

Central Valley Regional Water Quality Control Board  
5 February 2009 Board Meeting

Response to Comments  
for the  
City of Turlock  
Water Quality Control Facility  
Tentative Waste Discharge Requirements

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The following are Regional Water Quality Control Board, Central Valley Region (Regional Water Board) staff responses to comments submitted by interested parties regarding the tentative Waste Discharge Requirements (National Pollutant Discharge Elimination System or NPDES Permit renewal) for the City of Turlock Water Quality Control Facility. Public comments regarding the proposed Order were required to be submitted to the Regional Water Board by 5:00 p.m. on 9 January 2009 in order to receive full consideration.

The Regional Water Board received comments regarding the proposed NPDES Permit renewal by the due date from the City of Turlock (Discharger), the Central Valley Clean Water Association (CVCWA), and the California Sportfishing Protection Alliance (CSPA). The submitted comments were accepted into the record, and are summarized below, followed by Regional Water Board staff responses.

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**CITY OF TURLOCK (DISCHARGER) COMMENTS**

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**Discharger Comment No. 1. Finding II. S., Provisions and Requirements Implementing State Law, Page 8.**

The Tentative Order imposes effluent limitations for BOD<sub>5</sub>, TSS, turbidity, and pathogens, as well as a requirement for a tertiary level of treatment, or its equivalent, based on the California Department of Public Health (DPH) reclamation criteria published in Title 22, for the general protection of beneficial uses. See Tentative Order at IV.A.1.a. (BOD<sub>5</sub>, TSS) IV.A.1.f. (Coliform), IV.B.1.a. (BOD<sub>5</sub>, TSS), IV.B.1.f. (Coliform), VI.C.4.c. (turbidity) and VI.C.6.a. (tertiary treatment or its equivalent); see also Tentative Order at Finding II.M. and Fact Sheet at IV.C.3.w. These permit provisions are not required under the federal Clean Water Act, which requires secondary treatment or its equivalent for discharges from publicly-owned treatment works, and associated BOD<sub>5</sub>, TSS, turbidity, and pathogen restrictions. See 33 U.S.C. §§ 1311(b)(1)(B); 40 C.F.R. 133.102. Thus, the BOD<sub>5</sub>, TSS, turbidity, pathogen, and technology-based tertiary or its equivalent requirements are being included in the Tentative Order to implement state law and DPH recommendations. **The City requests that Tentative Order sections IV.A.1.a. (BOD<sub>5</sub>, TSS) IV.A.1.f. (Coliform), IV.B.1.a. (BOD<sub>5</sub>, TSS), IV.B.1.f. (Coliform), VI.C.4.c. (turbidity) and VI.C.6.a. (tertiary treatment or its equivalent) be included in Finding II.S.**

Finding II.S. includes reference to provisions that do not exist in the Tentative Order; specifically, Tentative Order sections VI.C.2.b. and VI.C.2.c. **The City requests that Tentative Order sections VI.C.2.b. and VI.C.2.c be removed from Finding II.S., or Finding II.S. should be modified to include the sections that Regional Board staff intended to reference.**

**RESPONSE:** The Discharger argues that the requirement to provide a tertiary level of treatment, or its equivalent, is not required under the federal Clean Water Act (CWA). Thus, the Discharger concludes that these provisions are necessary only to implement state law and violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations. Regional Water Board staff disagrees. Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order requires a tertiary level of treatment, or equivalent, to protect the municipal and domestic supply (MUN), water contact recreation (REC-1), and agricultural supply (AGR) beneficial uses. Thus, violations of these provisions/requirements are subject to the enforcement remedies that are available for NPDES violations.

The Discharger further comments that section II.S of the Order contains inappropriate cross-references. Regional Water Board staff concurs and has modified section II.S of the proposed Order to remove references to sections VI.C.2.b and VI.C.2.c.

**Discharger Comment No. 2. Section IV.A.1.a., Table 6, Copper Translator – Discharge Point 001, page 10.**

The Tentative Order does not use a translator value for copper based on the City's translator study. **The City requests that as a conservative and protective measure, the effluent limitations for copper should at least consider the translator values calculated for the effluent samples (chronic = 0.66, acute = 0.82).**

**RESPONSE:** The Discharger submitted monitoring data to support metal translators for the discharge to the San Joaquin River on 11 June 2008. A formal report was requested by the Regional Water Board on 16 June 2008. The Discharger submitted the report on 16 July 2008 and requested acute and chronic translators be used to calculate aquatic life criteria for copper, lead, and zinc. Upon review of the Metals Translator Report, the Regional Water Board identified several deficiencies, including the manner in which the translator study was conducted, the interpretation of the data, and the conclusions reached. The Regional Water Board issued their findings to the Discharger on 31 October 2008, to which the Discharger submitted a response on 21 November 2008. The Discharger's response addressed the major concerns regarding the Metals Translator Report.

Based on the Discharger's Metals Translator Report, the Discharger identified the following translators for copper, lead, and zinc based on effluent metals data collected from September 2006 through April 2007:

Parameter	Translator (1/fD)	
	Acute	Chronic
Copper, Total Recoverable	1.22	1.52
Lead, Total Recoverable	1.08	1.32
Zinc, Total Recoverable	1.00	1.04

Because the translators are based on effluent samples only, and are representative and protective of the receiving water under critical low flow conditions (i.e., during periods of no dilution), Regional Water Board staff finds that it is appropriate to apply the proposed translators to adjust water quality criteria for copper, lead, and zinc for the discharge to Harding Drain from Discharge Point No. 001. Based on the calculation of water quality criteria using the applicable translators, the effluent exhibits reasonable potential to cause or contribute to an exceedance of water quality criteria for copper. There is no reasonable potential for lead and zinc using the site-specific translators or the EPA default translators. Based on the revised water quality criteria for copper, the effluent limitations in the proposed Order have been revised as follows:

**Table 6. Effluent Limitations – Discharge Point No. 001**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper, Total Recoverable	µg/L	7.48.9	--	4215	--	--

Additionally, the Fact Sheet (Attachment F) and Attachment G have been revised to reflect the calculation of water quality criteria for copper, lead, and zinc based on the applicable metals translators.

**Discharger Comment No. 3. Section IV.A.1.a., Table 6, Effluent Limitations for Carbon Tetrachloride, Chlorodibromomethane, and Dichlorobromomethane in Harding Drain Based on MUN Beneficial Use, page 10.**

The final effluent limitations for carbon tetrachloride, chlorodibromomethane, and dichlorobromomethane at Discharge Point 001 (Harding Drain) are based on application of the MUN beneficial use to Harding Drain (effluent limitations based on human health water quality criteria in the California Toxics Rule). While the Fact Sheet acknowledges that the MUN beneficial use has not been designated for Harding Drain in the Basin Plan, directly or via the Basin Plan’s tributary statement, and is not an existing beneficial use, the Fact Sheet nonetheless concludes that the MUN beneficial use must be retained and protected in Harding Drain based on the Regional Board’s incorporation of State Board Resolution 88-63 (Sources of Drinking Water Policy) into the Basin Plan. See Fact Sheet at F-11 and F-12. The Fact Sheet also recites the State Board’s previously enunciated position in the City of Vacaville Water Quality Order (2002-0015) that a Basin Plan amendment must be performed to remove beneficial uses applied via Resolution 88-63 if a receiving water qualifies for an enumerated exception in

Resolution 88- 63. *Id.* In this case, Harding Drain qualifies for the agricultural drainage waters exception in Resolution 88-63. *Id.*

While the City understands the Regional Board's position regarding the process necessary to remove the non-existent MUN beneficial use from application to Harding Drain, the City believes the Regional Board retains the flexibility to apply effluent limitations to Harding Drain that more appropriately reflect the necessary level of protection for the Harding Drain and the San Joaquin River downstream, so that the City is not required to expend scarce public resources on compliance with the more stringent effluent limitations for carbon tetrachloride, chlorodibromomethane, and dichlorobromomethane imposed for Harding Drain. As noted in the Fact Sheet, and discussed further below, discharge to the Harding Drain will only be retained in the future as an emergency discharge point.

The City will cease discharging into Harding Drain once construction of the pipeline to the San Joaquin River is complete, except that the City will maintain the ability to discharge to Harding Drain in emergency situations prompted by power failure at the pipeline pump station or other emergency condition associated with the pipeline pump station or pipeline itself. See Findings II.B. and Discharge Prohibition III.E. (prohibiting discharge to Harding Drain except in these limited circumstances). Those emergency discharges will be infrequent and of limited duration. By imposing final effluent limitations in Table 6 for carbon tetrachloride, chlorodibromomethane, and dichlorobromomethane for the Harding Drain that are more stringent than required for direct discharge to the San Joaquin River, the City will be forced to modify and/or upgrade its treatment facility solely to comply with the rarely-invoked effluent limitations for Harding Drain. Given that the MUN beneficial use does not actually exist in the Harding Drain, the City believes the Regional Board should focus on protecting the downstream San Joaquin River potential MUN beneficial use, and replace the average monthly and maximum daily final effluent limitations for carbon tetrachloride, chlorodibromomethane, and dichlorobromomethane in Table 6 with those in Table 7 (calculated for protection of the San Joaquin River). This will ensure that both the Harding Drain and the potential MUN beneficial use downstream of Harding Drain will be fully protected, but avoid the City having to incur the unnecessary and excessive cost of designing and constructing facilities to comply with effluent limitations that will be rarely invoked for the protection of a non-existent beneficial use.

**The City requests that the average monthly and maximum daily final effluent limitations for carbon tetrachloride, chlorodibromomethane, and dichlorobromomethane in Table 6 be replaced with the average monthly and maximum daily final effluent limitations for carbon tetrachloride, chlorodibromomethane, and dichlorobromomethane in Table 7 (calculated for protection of the San Joaquin River).**

**RESPONSE:** Although we understand the Discharger's concern, the SIP does not allow for higher effluent limitations for carbon tetrachloride, chlorodibromomethane, and dichlorobromomethane at Discharge Point 001 into the Harding Drain. The

higher effluent limitations for these constituents allowed at Discharge Point 002 in the proposed Order is due to the available flow in the San Joaquin River. Harding Drain does not provide the same level of dilution; therefore, the Regional Water Board cannot allow dilution credits.

Essentially, the Discharger is requesting the Regional Water Board to de-designate the MUN use from the Harding Drain in a permitting action rather than a basin planning action. The Regional Water Board cannot do so, even to apply one of the exceptions in Resolution 88-63. The exceptions are not self-executing. (Order WQO 2002 – 0015 (City of Vacaville).) As an alternative to the Discharger's requested changes, the Discharger may request a time schedule order, and assist the Regional Water Board in removing the MUN use from the Harding Drain.

**Discharger Comment No. 4. Section IV.B.1.a., Table 7, Compliance Schedules for Aluminum, Iron, Manganese, and Nitrate-N Should Be Included in Tentative Order, page 12.**

On December 31, 2008, the City submitted to the Regional Board an Infeasibility Analysis Report setting forth the City's request and justification for schedules of compliance for final effluent limitations for copper, selenium, carbon tetrachloride, chlorodibromomethane, dichlorobromomethane, aluminum, iron, manganese, and nitrate-N.

The City requests that compliance schedules granted for average monthly and daily maximum effluent limitations for aluminum at Discharge Point 002 be included within the Tentative Order, as those limitations are derived from a new interpretation of the Basin Plan's narrative toxicity water quality objective, applying USEPA developed National Recommended Ambient Water Quality Criteria.

The City also requests that compliance schedules granted for iron, manganese, and nitrate-N be included within the Tentative Order, as the final effluent limitations for these constituents are due to the new application and interpretation of the Basin Plan's narrative objective for chemical constituents, resulting in limitations more stringent than the limitations in the City's prior NPDES Permit. The Discharger cites State Board Order WQ 2001-0006, *CBE, et al. v. SWRCB* (2005) 132 Cal.App.4th 1313, and SWRCB Resolution 2008-0025, Policy for Compliance Schedules in NPDES Permits, Section 1.e..

**In summary, the City requests that granted compliance schedules be included within the Tentative Order for aluminum, iron, manganese, and nitrate-N.**

**RESPONSE:** Although the Discharger submitted an infeasibility analysis for aluminum, iron, and manganese, the Regional Water Board disagrees that compliance schedules for these parameters are necessary. As part of the Discharger's justification for compliance schedules for these parameters, the

Discharger evaluated monitoring data from May 2006 through December 2008. However, as described further in section IV.C.3.e of the Fact Sheet (Attachment E) monitoring conducted prior to October 2006 is not representative of the effluent from the Facility and was not used to conduct the reasonable potential analysis (RPA) for these parameters. Thus, it is not appropriate to evaluate monitoring conducted prior to October 2006 to justify infeasibility.

The Discharger reported in their Infeasibility Analysis Report that the annual average effluent aluminum concentration in 2008 was 225 µg/L and thus concluded that they may not be able to consistently comply with the annual average effluent limitation of 200 µg/L for discharges to both Harding Drain and the San Joaquin River. However, a review of the monitoring data used for the infeasibility analysis indicates the use of monitoring data that has not been submitted to the Regional Water Board as required by the Monitoring and Reporting Program of Order No. 5-01-122, which states *“if the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form.”* Specifically, monitoring data was used in the Discharger’s calculation from 28 and 31 January 2008 and 8 April 2008 which was not included in the Discharger’s monitoring reports, and thus was also not considered for the purposes of the RPA and the effluent limitations calculations. Because these data were not reported in the Discharger’s monitoring reports, and because the associated laboratory information was not provided, Regional Water Board staff concludes that it is not appropriate to determine infeasibility using this information. The annual average concentration of aluminum calculated without consideration of the aforementioned data for 2008 is 193 µg/L. Therefore, it appears that the Discharger can meet the annual average effluent limitation of 200 µg/L for the discharges to Harding Drain and the San Joaquin River.

Based on monitoring data collected from October 2006 through December 2008 (excluding certain data as described above), aluminum exceeded the average monthly effluent limitation of 261 µg/L in three sample points. However, the remaining 39 samples were below the effluent limitation, ranging from 20 µg/L to 230 µg/L. Given that the discharge to the San Joaquin River from Discharge Point No. 002 will not commence for at least 18 months, but possibly later, based on the time necessary to receive the proper approvals, put out bids for construction, and construct the outfall pipeline, the Regional Water Board finds that the Discharger is not in jeopardy of immediate non-compliance and that significant time is available within the Order itself to allow the Discharger to conduct additional monitoring and source identification studies. Therefore, a compliance schedule for compliance with the final effluent limitations for the discharge to the San Joaquin River has not been granted. A reopener has been included in the proposed Order that allows the Regional Water Board to reopen the Order to include a compliance schedule in the Order for aluminum should additional effluent monitoring indicate that the Discharger cannot comply with effluent limitations upon commencement of the discharge to the San Joaquin River from Discharge Point No. 002.

For iron and manganese, it appears the Discharger can immediately comply with the annual average effluent limitations based on data submitted since October 2006. The maximum effluent concentrations (MECs) for iron and manganese were 300 µg/L and 50 µg/L, respectively, based on monitoring conducted between October 2006 and December 2008, which are equal to the applicable annual average effluent limitations. The maximum running average concentrations in the effluent for iron and manganese were 158 µg/L and 23 µg/L, respectively, during this period. Thus, it appears the Discharger can immediately comply with these limitations and compliance schedules for iron and manganese have not been granted. Additionally, given that the discharge to the San Joaquin River from Discharge Point No. 002 will not commence for at least 18 months, but possibly later, based on the time necessary to receive the proper approvals, put out bids for construction, and construct the outfall pipeline, the Discharger is not in jeopardy of immediate non-compliance and significant time is available within the Order itself to allow the Discharger to determine methods to comply with the final effluent limitations for iron and manganese.

The Discharger states that the compliance schedule for nitrate should be included in the Order rather than the Time Schedule Order, claiming that the new effluent limitation is based on a new interpretation of the Basin Plan's narrative chemical constituents objective. Regional Water Board staff disagrees. The effluent limitation for nitrate is based on the Primary Maximum Contaminant Level (MCL). The Basin Plan incorporates the California Drinking Water Standards (i.e., MCLs) by reference as water quality objectives. Therefore, MCLs are considered as numeric water quality objectives. Thus, the application of the Primary MCL is not considered a "new interpretation" of a narrative objective and a compliance schedule for nitrate cannot be included in the Order.

**Discharger Comment No. 5. Section IV.B.1.a., Table 7, Copper Translator – Discharge Point 002, page 12.**

The Tentative Order considered the City's response to Regional Board/Tetra Tech comments on the City's translator study and incorporated a chronic translator for calculation of effluent limitations for copper. However, the Regional Board did not similarly apply an acute site-specific translator based on the City's submittal. **The City requests that if a mixing zone study is required to grant the San Joaquin River based acute translator value, that the effluent translator samples (chronic = 0.66, acute = 0.82) be used until the City completes a mixing zone study that allows a receiving water or "synthetic" sample (effluent and upstream receiving water mix) based translator.**

**RESPONSE:** The Discharger submitted monitoring data to support metal translators for the discharge to the San Joaquin River on 11 June 2008. A formal report was requested by the Regional Water Board on 16 June 2008. The Discharger

submitted the report on 16 July 2008 and requested acute and chronic translators be used to calculate aquatic life criteria for copper, lead, and zinc. Upon review of the Metals Translator Report, the Regional Water Board identified several deficiencies, including the manner in which the translator study was conducted, the interpretation of the data, and the conclusions reached. The Regional Water Board issued their findings to the Discharger on 31 October 2008, to which the Discharger submitted a response on 21 November 2008. The Discharger's response addressed the major concerns regarding the Metals Translator Report.

Based on the findings of the Metals Translator Report, the Discharger has requested that water quality criteria for copper, lead, and zinc be calculated using site-specific translators. For the discharge to the San Joaquin River at Discharge Point No. 002, the Discharger requested that water quality criteria be calculated using the following site-specific translators derived using a synthetic sample simulating critical low flow conditions in the San Joaquin River (4:1 based on the 7Q10 taken from other studies in the vicinity of the discharge).

Parameter	Translator (1/fD)	
	Acute	Chronic
Copper, Total Recoverable	1.45	1.82
Lead, Total Recoverable	6.67	11.34
Zinc, Total Recoverable	1.19	1.39

USEPA's translator guidance states that "*depending on state guidance or regulatory negotiations, samples may be collected from the effluent, the receiving water before mixing with the effluent, the receiving water edge of the mixing zone, and/or the receiving water in the far field (beyond the mixing zone).*" Although the USEPA guidance allows for alternative sampling locations, the allowance of chronic translators based on the 4:1 synthetic samples is not consistent with section 1.4.2 of the SIP. Section 1.4.2 of the SIP requires a mixing zone study in order to grant mixing zones and dilution credits. However, translators based on the 4:1 synthetic samples assume dilution is available even though an appropriate mixing zone analysis has not been conducted. Therefore, until a mixing zone analysis has been conducted, it is not appropriate to grant the translators based on the 4:1 synthetic sample. In lieu of calculating water quality criteria using the translators based on the 4:1 synthetic samples, Regional Water Board staff finds that it is appropriate to apply translators based on effluent samples to adjust water quality criteria for copper, lead, and zinc for the discharge to the San Joaquin River from Discharge Point No. 002. Based on the Discharger's Metals Translator Report, the Discharger identified the following translators for copper, lead, and zinc based on effluent metals data collected from September 2006 through April 2007:

Parameter	Translator (1/fD)	
	Acute	Chronic
Copper, Total Recoverable	1.52	1.22
Lead, Total Recoverable	1.32	1.08
Zinc, Total Recoverable	1.04	1.00

Based on the calculation of water quality criteria using the applicable translators, the effluent exhibits reasonable potential to cause or contribute to an exceedance of water quality criteria for copper. There is no reasonable potential for lead and zinc using the site-specific translators or the EPA default translators. Based on the revised water quality criteria for copper, the effluent limitations in the proposed Order have been revised as follows:

**Table 7. Effluent Limitations – Discharge Point No. 002**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper, Total Recoverable	µg/L	7.68.9	--	4315	--	--

Additionally, sections IV.C.2.d, IV.C.3.m, Table F-18, Table F-24, and Table F-27 of the Fact Sheet (Attachment F) and Table G-2 of Attachment G have been revised to reflect the calculation of water quality criteria for copper, lead, and zinc based on the applicable metals translators.

**Discharger Comment No. 6. Section IV.B.1.a., Table 7, Nitrate Assimilative Capacity, page 12.**

On December 31, 2008, the City submitted to Regional Board staff an assessment of assimilative capacity for nitrate in the San Joaquin River, a copy of which is attached hereto and incorporated by reference. The assessment concluded that sufficient upstream assimilative capacity (5:1) was available based on the conservative and protective assumption of using historical San Joaquin River concentrations *downstream* of the City's discharge and observed 7Q10 flow upstream of the discharge. This dilution would result in an effluent limitation approaching 47 mg/L as N. Because a more stringent performance-based nitrate limitation of 26.2 mg/L as N is achievable, protective, and allows additional downstream assimilative capacity, the City recommends the performance-based limitation as the final effluent limitation. The performance-based limitation is approximately equivalent to a 2.2:1 upstream river flow to permitted discharge flow dilution.

**The City requests that the nitrate final effluent limitation be modified to a performance-based monthly average (AMEL) of 26.2 mg/L as N. Upstream dilution under critical conditions (7Q10) provides significant dilution, even using conservative assumptions. If necessary for the Regional Board to grant the City's request, the City can obtain additional data and provide additional technical analysis of the available assimilative capacity over the next two months, and requests that adoption of the Tentative Order be briefly delayed to April or June 2009 to allow consideration of this pertinent information. The City would develop a CORMIX-based model to establish the area of the nitrate mixing zone to meet**

**the requested performance-based final effluent limitations under critical conditions. Because the outfall is not yet constructed, the model would not be verified with field measurements. The City could complete data gathering and additional modeling analysis by March 16, 2009. If assimilative capacity is not granted, or adoption of the Tentative Order is not delayed, a compliance schedule, interim effluent limitations, and a specific re-opener for consideration of dilution for nitrate effluent limitations should be included in the Tentative Order.**

**RESPONSE:** Regional Water Board staff has reviewed the Discharger's 31 December 2008 assessment of assimilative capacity for nitrate and finds that sufficient information is not available to grant a mixing zone and dilution credits for nitrate.

In granting a mixing zone, section 1.4.2.2.B states that the Regional Water Board shall deny or significantly limit a mixing zone and dilution credit as necessary to protect beneficial uses, meet the conditions of the Policy, or comply with other regulatory requirements. Such situations may exist based upon the quality of the discharge, hydraulics of the water body, or the overall discharge environment (including water column chemistry, organism health, and potential for bioaccumulation). Although the Discharger's assessment evaluates the proximity of drinking water intakes, critical low flows in the San Joaquin River (based on the 7Q10), and downstream nitrate concentrations, the Discharger's assessment fails to assess site-specific environmental conditions that affect the mixing zone by facilitating mixing, such as the location of downstream bends or rapids, and the edge of the mixing zone where the water quality objective for nitrate must be met. For constituents where water quality criteria are based on human health objectives, critical environmental impacts are expected to occur far downstream from the source such that complete mixing is a valid assumption. However, for nitrate, the Primary Maximum Contaminant Level (MCL) is designed to be protective over shorter periods of time (e.g., 30 days or less). Thus, additional information is necessary determine the appropriate mixing zone and dilution credits for nitrate. Therefore, dilution and assimilative capacity within the San Joaquin River were not considered in establishing effluent limitations for nitrate and effluent limitations were applied at the point of discharge to the San Joaquin River. The lack of dilution results in more stringent effluent limitations to protect the human health beneficial uses.

The Discharger requested that a compliance schedule for nitrate be included in the proposed Order should dilution credits not be granted. However, as described in response to Discharger Comment No. 4, the effluent limitation for nitrate is based on the Primary Maximum Contaminant Level (MCL). The Basin Plan incorporates the California Drinking Water Standards (i.e., MCLs) by reference as water quality objectives. Therefore, MCLs are considered as numeric water quality objectives. Thus, the application of the Primary MCL is not considered a "new interpretation" of a narrative objective and a compliance schedule for nitrate cannot be included in the Order.

The reopener at section VI.C.1.g of the proposed Order has been revised to allow the Regional Water Board to reopen the Order to include effluent limitations based on an appropriate dilution factor for the protection of human health for nitrate should the Discharger submit an approved dilution/mixing zone study that meets all of the conditions of Section 1.4.2.2 of the SIP.

**Discharger Comment No. 7. Sections IV.A.2. and IV.B.2., Interim Limitation for Iron, pages 11 and 13.**

Based on data collected in 2006, the City requested a compliance schedule for iron in the Infeasibility Analysis Report submitted to the Regional Board on December 31, 2008. Compliance with the final annual average effluent limitation is not immediately achievable under certain conditions that last occurred in September 2006. The City has used certain coagulants to meet turbidity operational requirements in the City's existing NPDES permit that may cause effluent iron and manganese concentration increases. In an effort to reduce iron and manganese concentrations, more recently, the City has used coagulants containing aluminum that may pose aluminum compliance issues. The City is investigating the optimum chemical additions and mixtures to ensure compliance. **If a compliance schedule is granted for iron, the City requests an interim effluent limitation for iron of 2,500 µg/L, based on the maximum observed effluent concentration.**

**RESPONSE:** As discussed in the response to Discharger Comment No. 4, it appears the Discharger can immediately comply with the annual average effluent limitations based on data submitted since October 2006. The MEC for iron was 300 µg/L, based on monitoring conducted between October 2006 and December 2008, which is equal to the applicable annual average effluent limitation. The maximum running average iron concentration in the effluent was 158 µg/L during this period. Thus, it appears the Discharger can immediately comply with this limitation and a compliance schedule for iron has not been granted.

The Discharger further argues that a compliance schedule is justified based on additional time needed to investigate the optimum chemical additions and mixtures to achieve compliance. Given that the discharge to the San Joaquin River from Discharge Point No. 002 will not commence for at least 18 months, but possibly later, based on the time necessary to receive the proper approvals, put out bids for construction, and construct the outfall pipeline, the Regional Water Board finds that the Discharger is not in jeopardy of immediate non-compliance and that significant time is available within the Order itself to allow the Discharger to investigate the optimum chemical additions and mixtures to ensure compliance with final effluent limitations.

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**Discharger Comment No. 8. Sections IV.A.2. and IV.B.2., Interim Limitation for Manganese, pages 11 and 13.**

Based on data collected in 2006, the City requested a compliance schedule for manganese in the Infeasibility Analysis Report submitted to the Regional Board on December 31, 2008. Compliance with the final annual average effluent limitation is not immediately achievable under certain conditions that last occurred in September 2006. The City has used certain coagulants to meet turbidity operational requirements in the City's existing NPDES permit that may cause effluent manganese and iron concentration increases. In an effort to reduce iron and manganese concentrations, more recently, the City has used coagulants containing aluminum that may pose aluminum compliance issues. The City is investigating the optimum chemical additions and mixtures to ensure compliance. **If a compliance schedule is granted for manganese, the City requests an interim effluent limitation of 200 µg/L, based on the maximum observed effluent concentration.**

**RESPONSE:** As discussed in the response to Discharger Comment No. 4, it appears the Discharger can immediately comply with the annual average effluent limitations based on data submitted since October 2006. The MEC for manganese was 50 µg/L, based on monitoring conducted between October 2006 and December 2008, which is equal to the applicable annual average effluent limitation. The maximum running average manganese concentration in the effluent was 23 µg/L during this period. Thus, it appears the Discharger can immediately comply with this limitation and a compliance schedule for manganese has not been granted.

The Discharger further argues that a compliance schedule is justified based on additional time needed to investigate the optimum chemical additions and mixtures to achieve compliance. Given that the discharge to the San Joaquin River from Discharge Point No. 002 will not commence for at least 18 months, but possibly later, based on the time necessary to receive the proper approvals, put out bids for construction, and construct the outfall pipeline, the Regional Water Board finds that the Discharger is not in jeopardy of immediate non-compliance and that significant time is available within the Order itself to allow the Discharger to investigate the optimum chemical additions and mixtures to ensure compliance with final effluent limitations.

**Discharger Comment No. 9. Section IV.B.2., Interim Limitation for Aluminum, page 13.**

The City requested a compliance schedule for aluminum in the Infeasibility Analysis Report submitted to the Regional Board on December 31, 2008. The average monthly final effluent limitation (AMEL, 261 µg/L) based on EPA acute water quality objective (750 µg/L) is not immediately achievable. To meet turbidity operational requirements in the City's existing NPDES permit, the City currently uses a coagulant addition that contains aluminum. Under certain conditions, high aluminum concentrations for certain

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months in the effluent will cause the average monthly concentration to exceed 261 µg/L. **If a compliance schedule is granted for aluminum, the City requests an interim effluent limitation be set as a maximum daily value of 750 µg/L.**

**RESPONSE:** As discussed in the response to Discharger Comment No. 4, a compliance schedule for aluminum is not being granted. Based on monitoring data collected from October 2006 through December 2008 (excluding certain data as described above), aluminum exceeded the average monthly effluent limitation of 261 µg/L in three sample points. However, the remaining 39 samples were below the effluent limitation, ranging from 20 µg/L to 230 µg/L. Given that the discharge to the San Joaquin River from Discharge Point No. 002 will not commence for at least 18 months, but possibly later, based on the time necessary to receive the proper approvals, put out bids for construction, and construct the outfall pipeline, the Regional Water Board finds that the Discharger is not in jeopardy of immediate non-compliance and that significant time is available within the Order itself to allow the Discharger to conduct additional monitoring and source identification studies. Therefore, a compliance schedule for compliance with the final effluent limitations for the discharge to the San Joaquin River has not been granted. A reopener has been included in the proposed Order that allows the Regional Water Board to include a compliance schedule in the Order for aluminum should additional effluent monitoring indicate that the Discharger cannot comply with effluent limitations upon commencement of the discharge to the San Joaquin River from Discharge Point No. 002.

**Discharger Comment No. 10. Sections IV.A.2.b and IV.B.2.b., Interim Limitation for Electrical Conductivity, pages 11 and 13.**

The Tentative Order's interim performance-based effluent limitation calculation for salinity as electrical conductivity (922 µmhos/cm) was calculated based on the highest annual average of less than three years of data (October 2006 through April 2008). Because only two and half years are considered, there is a high probability that this interim limitation will not be achievable. A probability distribution was fitted to the available monthly data (October 2006 through December 2008) with no consideration of possible seasonal affects, and a recursive "Monte Carlo" model was run for a 100 year period (1200 months). This recursion was performed 10 times to develop an estimate of average annual averages for the 10 recursions. The average was 914 µmhos/cm with a standard deviation of 19.6 µmhos/cm, and an average maximum of 967 µmhos/cm. An achievable interim limitation would be the average value plus 3.3 times the standard deviation (979 µmhos/cm). **The City requests that the interim annual average effluent limitation for electrical conductivity at Discharge Points 001 and 002 be modified to 979 µmhos/cm.**

**RESPONSE:** Regional Water Board staff has evaluated the Discharger's calculations and concludes that the revised interim limitation for electrical

conductivity is appropriate. Therefore, the proposed Order has been modified to include an interim annual average limitation of 979  $\mu\text{mhos/cm}$ .

**Discharger Comment No. 11. Section VI.C.1.e., WER Re-opener, page 21.**

In the near term, the City plans on continued limited episodic use of aluminum-based coagulants for control of discharge turbidity that may cause intermittent exceedances of the proposed average monthly effluent limitation for aluminum (261  $\mu\text{g/L}$ ) that is based on the EPA acute objective of 750  $\mu\text{g/L}$ , and may be related to episodes of elevated copper in the effluent that could exceed the proposed average monthly effluent limitation of 7.6  $\mu\text{g/L}$ . If an alternate coagulant or treatment process cannot feasibly be used, the City will consider updating other aluminum water effects ratio (WER) studies performed in the San Joaquin River (i.e., City of Manteca and City of Modesto preliminary) to determine an appropriate acute site specific objective for the San Joaquin River. Operational conditions may also cause intermittent copper exceedances and the City may pursue site-specific adjustments to this CTR water quality standard using the EPA promulgated biotic ligand model (BLM) for copper. **The City requests that the re-opener language be modified as follows:**

- e. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, except for the chronic aquatic life criterion for copper, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for inorganic constituents. An acceptable WER can be used to adjust aquatic life-based water quality standards, including metals such as copper, and Basin Plan incorporated EPA water quality standards for ammonia and aluminum. EPA has also promulgated an objective for copper based on the Biotic Ligand Model (BLM) that can be used as the basis for a site specific copper effluent limitations. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators and submits an approved report, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

**RESPONSE:** The reopener in the proposed Order has been revised based on the Discharger's suggested modifications.

**Discharger Comment No. 12. Section VI.C.1., Low Method Detection Level Study and/or Re-opener for Trihalomethanes and Carbon Tetrachloride, page 22.**

The Tentative Order's final effluent limitations for trihalomethanes and carbon tetrachloride for San Joaquin River discharge are calculated based on upstream receiving water concentrations reported as "not detected" at a method detection limits between 0.2  $\mu\text{g/L}$  and 0.3  $\mu\text{g/L}$ . Alternate analytical methods with method detection

limits approaching 0.05 µg/L could demonstrate additional assimilative capacity, and allow higher yet still protective effluent limitations.

**The City requests that adoption of the Tentative Order be briefly delayed to April or June 2009 to allow the City to perform a low method detection level study, during which the City will collect additional data at lower method detection levels to recalculate the average upstream concentration. This will ensure that appropriate, yet protective, effluent limitations for trihalomethanes and carbon tetrachloride are initially adopted, and will avoid Regional Board staff from having to devote resources to re-opening the City's NPDES permit shortly after adoption of the Tentative Order.**

**Alternatively, the City requests that the following specific re-opener be added to the Tentative Order to allow this new information for recalculation of the effluent limitations:**

- i. **Trihalomethane and Carbon Tetrachloride Low Method Detection Level Study.** The effluent limitations for chlorodibromomethane, dichlorobromomethane, and carbon tetrachloride at Discharge Point 002 include assimilative capacity per the SIP using the harmonic mean San Joaquin River dilution and the average upstream concentrations. Because the upstream concentrations are reported as "not detected" for all samples, the method detection limits are used for the water quality based effluent limitation calculation. The effluent limitations for these constituents may be reopened if the Discharger collects additional data at the lower method detection levels to recalculate the average upstream concentration. A modified EPA-approved drinking water method (EPA 524.2 SIM) may be used.

**RESPONSE:** Regional Water Board staff does not believe it appropriate to further delay adoption of the proposed Order to allow additional time to perform the proposed studies. A reopener has been included in the proposed Order that will allow the Regional Water Board to reopen the Order upon collection of adequate monitoring data that indicates additional assimilative capacity is available in the San Joaquin River. The reopener does not specify the method to be used for the study. Justification for the use of a specific method shall be included in the study for the approval of the Regional Water Board prior to reopening the Order.

**Discharger Comment No. 13. Section VI.C.3., Salinity Source Control Program, Page 24.**

The Tentative Order requires the City to develop and implement a Salinity Source Control Program to achieve a non-regulatory<sup>1</sup> goal of the “annual average salinity of the water supply plus 500  $\mu\text{mhos/cm}$ .” The Tentative Order also requires the City to participate financially in the development of the Central Valley Salinity Management Plan at a level commensurate with its contributions of salinity to the Delta.

The City objects to having to meet the non-regulatory goal of the “annual average salinity of the water supply plus 500  $\mu\text{mhos/cm}$ ,” given that the Regional Board already undertook an extensive regulatory process to adopt the TMDL for Salt and Boron in the Lower San Joaquin River, which imposes on the City a specific seasonal wasteload allocation (WLA) for electrical conductivity of 1,000  $\mu\text{mhos/cm}$  (Sept 1 – March 31) and 700  $\mu\text{mhos/cm}$  (April 1 – August 31). The WLAs are incorporated into the Tentative Order as final effluent limitations. See Tentative Order at Sections IV.A.1.h. and IV.B.1.h. Requiring the City to devote scarce resources to meeting an additional, non-regulatory goal for salinity, when the City already must address compliance with the TMDL WLAs is confusing, unnecessary, and unreasonable. **The City requests that any Salinity Source Control Program be developed by the City for purposes of compliance with the final effluent limitations for electrical conductivity in the Tentative Order, and omit reference to the non-regulatory goal of the annual average salinity of the water supply plus 500  $\mu\text{mhos/cm}$ .**

Furthermore, the City objects to the financial participation requirements contained in the Tentative Order. Neither the Clean Water Act, Water Code, nor the Basin Plan authorize the Regional Board to mandate financial participation in a stakeholder process as an enforceable term of a federal NPDES permit, especially where stringent discharge requirements (in the form of effluent limitations derived from TMDL WLAs) have already been placed on the City, which will require significant and limited rate payer funds to comply. While the City acknowledges the value of stakeholder participation in a Central Valley Salinity Management Plan process, the Regional Board should not mandate that participation, financially or otherwise, as an enforceable term of a federal NPDES permit. **The City requests that the requirement to financially participate in the Central Valley Salinity Management Plan process be removed from the Tentative Order.**

**RESPONSE:** The water supply EC plus an increment of 500  $\mu\text{mhos/cm}$  is a typical increment in municipal wastewater. This increment is a reasonable goal and will be used as a basis for evaluating whether the Discharger has made reasonable progress in the reduction of salinity in the discharge. It is not an effluent limitation, it is only a goal. No change will be made to the proposed Order.

Unlike most other facilities that discharge salt to the Delta, the Discharger’s salinity discharge is subject to the salinity and boron TMDL. The TMDL includes a

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<sup>1</sup> The use of the term “non-regulatory” in this context means a water quality goal that has not been the subject of a quasi-legislative process resulting in regulatory action to adopt the goal as a water quality objective or other Basin Plan provision.

compliance schedule and control program for salinity in the lower San Joaquin River. The TMDL implementation plan does not require financial contribution to the Central Valley Salinity Management Plan. Accordingly, this requirement was deleted from the proposed Order.

**Discharger Comment No. 14. Section VI.C.7.a., Compliance Schedule For Final Effluent Limitations for Electrical Conductivity, Pages 28-29.**

Sections IV.A.1.h., fn.1., and IV.B.1.h., fn.1., of the Tentative Order state that compliance with final effluent limitations for electrical conductivity is required by July 28, 2022 (all water year types, except critically dry) or July 28, 2026 (for critically dry water years) pursuant to the Salt and Boron TMDL previously adopted by the Regional Board. However, in Section VI.C.7.a. of the Tentative Order, the compliance schedule is inexplicably shortened to January 1, 2016. This action is not consistent with the compliance schedule implementation provisions of the Salt and Boron TMDL, and is inconsistent with the recent permitting action taken by the Regional Board for the only other municipal discharger assigned WLAs in the Salt and Boron TMDL, where the City of Modesto was properly granted a compliance schedule of July 28, 2022 and/or July 28, 2026 (depending upon the water year type).

In 2008, the Regional Board adopted the renewed NPDES Permit for the City of Modesto, the only other municipal discharger assigned WLAs in the Salt and Boron TMDL. The compliance schedule provided to the City of Modesto is consistent with the TMDL, and allows the City until July 28, 2022 and/or July 28, 2026 to comply (depending upon water year type). See Order No. R5-2008-0059 at page 32, attached hereto. No basis exists for treating the City of Turlock differently. **The City requests that the compliance schedule for final effluent limitations for electrical conductivity be consistent with the Salt and Boron TMDL and prior permitting action taken by the Regional Board for the City of Modesto, and that final compliance be required by July 28, 2022 and/or July 28, 2026.**

**RESPONSE:** The proposed Order includes a compliance schedule for compliance with the final effluent limitations for electrical conductivity by 1 January 2016. Although the TMDL does not require final compliance with the water quality objectives for salinity until 28 July 2022 for all water year types except critically dry and 28 July 2026 for critically dry years, it is unknown whether the compliance schedule allowed by the TMDL is as short as practicable for the Facility. Therefore, Regional Water Board staff finds that it is appropriate to establish an initial compliance schedule allowing 8 years to come into compliance with the final effluent limitations, with the option to evaluate extending the compliance schedule with each permit renewal (i.e., every 5 years). The Fact Sheet (Attachment F) has been revised to provide rationale for the shortened compliance schedule.

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**Discharger Comment No. 15. Section VII., Compliance Determination - Annual Average Calculation, page 31.**

The Tentative Order does not specify a method for calculation of compliance with annual average effluent limitations. Because sampling of certain constituents may not be performed on a consistent schedule (i.e., one month may have four samples and another month may have one sample), to avoid bias all values in a calendar year should not be averaged together. Typically, the City would verify a high value with an additional sample collected when the initial results are available from the first sample. Averaging all values together would tend to bias the annual average high. **The City requests that the following clarification be provided for calculation of annual averages in the Compliance Determination section of the Tentative Order:**

**H. Annual Average Calculation.** Annual averages for iron, manganese, aluminum, and salinity effluent concentrations shall be performed as the average value of each averaging period as specified in the Monitoring and Reporting Program. For example, effluent monitoring for iron is required quarterly. The annual average for this constituent would be the average of the four quarterly averages. Each quarterly average would be the average of the verified results in that calendar quarter.

**RESPONSE:** Regional Water Board staff agrees that a compliance determination provision should be added to the proposed Order to ensure the proper calculation of annual average constituent concentrations in the effluent. The following language has been added to the proposed Order.

**H. Annual Average Effluent Limitations.** Annual average effluent constituent concentrations for determining compliance with the annual average effluent limitations for iron, manganese, aluminum, and salinity shall be performed as the average value of each averaging period required in the Monitoring and Reporting Program. For example, if quarterly effluent monitoring is required, the annual average would be the average of the four quarterly averages. Each quarterly average would be the average of the verified results during that calendar quarter.

**Discharger Comment No. 16. Attachment E, Monitoring and Reporting Program, Table E-3, Priority Pollutant Monitoring, Pages E-4 and E-5.**

Table E-3 requires quarterly or monthly effluent monitoring for specified priority pollutants (Bis-2 through Zinc), and then monthly effluent monitoring for all “priority pollutants” during the 3rd year of the permit term. To avoid confusion of potential redundant monitoring requirements, **the City requests that the word “Remaining” be inserted before the term “Priority Pollutants” in Table E-3.**

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**RESPONSE:** This change is not necessary. No changes have been made in the proposed Order.

**Discharger Comment No. 17. Fact Sheet Section VII.B.2.c., Rationale for Provisions, Aluminum Site-Specific Studies, Page F-87.**

The Fact Sheet references aluminum site-specific studies that are not required by the Tentative Order, which makes sense given that final effluent limitations are imposed, derived from both EPA criteria and MCLs. **The City requests that Section VII.B.2.c. be removed from the Fact Sheet.**

**RESPONSE:** Regional Water Board staff concurs and has made the suggested modification to the proposed Order.

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## **CENTRAL VALLEY CLEAN WATER ASSOCIATION (CVCWA) COMMENTS**

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### **CVCWA Comment No. 1. The Agricultural Drain at Issue Is Not Designated MUN and/or the Regional Water Board May Remove the MUN Use without a Basin Plan Amendment**

The Tentative Order applies the MUN designation to the Harding Drain based on the State Water Board's Sources of Drinking Water Policy (Resolution No, 88-63) and the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan). The Tentative Order recognizes that the agricultural drain meets the exceptions of Resolution No, 88-63. However, the Tentative Order incorrectly concludes that the Regional Water Board must formally de-designate the agricultural drain for the exception to apply.

CVCWA disagrees that formal de-designation must occur. A review of Resolution No. 88-63 and the Basin Plan establish that the exceptions are self-implementing. That is, the Regional Water Board need only find that the exception for agricultural drainage applies to the Harding Drain in order to exclude requirements in the Tentative Order related to the MUN designation.

#### **1. Resolution No. 88-63 Exempts the Agricultural Drain to Which the WQCF Discharges from the Generally Applicable MUN Designation**

Resolution No, 88-63 provides that all surface waters and groundwater are suitable or potentially suitable for the MUN use and the Regional Water Boards should designate them as such with certain exceptions. One such exception is where:

The water is in systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters, provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards, (Resolution No. 88-63.)

Accordingly, waters that meet the exception for agricultural drainage are not part of the class of surface waters or groundwater subject to a MUN designation. The unnamed agricultural drain to which the WQCF discharges qualifies for the exception to the blanket designation of MUN to surface waters.

#### **2. The Basin Plan Requires Case-by-Case Consideration of Beneficial Uses and Incorporates the Exceptions to MUN Designations Under Resolution No. 88-63 Where Applicable**

The Beneficial Uses chapter of the Basin recognizes that it is impractical to list the beneficial uses of every surface water body in the region. (Basin Plan at p, II-2.00)

Therefore the Basin Plans states: "For unidentified water bodies, the beneficial uses will be evaluated on a case-by-case basis," (Basin Plan at p. 11-2.00.) In addition, the chapter incorporates Resolution No. 88-63 into the Basin Plan: "Water Bodies within the basins that do not have beneficial uses designated in Table II-I are assigned MUN designations *in accordance with* the provisions of State Water Board Resolution No. 88-63 which is, by reference, a part of this Basin Plan," (Basin Plan at p. II-2.01, emphasis added.) Moreover, the Basin Plan reads: "In making any exemptions to the beneficial use designation MUN, *the Regional Board will apply the exceptions* listed in Resolution [sic] 88-63," (Basin Plan at p. II-2.01, emphasis added.)

The agricultural drain to which the WQCF discharges does not have a beneficial use designation in Table II-I. Therefore, the Basin Plan directs the Regional Water Board to consider the agricultural drain's beneficial uses on a case-by-case basis. In doing so, the Basin Plan requires that the Regional Water Board designate unidentified water bodies as MUN "in accordance with" Resolution No. 88-63, which includes exceptions. (Basin Plan at p. II-2.01) The Basin Plan incorporates Resolution No. 88-63 without qualification, and Resolution No. 88-63 directs Regional Water Boards not to designate certain agricultural drains with the MUN beneficial use. The Basin Plan provides that the Regional Water Board is to apply the exceptions in Resolution No. 88-63. Therefore, the plain language of the Basin Plan requires the Regional Water Board to apply Resolution No. 88-63's exception for waters in an agricultural drain in this case.

**RESPONSE:** See response to Discharger Comment No. 3.

## **CVCWA Comment No. 2. The Compliance Schedule for EC Should Extend Until July 28, 2022, and/or July 28, 2026**

Sections IV.A.1.h, fn.1 and IV.B.1.h, fn.1 of the Tentative Order state that compliance with the final EC limits is required by July 28, 2022 (all water year types, except critically dry) or July 28, 2026 (for critically dry water years) in accordance with the adopted TMDL for salt and boron. However, the Tentative Order includes a compliance schedule for EC that requires full compliance by January 1, 2016.

The United States E.P.A. has confirmed that a compliance schedule may extend beyond the term of an NPDES permit. (Discussion of Selected Issues, Enclosure to letter from Alexis Strauss to Tom Howard, November 29, 2006 at p.8.) The State Water Board's compliance schedule policy provides that a compliance schedule may *exceed* ten years for an effluent limitation "that implements or is consistent with the wasteload allocations specified in a TMDL" provided that the TMDL implementation plan contains a compliance schedule or implementation schedule. (Resolution 2008-0025 at p.5.) In addition, the permit for the City of Modesto implements limitations for EC consistent with the same TMDL now at issue and allows Modesto until July 28, 2022 and/or July 28, 2026, to comply. (See Order No. R5-2008-0059 at p. 32.)

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Accordingly, CVCWA requests that the Tentative Order include a compliance schedule that extends the final compliance date to July 28, 2022, and/or July 28, 2026, as appropriate. Such a modification is consistent with the direction provided by the E.P.A. and State Water Board on compliance schedules, TMDLs and prior permitting action taken by the Regional Water Board for the City of Modesto.

**RESPONSE:** See response to Discharger Comment No. 14.

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## **CALIFORNIA SPORTFISHING PROTECTION ALLIANCE (CSPA) COMMENTS**

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**Designated Party Status.** CSPA requested designated party status for the board hearing on this matter. The commenter will be granted designated party status for the hearing.

**CSPA Comment No. 1. 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. The antidegradation analysis in the proposed Permit Fact Sheet does not contain sufficient information regarding the factual, legal and policy questions considered in preparing the permit as required by 40 CFR 124.8 (a) and (a)(4).**

**RESPONSE:** CSPA argues that the antidegradation analysis contained in the proposed Order does not contain sufficient information regarding the proposed relocation of the discharge.

The State Water Board's Administrative Policy Update (APU) 90-004 Antidegradation Policy Implementation for NPDES Permitting allows for a simple antidegradation analysis where a Regional Water Board determines that 1) a reduction in water quality will be spatially localized or limited with respect to the waterbody, 2) a reduction in water quality is temporally limited, 3) a proposed action will produce minor effects which will not result in a significant reduction of water quality; and 4) a proposed activity has been approved in a General Plan and has been approved in a General Plan and has been adequately subjected to the environmental and economic analysis required in an EIR. As discussed in the Discharger's Antidegradation Analysis, the shift in the discharge location approximately 560 feet upstream in the San Joaquin River from the confluence with Harding Drain would similarly shift the bounds of the expected mixing zone, but would not cause an increase in the size of the mixing zone. The relocation of the City's discharge to the San Joaquin River from Harding Drain is not expected to produce a change in the water quality in the San Joaquin River downstream where the effluent and ambient water are reasonably well-mixed. Thus, there are no anticipated far-field impacts of the proposed relocation in the San Joaquin River. Additionally, a final Environmental Impacts Statement (EIR) was certified by the Discharger in May 2005 after extensive public and regulatory agency review and comment, including comments from the Regional Water Board. The Discharger filed its Petition for Change with the State Water Board in July 2005, which was approved in July 2006 after public and regulatory agency review and comment. Thus, Regional Water Board staff concludes that the relocation in discharge meets the conditions to conduct a simple, rather than complete, antidegradation analysis.

CSPA questions the purpose of the relocation and assumes that the Discharger is undertaking the expense of constructing a 5-mile long pipeline to move the point of discharge to gain dilution instead of providing additional treatment. The Discharger developed a report titled, *Antidegradation Analysis for Harding Drain Bypass Pipeline and Outfall Project, September 2008*, (Larry Walker Associates), that provides a simple antidegradation analysis following the guidance provided by State Water Board APU 90-004. According to the Antidegradation Analysis,

*“The primary goal and objective of the proposed project is to eliminate the discharge of the City’s treated wastewater to the Harding Drain. Changing the point of discharge from Harding Drain to a direct discharge to the San Joaquin River will serve at least two beneficial purposes. First, removal of the City’s permitted wastewater discharges from Harding Drain will remove it from an agricultural drain whose primary function is management of drainage from irrigated lands, including control of flooding by elevated groundwater and winter stormwater. This will relieve the City of any need to coordinate with TID regarding management of flows in the drain, and allow TID to efficiently operate and maintain its system. Second, changing the point of discharge from a low-flow, constructed agricultural irrigation drain system may reduce regulatory constraints with respect to future waste discharge requirements for the City, while allowing TID and agricultural operations that runoff or discharge to Harding Drain to separately monitor and manage water quality associated with agricultural activities, which are subject to separate regulatory requirements.”*

CSPA contends a socioeconomic impacts analysis is necessary. The sole difference is that eliminating the need to coordinate with TID’s operations may provide a socioeconomic benefit. Other than that, the socioeconomic considerations for this facility are the same for the two discharge points.

CSPA contends that the Regional Water Board incorrectly concludes that the relocation of the discharge does not allow for increased concentrations and loading after the discharge is moved to the San Joaquin River and points to the establishment of higher effluent limitations for copper, carbon tetrachloride, chlorodibromomethane, and dichlorobromomethane for the discharge to the San Joaquin River than the effluent limitations for the same parameters for the discharge to Harding Drain. Regional Water Board staff disagrees that relocation of the discharge will result in the allowance of increased concentrations and loading. First, as described in response to Discharger Comment Nos. 2 and 5, the proposed Order has been revised to calculate effluent limitations for copper at Discharge Point Nos. 001 and 002 based on site-specific translators derived using effluent monitoring. The resulting effluent limitations for copper are the same for both discharge points. Second, effluent limitations for carbon tetrachloride, chlorodibromomethane, and dichlorobromomethane have not previously been applied to either the discharge to Harding Drain or the discharge to the San Joaquin River. It is not appropriate to compare the effluent limitations for the discharges to Harding Drain and the San Joaquin River. Effluent limitations for the discharge to Harding Drain are established

without consideration of dilution based on the ephemeral nature of the drain and the necessity to protect beneficial uses under all discharge conditions. However, it is appropriate to allow a mixing zone and apply dilution credits for the discharge to the San Joaquin River as assimilative capacity is available, sufficient flows exist in the receiving water to dilute the discharge, and critical environmental impacts are expected to occur far downstream from the source such that complete mixing is a valid assumption. As described in the Fact Sheet (Attachment F) and in response to CSPA Comment No. 2, the authorized mixing zone for chlorodibromomethane, dichlorobromomethane, and carbon tetrachloride meet the requirements of the Basin Plan and the SIP. Compliance with the effluent limitations will ensure that water beneficial uses within both receiving waters are protected.

CSPA claims that the proposed Order allows for a mixing zone for carbon tetrachloride, chlorodibromomethane, and dichlorobromomethane rather than requiring treatment, which results in a lowering of water quality. CSPA further comments that a best practicable treatment or control (BPTC) analysis must be done on an individual constituent basis; tertiary treatment may provide BPTC for some constituents, but does not control others such as dissolved metals. CSPA also states that the Regional Water Board must evaluate alternatives to using chlorine rather than ultraviolet (UV) disinfection as BPTC. Regional Water Board staff disagrees. A BPTC analysis is only required when the discharge will cause a pollution or nuisance or degrade high quality waters. That is not the case for this discharge, because there is no permitted increase in flow or mass of pollutants from the previous Order. Resolution 68-16 requires BPTC to ensure that “the highest water quality consistent with maximum benefit to the people of the State will be maintained.” If a discharge does not degrade receiving waters, by definition it maintains the highest (existing) quality of the receiving water.

CSPA comments that the Regional Water Board must analyze the impact of the relocation of the discharge on constituents that are identified on the 303(d) list as impairing the San Joaquin River and how beneficial uses will be impacted by the discharge. Regional Water Board staff concludes that the proposed Order is adequately protective of the San Joaquin River. The 2006 303(d) listing for the San Joaquin River from the Merced River to the Tuolumne River includes boron, DDT, electrical conductivity, Group A Pesticides, mercury, and unknown toxicity. TMDLs and Basin Plan amendments have been developed and adopted for diazinon and chlorpyrifos runoff and salt and boron in the lower San Joaquin River. The proposed Order includes requirements for both electrical conductivity and boron implementing the TMDL for Salt and Boron in the Lower San Joaquin River. Chlorpyrifos and diazinon have not been detected in the effluent and thus effluent limitations for these constituents have not been established. However, the proposed Order does include new monitoring requirements that specify a lower reporting limit sufficient for comparison with the applicable diazinon and chlorpyrifos water quality objectives and for use in the additive toxicity calculation for the TMDL. If diazinon and/or chlorpyrifos are detected in the effluent at a level that is determined to cause or contribute to an exceedance of the water quality objectives in the receiving water,

the Order may be reopened to include effluent limitations for diazinon and chlorpyrifos. For mercury, the proposed Order contains an interim performance-based mass effluent limitation of 0.82 lbs/year for the effluent discharged to Harding Drain and the San Joaquin River which is based on maintaining the mercury loading at the current level until a TMDL can be established for the Delta and USEPA develops mercury standards that are protective of human health. Effluent limitations for acute and chronic toxicity have been established in the Order. Thus, Regional Water Board staff finds that the proposed Order is adequately protective of the San Joaquin River for constituents that are identified on the 303(d) list. For constituents that are not on the 303(d) list, the proposed Order has evaluated reasonable potential to cause or contribute to an exceedance of water quality objectives for each pollutant. For those pollutants that exhibited reasonable potential to exceed water quality objectives, effluent limitations have been established in the proposed Order. Thus, Regional Water Board staff concludes that the proposed Order is adequately protective of the beneficial uses of Harding Drain and the San Joaquin River.

**CSPA Comment No. 2. The proposed Permit contains an allowance for a mixing zone that does not comply with the requirements of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP)* or the Water Quality Control Plan (Basin Plan).**

**RESPONSE:** Regional Water Board staff disagrees. The proposed Order grants a 36:1 dilution credit for human health criteria. The mixing zone and dilution credits are in compliance with the SIP and the Basin Plan, follow USEPA's TSD guidance, and are adequately protective of the beneficial uses of the receiving water.

USEPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 CFR §122.44 and §122.45). The USEPA allows states to have broad flexibility in designing their mixing zone policies. Primary guidance on determining mixing zone and dilution credits is provided by the SIP, the USEPA Technical Support Document (TSD) for Water Quality-based Toxics Control (EPA/505/2-90-001), and the Basin Plan. For NPDES permits in California, the SIP guidance supercedes the USEPA guidance for priority pollutants, to the extent that it addresses a particular procedure. However, for non-priority pollutants, the more stringent of the Basin Plan or USEPA guidance may apply.

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

*"A: A mixing zone shall not:*

- (1) compromise the integrity of the entire water body;*
- (2) cause acutely toxic conditions to aquatic life passing through the mixing zone;*
- (3) restrict the passage of aquatic life;*

- (4) adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;*
- (5) produce undesirable or nuisance aquatic life;*
- (6) result in floating debris, oil, or scum;*
- (7) produce objectionable color, odor, taste, or turbidity;*
- (8) cause objectionable bottom deposits;*
- (9) cause nuisance;*
- (10) dominate the receiving water body or overlap a mixing zone from different outfalls; or*
- (11) be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (Resolution No. 88-63), this SIP supersedes the provisions of that policy."*

The proposed Order only allows a mixing zone for human health criteria (i.e. long-term criteria). The proposed Order does not allow mixing zones for compliance with aquatic toxicity criteria. The mixing zone is as small as practicable, will not compromise the integrity of the entire water body, restrict the passage of aquatic life, dominate the waterbody or overlap existing mixing zones from different outfalls. The City of Modesto was granted a mixing zone for human health criteria in Order No. R5-2008-0059. The City of Modesto discharge is located approximately 5.5 miles downstream from the proposed outfall to the San Joaquin River. The estimated size of the human health mixing zone for the City of Turlock is 1000 feet, therefore, the mixing zones do not overlap. There are no municipal or known private drinking water supply intakes downstream of the discharge from the Facility to the San Joaquin River until the water intakes in the Delta located downstream of Vernalis.

The discharge will not cause acutely toxic conditions to aquatic life passing through the mixing zone, because the proposed Order does not allow an acute aquatic life mixing zone and requires compliance with an acute toxicity effluent limitation that requires acute bioassays using 100% effluent (i.e. no dilution). Compliance with the acute toxicity effluent limitation assures the effluent is not acutely toxic.

The discharge will not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws, because the proposed Order does not allow mixing zones for compliance with aquatic toxicity criteria. The Discharger must meet stringent end-of-pipe effluent limitations for constituents that demonstrated reasonable potential to exceed aquatic toxicity criteria (i.e. copper, selenium, ammonia, and aluminum).

The discharge will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum, produce objectionable color, odor, taste, or turbidity, cause objectionable bottom deposits, or cause nuisance, because the proposed Order requires end-of-pipe effluent limitations (e.g. for biochemical oxygen demand and

total suspended solids) and discharge prohibitions to prevent these conditions from occurring.

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

The mixing zone therefore complies with the SIP. The mixing zone also complies with the Basin Plan, which requires that the mixing zone not adversely impact beneficial uses. Beneficial uses will not be adversely affected for the same reasons discussed above. In determining the size of the mixing zone, the Regional Water Board has considered the procedures and guidelines in the EPA's Water Quality Standards Handbook, 2d Edition (updated July 2007), Section 5.1, and Section 2.2.2 of the Technical Support Document for Water Quality-based Toxics Control (TSD). The SIP incorporates the same guidelines.

The Fact Sheet of the proposed Order has been updated to clarify the mixing zone/dilution requirements.

Mixing zones do not violate state or federal antidegradation policies. (Administrative Procedures Update 90-004, p. 2; EPA Water Quality Standards Handbook 2d., §§ 4.4, 4.4.4, and Appendix G (Questions and Answers), p. 2.) Water quality standards are not required to be met within mixing zones. An antidegradation analysis is not required for areas within a mixing zone, as long as the requirements of the mixing zone policy are met. (American Wildlands v. Browner (10th Cir. 2001) 260 F.3d 1192, 1195-1196, 1198.) Only a "simple" antidegradation analysis is required for a mixing zone under the State Water Board guidance. A "simple" antidegradation analysis consists of a finding that the mixing zone will be not be adverse to the purpose of the state and federal antidegradation policies. (APU 90-004, p. 2.) This finding has been added. The mixing zone meets all requirements of the Basin Plan and the SIP.

**CSPA Comment No. 3. The proposed Permit contains no Effluent Limitations for settleable solids (SS) which are present in the existing NPDES Permit contrary to the Antibracksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1).**

**RESPONSE:** CSPA comments that the removal of effluent limitations for settleable solids constitutes backsliding. The previous permit, Order No. 5-01-122, included average monthly and average daily effluent limitations for settleable solids of 0.1 ml/L and 0.2 ml/L, respectively. Settleable solids have not been detected in the effluent based on recent monitoring data conducted between October 2006 through

April 2008. The Facility is a tertiary wastewater treatment plant. The regulation of settleable solids is not always necessary for tertiary treated wastewater. Settleable solids monitoring data provides information regarding the performance of a secondary system that is dependent on clarification and/or settling to meet technology-based effluent limitations. For tertiary treatment facilities that treat wastewater to a concentration of total suspended solids of less than 10 mg/l and turbidity to Title 22 standards, regulating settleable solids is not necessary. Settleable solids no longer demonstrate reasonable potential to cause or contribute to an exceedance of a water quality objective. Therefore, the proposed Order removes the effluent limitations for settleable solids based on new information consistent with anti-backsliding requirements of Clean Water Act sections 303(d)(4) and 402(o)(2)(B). The proposed Order is adequately protective and contains a narrative receiving water limitations for settleable substances.

**CSPA Comment No. 4. The proposed Permit replaces Effluent Limitations for turbidity which were present in the existing permit; contrary to the Antibacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1).**

**RESPONSE:** CSPA comments that movement of effluent limitations for turbidity from the previous Order No. 5-01-122 to Construction, Operation, and Maintenance specifications constitutes backsliding. Regional Water Board staff disagrees. As stated in the Fact Sheet, turbidity testing is a quick way to monitor the effectiveness of treatment filter performance, and to signal the Discharger to implement operational procedures to correct deficiencies in filter performance. Higher effluent turbidity measurements do not necessarily indicate that the effluent discharge exceeds the water quality criteria/objectives for pathogens (i.e. bacteria, parasites, and viruses), which are the principal infectious agents that may be present in raw sewage. Therefore, turbidity is not a valid indicator parameter for pathogens. Furthermore, the former turbidity limitations were not imposed to protect the receiving water from excess turbidity, and were not even related to turbidity in the receiving water. Thus, the former turbidity limitations were not technology based effluent limitations or water quality based effluent limitations for either pathogens or turbidity.

On the other hand, total coliform organisms are an indicator of the level of pathogens in the effluent. Therefore, effluent limitations for total coliform organisms are necessary to control the discharge of pathogens, and have been included in the proposed Order.

Water quality based turbidity limits are not required because the effluent does not have a reasonable potential to cause or contribute to an exceedance of the applicable water quality objectives for turbidity. Therefore, operational requirements for turbidity are appropriately included as a Provision in the proposed Order rather than effluent limitations. The previous Order included effluent limitations for turbidity.

The operational turbidity requirements in proposed Order are an equivalent permit condition that is not less stringent than the turbidity limitations in previous Order No. 5-01-122. Therefore, the removal of the turbidity effluent limitations does not constitute backsliding.

**CSPA Comment No. 5. Effluent Limitations for aluminum, iron and manganese are improperly regulated as an annual average contrary to Federal Regulations 40 CFR 122.45 (d)(2) and common sense.**

**RESPONSE:** Regional Water Board staff disagrees. The effluent limitations for aluminum, iron, and manganese are based on secondary maximum contaminant levels which address aesthetics such as taste and odor and not on aquatic life criteria. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. For secondary MCLs, Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Since water that meets these requirements on an annual average basis is suitable for drinking, it is impracticable to calculate average weekly and average monthly effluent limitations because such limits would be more stringent than necessary to protect the MUN use. Regional Water Board staff has determined that an averaging period similar to what is used by the 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.

**CSPA Comment No. 6. The proposed Permit fails to contain mass-based effluent limits for copper, carbon tetrachloride, chlorodibromomethane, dichlorobromomethane, nitrate, aluminum, boron, iron and manganese as required by Federal Regulations 40 CFR 122.45(b).**

**RESPONSE:** 40 CFR SEC 122.25(f) states the following:

*“Mass limitations. (1) All pollutants limited in permits shall have limitations, standards or prohibitions expressed in terms of mass except:*

*(i) For pH, temperature, radiation, or other pollutants which cannot appropriately be expressed by mass;*

*(ii) When applicable standards and limitations are expressed in terms of other units of measurement; or*

*(iii) If in establishing permit limitations on a case-by-case basis under §125.3, limitations expressed in terms of mass are infeasible because the mass of the pollutant discharged cannot be related to a measure of operation (for example,*

*discharges of TSS from certain mining operations), and permit conditions ensure that dilution will not be used as a substitute for treatment.*

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

40 CFR section 122.25(f)(1)(ii) states that mass limitations are not required when applicable standards are expressed in terms of other units of measurement. The numerical effluent limitations for copper, carbon tetrachloride, chlorodibromomethane, dichlorobromomethane, nitrate, aluminum, boron, iron, and manganese in the proposed 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.

Mass limitations for oxygen demanding substances, bioaccumulative substances, and constituents with an associated 303(d) listing are included in the proposed Order. The proposed Order includes mass limitations for 1) 5-day biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (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 objectives and criteria that are concentration-based (i.e., copper, carbon tetrachloride, chlorodibromomethane, dichlorobromomethane, nitrate, aluminum, boron, iron, and manganese), mass-based effluent limitations are not included in this Order.

**CSPA Comment No. 7. The proposed Permit does not contain an Effluent Limitation for oil and grease in violation of Federal Regulations 40 CFR 122.44 and California Water Code Section 13377.**

**RESPONSE:** CSPA comments that the removal of effluent limitations for oil and grease constitutes backsliding. The previous permit, Order No. 5-01-122, included average monthly and average daily effluent limitations for oil and grease of 10 mg/L and 15 mg/L, respectively. The MEC for oil and grease was 11 mg/L, based on 38 samples collected between October 2006 and April 2008. The highest monthly average for oil and grease was 9.15 mg/L. However, since November 2007, oil and grease has been reported as non-detect (at an analytical detection level of 5.0 mg/L). Regional Water Board staff disagree that effluent limitations for oil and grease are necessary simply because the Facility is a wastewater treatment plant. The Discharger is required to be covered under State Water Board Order 2006-0003, a Statewide General WDR for Sanitary Sewer Systems, which requires each enrollee to evaluate its service area to determine whether a Fat, Oil, and Grease (FOG) control program is needed. If an enrollee determines that a FOG control program is not needed, the enrollee must provide justification for why it is not

needed. If FOG is found to be a problem, the enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. The Discharger's compliance with the requirements of WQO 2006-0003 will ensure minimal amounts of oil and grease are discharged into the Facility. Therefore, the proposed Order removes the effluent limitations for oil and grease based on new information consistent with anti-backsliding requirements of Clean Water Act sections 303(d)(4) and 402(o)(2)(B). The proposed Order also contains narrative receiving water limitations for oil and grease and floating materials.

**CSPA Comment No. 8. The proposed Permit contains an Effluent Limitation for acute toxicity that allows mortality to aquatic life that exceeds the Basin Plan water quality objective and does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i) or the Clean Water Act.**

**RESPONSE:** The appropriateness of the acute toxicity effluent limitations was also addressed in State Water Board WQO 2008-0008 for the City of Davis. In WQO 2008-0008, the State Water Board concurred with the Regional Water Board's implementation of the acute toxicity effluent limitations.

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

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

**CSPA Comment No. 9. The proposed Permit does not contain enforceable Effluent Limitations for chronic toxicity and therefore does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i) and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP).**

**RESPONSE:** The chronic toxicity issue was addressed in State Water Board Order WQ 2008-0008 (City of Davis) adopted on 2 September 2008, and WQ 2003-0012 (Los Coyotes). With regard to the need for a numeric chronic toxicity effluent limit, WQO 2008-0008 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.” However, the proposed Order requires an appropriate narrative effluent limitation for chronic toxicity. Based on this recent Water Quality Order, the proposed Order includes a narrative chronic toxicity effluent limitation in section IV.A.1.d. Consistent with the SIP and the Los Coyotes order, the proposed Order includes compliance determination language to implement the narrative limitation. This language states, “Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with effluent limitation IV.A.1.k for chronic whole effluent toxicity.” (Provision VII.G.)

The Los Coyotes and City of Davis orders require narrative effluent limitations for chronic toxicity. The suggested language in the orders is, “There shall be no chronic toxicity in the effluent discharge.” The orders, however, do not explain how to determine compliance with this limitation. Under the most literal interpretation, a result of even 1.1 chronic toxicity units (TUc) would be a violation of the narrative limitation. Reading the narrative limitation to mean that any excursion above 1 TUc violates the narrative limitation has the same practical effect as a numeric limitation of 1 TUc. This is not appropriate, because the State Water Board rejected the numeric approach in the Los Coyotes order. This literal reading also ignores dilution, making the limitation overly stringent. Disallowing dilution is inconsistent with effluent limitations for specific priority pollutants, which can include a dilution factor. Further, 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 evaluation/toxicity identification evaluation (TRE/TIE) requirements to ensure a discharge does not cause or contribute to chronic toxicity.

Where WET testing indicates potential chronic toxicity, the SIP (and the proposed Order) require additional accelerated monitoring. The lack of precision in WET testing could be addressed, in part, by using all the accelerated monitoring data to demonstrate compliance with the limitation. In that case, any time the monitoring demonstrated a need for a TRE/TIE, the discharger would be in violation of the narrative effluent limitation. This would be the case even if the discharger commenced a TRE/TIE and complied with all applicable requirements of the SIP and the proposed Order for addressing chronic toxicity. Again, however, this is indistinguishable from a numeric limit of 1 TUc. It is also inconsistent with the State Water Board’s focus on the TRE/TIE as the way to determine appropriate limits and prevent chronic toxicity.

In order to assure consistency with the SIP and Los Coyotes orders, the accelerated testing and TRE/TIE requirements should be viewed as an integral part of the

effluent limitation. 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 board then concluded that numeric toxicity limitations are infeasible.<sup>1</sup> 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 . . . .”<sup>2</sup> 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.”<sup>3</sup> 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, § V.A.16.) Taken together, these provisions allow the discharger time to address a newly-discovered chronic toxicity problem without violating the permit, consistent with the State Water Board’s permitting approach for chronic toxicity.

**CSPA Comment No. 10. The proposed Permit establishes Effluent Limitations for metals based on the hardness of the effluent as opposed to the ambient upstream receiving water hardness as required by Federal Regulations, the California Toxics Rule (CTR, 40 CFR 131.38(c)(4)).**

**RESPONSE:** In the proposed Order the hardness-dependent metals criteria were established based on the reasonable worst-case ambient hardness as required by the SIP, the CTR and Order No. WQO 2008-0008 (City of Davis). The CTR and the SIP 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)(2), Table 4, note 4.) In some cases, the hardness of effluent discharges changes the hardness of the ambient receiving water. Where reliable, representative data are available, the hardness value for calculating effluent limitations can be the downstream receiving water, after mixing with the effluent (Order WQO 2008-0008, p. 11). The hardness values must also be protective under all flow conditions (*Id.*, pp. 10-11). As discussed below, scientific literature provides a reliable method for calculating protective effluent limitations for metals with hardness-dependent CTR criteria. This methodology produces effluent limitations that prevent these metals

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<sup>1</sup> Order No. WQ 2003-0012, pp. 9-10.

<sup>2</sup> *Id.*, p. 9.

<sup>3</sup> *Id.*, p. 10.

from causing receiving water toxicity, while avoiding effluent limitations that are unnecessarily stringent.

Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions using a reasonable worst-case condition. The SIP does not address how to determine hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water. The CTR requires that, for waters with a hardness of 400 mg/L (as CaCO<sub>3</sub>), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones. 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. The Regional Water Board thus has considerable discretion in determining ambient hardness (Order WQ 2008-0008, p.10.). The City of Davis order allows the use of “downstream receiving water mixed hardness data” where reliable, representative data are available. (Id., p. 11.)

A 2006 study<sup>1</sup> evaluated the relationships between hardness and the CTR metals criteria as the effluent and receiving water mix. The 2006 study demonstrates that it is necessary to evaluate all discharge conditions (e.g. high and low flow conditions) when determining the appropriate hardness for calculating effluent limitations for hardness-dependent metals. Simply using the lowest recorded receiving water hardness may result in over or under protective effluent limitations and would not represent the reasonable worst-case hardness of the receiving water.

#### Discharge to San Joaquin River – Discharge Point 002

Using the methodology described in the 2006 study, the Design Hardness used for calculating hardness-dependent metals criteria in the proposed Order was 89 mg/L (as CaCO<sub>3</sub>), for discharges to the San Joaquin River. The upstream receiving water hardness ranged from 91 - 330 mg/L<sup>2</sup>. Therefore, the Design Hardness used in the proposed Order is within the range of hardness concentrations observed in the receiving water, which is consistent with the CTR and the SIP. If the lowest observed hardness of the receiving water during low flow periods was used (i.e. 91 mg/L) there would be the likelihood that the effluent discharge could be toxic, since the lowest effluent hardness was only 89 mg/L. This would require a mixing

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<sup>1</sup> 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.

<sup>2</sup> Attachment H of the proposed Order displays the upstream receiving water hardness vs. the San Joaquin River flow demonstrating that the hardness varies with the flow in the river. The hardness concentrations are lowest at high flows when there is significant dilution available. Therefore, the range of hardness values evaluated were taken during periods of low flow, which would represent the critical design conditions.

zone for compliance with the CTR criteria. Since a mixing zone has not been approved for aquatic toxicity criteria, the lower hardness concentration was used in the proposed Order as the Design Hardness for calculation of hardness-dependent metals criteria.

#### Discharge to Harding Drain – Discharge Point 001

As described in section IV.C.2.b of the Fact Sheet (Attachment F), upstream receiving water hardness data is not available in Harding Drain that would allow for the calculation of criteria representing the reasonable worst-case conditions of the receiving water. Because the receiving water is an effluent dominated stream, and in the absence of receiving water hardness data, it is appropriate to use the lowest effluent hardness to estimate the reasonable worst-case downstream hardness value under critical low flow conditions for establishing effluent limitations. This approach was used to establish WQBELs for hardness-dependent metals in the proposed Order for discharges to Harding Drain at Discharge Point No. 001 and adequately protects the beneficial uses of the water body that receives the treated wastewater.

#### **CSPA Comment No. 11. The proposed Permit fails to contain an Effluent Limitation for bis(2-ethylhexyl)phthalate despite a clear reasonable potential to exceed waste quality standards in violation of Federal Regulations 40 CFR 122.44.**

**RESPONSE:** Regional Water Board Staff disagrees. As discussed in the Fact Sheet (Section IV.C.3.h.), there is insufficient information to conduct a reasonable potential analysis due to uncertainty in the sample results. Bis (2-ethylhexyl) phthalate samples can be easily contaminated when plastic containers are used or by the use of rubber gloves. Bis (2-ethylhexyl) phthalate was detected in the effluent five times with an MEC of 17.5 µg/L, based on seven samples collected between October 2006 and April 2008. However, based on the review of the lab data sheets for the samples, each of the detected samples was suspected to be the result of contamination, having the data qualifiers “B”, “GG”, and/or “O-01”. Since bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of the detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment, it is uncertain whether reasonable potential actually exists and therefore effluent limitations for bis (2-ethylhexyl) phthalate are not being established at this time. Instead of limitations, additional monitoring has been established for bis (2-ethylhexyl) phthalate; should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, then the Order may be reopened and modified by adding an appropriate effluent limitation.

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**CSPA Comment No. 12. The proposed Permit fails to require a site-specific study for Temperature as was required by State Board Order WQO 2002-0016.**

**RESPONSE:** Order No. 5-01-122 contained a receiving water limitation for temperature based on a water quality objective contained in the Basin Plan, which states that “*At no time shall the temperature of ... WARM intrastate waters be increased more than 5°F above natural receiving water temperature.*” In petitioning Order No. 5-01-122, the Discharger objected to the receiving water limitation for temperature. The Discharger argued that the limitation, which regulates increases over ambient temperature, is inappropriate because the Basin Plan objective addresses “natural receiving water temperature” and that Harding Drain has no natural temperature. In Order WQO 2002-0016, the State Water Board concluded that the Regional Water Board should impose appropriate temperature controls on the discharge based upon a site-specific study. The State Water Board stayed the receiving water limitation for temperature. In light of the fact that the Discharger is planning on moving the discharge from Harding Drain to the San Joaquin River during the term of the Order, a site-specific study to determine appropriate temperature limitations was not required in the proposed Order.

CSPA argues that the proposed Order fails to provide an explanation of why elevated temperatures would not have a similar detrimental impact on aquatic life in surface waters regardless of the location. Regional Water Board staff disagrees that an evaluation of temperature impacts is required in the San Joaquin River. The San Joaquin River has “natural receiving water temperature” and thus the proposed Order establishes a receiving water limitation for discharges to the San Joaquin River based on the Basin Plan objective for temperature. Compliance with this receiving water limitation will ensure that there are no adverse impacts to beneficial uses. The conclusion in WQO 2002-0016, that it is not appropriate to apply the Basin Plan objective because Harding Drain has no natural temperature, is not relevant to the new discharge point.

CSPA also comments that the Regional Water Board has ignored the State Water Board’s direct order to conduct a site-specific temperature study. Regional Water Board staff concludes that the study would be appropriate if the Discharger were to continue discharging to Harding Drain, which was the circumstance under which the State Water Board concluded that a site-specific study was required. However, given that the discharge location will be relocated during the life of the permit, and most likely before an adequate site-specific study could be conducted, Regional Water Board staff finds that it is not appropriate to require the Discharger to expend additional resources to conduct a study that will be moot upon its completion.

Regional Water Board staff acknowledges that the proposed Order allows for emergency discharges to Harding Drain subsequent to subsequent to the commencement of discharges to the San Joaquin River. However, Regional Water Board staff finds that temperature impacts are more appropriately assessed using longer averaging periods (i.e., annual average). The emergency discharges

authorized by the proposed Order will be infrequent, short-term in duration, and low volume such that temperature impacts in Harding Drain would be negligible. Thus, the site-specific temperature study for Harding Drain has not been required in the proposed Order.

**CSPA Comment No. 13. The proposed permit contains an inadequate reasonable potential [analysis] by using incorrect statistical multipliers as required by Federal regulations, 40 CFR § 122.44(d)(1)(ii) and the proposed permit fails to contain adequate Effluent Limitations as required by federal regulations 40 CFR 122.44.**

**RESPONSE:** 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 California Toxics Rule (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, the Regional 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.