Monitoring Requirements

CSPA comments that the proposed Permit contains Groundwater Limitations but does not require groundwater monitoring to determine compliance with the limitation, and that the proposed permit fails to discuss past groundwater monitoring results.

RESPONSE: Central Valley Water Board staff does not concur. The Discharger is nearing completion of a new treatment facility and will no longer be using treatment ponds. The new facility includes wastewater structures that are lined, so there will be no threat to groundwater. The Discharger plans to maintain one pond as an emergency storage basin that has the potential to discharge to groundwater. However, the emergency storage basin will only be used intermittently and wastewater will be drained as soon as possible. Therefore, there is insufficient threat to groundwater to require groundwater monitoring.

CSPA Comment No. 11. Title 27

CSPA comments that the proposed Permit finds that the wastewater and sludge treatment and disposal facilities are exempt from California Code of Regulations (CCR) Title 27 without analysis or fact.

RESPONSE: Central Valley Water Board staff concurs. The tentative NPDES Permit was amended to include justification for the exemption from Title 27. In particular, 27 CCR section 20090(a) is the appropriate exemption because it allows for an exemption for treatment or storage facilities with municipal treatment plants. In this case, the lagoon and storage ponds, as well as the proposed emergency storage basin, pertain to storage at a municipal treatment plant. The emergency storage basin will only be used, if at all, in the event of an emergency, will be used only intermittently, and will be drained as soon as possible.

CVCWA COMMENTS

CVCWA Comment 1. Resolution No. 88-63

CVCWA comments that the Tentative Order incorrectly concludes that the Central Valley Water Board must amend the Basin Plan in order to grant an exception to Resolution No. 88-63. And therefore, the Tentative Order inappropriately includes effluent limitations to protect the MUN beneficial use. CVCWA also states that the exceptions to Resolution No. 88-63 are self-implementing, the Basin Plan incorporates Resolution No. 88-63 without qualification, and therefore, requires the Central Valley Water Board apply the exceptions contained in Resolution No. 88-63 without the need for a basin plan amendment.

RESPONSE: Central Valley Water Board staff does not concur. The Basin Plan incorporates State Water Board Resolution No. 88-63 which states that all surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Boards with several exceptions. The Basin Plan states that water bodies within the basins that do not have beneficial uses designated in Table II-1 (of the Basin Plan) are assigned MUN designations. A basin plan amendment is necessary to remove MUN as a beneficial use for water bodies not listed in Table II-1.

CVCWA Comment No. 2. Arsenic

CVCWA comments that the Tentative Order should express effluent limitations for arsenic as an annual average and should include a compliance schedule for arsenic.

RESPONSE: See Response to Discharger Comment #3.