

Central Valley Regional Water Quality Control Board  
3/4/5 August 2011 Board Meeting

Response to Comments  
for the  
Bear Valley Water District  
Bear Valley Wastewater Treatment Facility  
Tentative Waste Discharge Requirements

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The following are Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) staff responses to comments submitted by interested parties regarding the tentative Waste Discharge Requirements for NPDES Permit No. CA0085146 (NPDES Permit) renewal, and the tentative Time Schedule Order (TSO), for the Bear Valley Water District (Discharger) Bear Valley Wastewater Treatment Facility (Facility).

The tentative NPDES Permit and tentative TSO were issued for public comment on 23 May 2011 with comments due by 24 June 2011. The Central Valley Water Board received public comments regarding the tentative NPDES Permit and tentative TSO by the due date from the Discharger, the California Sportfishing Protection Alliance (CSPA), the Central Valley Clean Water Association (CVCWA), and the Stockton East Water District (SEWD). The Central Valley Water Board also received 61 individual e-mails/letters from homeowners and residents of Bear Valley in support of the tentative NPDES Permit requiring secondary treatment. Some changes were made to the tentative NPDES Permit based on public comments received.

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

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**DISCHARGER COMMENTS – ATTACHMENT A**

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**NPDES PERMIT**

**Discharger Comment No. 1. Effluent Limitations for Aluminum, Copper, Lead and Ammonia**

The Discharger requests that the Board re-consider proposed effluent limits for Aluminum, Copper, Lead, and Ammonia.

- a) The Discharger comments that according to the recent Water Effect Ratio (WER) studies by other communities, the use of current USEPA aquatic life criteria for aluminum is overprotective in Central Valley foothill streams. The Discharger comments that the aluminum criterion of 750 µg/L is protective of aquatic life and should be used instead of the aluminum chronic criterion of 87 µg/L.

b) The Discharger further comments that effluent limits for copper and lead were derived using the downstream receiving water hardness under effluent dominated conditions and that the limits should be calculated using the receiving water hardness at an effluent fraction of 5% because the permit only allows discharge when there is a 20:1 dilution in the receiving water.

c) The Discharger also requests that a maximum effluent pH of 8.0 is included for the discharge to Bloods Creek and the effluent limits for ammonia are re-calculated based on a pH of 8.0.

### 1.a. Aluminum

**RESPONSE:** Central Valley Water Board staff does not concur. USEPA developed National Recommended Ambient Water Quality Criteria (NAWQC) for protection of freshwater aquatic life for aluminum. The recommended 4-day average (chronic) criterion for aluminum is 87 µg/L, based on studies conducted on waters with low pH (6.5 to 6.8 pH units) and hardness (<10 mg/L as CaCO<sub>3</sub>). The receiving water pH ranged from 5.2 to 7.0, and the lowest observed hardness was 10 mg/L, as CaCO<sub>3</sub>. These conditions are supportive of the applicability of the NAWQC chronic criteria for aluminum, according to USEPA's development document.

The Discharger suggests that the aluminum study conducted for the City of Auburn could be used as a basis for interpreting the Basin Plan's narrative toxicity objective for Bloods Creek. Although there are similarities in hardness values of the two water bodies, the pH values are not similar. Furthermore, Bloods Creek is a high elevation Sierra stream, whereas, Auburn Ravine is a foothill stream. Therefore, it is not appropriate to use the toxicity results as a basis for interpreting the narrative toxicity objective for Bloods Creek. The Discharger must develop a similar site-specific toxicity study. The proposed Order includes a reopener provision to allow the permit to be opened in the event the Discharger conducts a site-specific aluminum toxicity study and/or water effects ratio study.

### 1.b. Copper and Lead

**RESPONSE:** Central Valley Water Board staff does not concur. A flow ratio of 20:1 (Bloods Creek: effluent) is required as a discharge prohibition in the proposed Order. However, since a mixing zone has not been allowed, the effluent limits for copper and lead have been established as end-of-pipe limits. In order to modify the effluent limits as requested, the Discharger must conduct a mixing zone study in accordance with the State Water Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The proposed Order includes a reopener provision to allow the permit to be opened in the event the Discharger conducts a mixing zone study for copper and/or lead.

### **1.c. Ammonia**

**RESPONSE:** The Discharger requested lowering the instantaneous maximum pH limit to 8.0 to allow less stringent effluent limitations for ammonia, which have been derived based on the pH limit. Central Valley Water Board staff does not concur. In other NPDES permits, the Board has implemented lower maximum pH limits. However, in all cases it has been adequately demonstrated through water quality data that compliance with the lower limit could be attained. In this case, the Discharger has not adequately demonstrated that compliance with a maximum pH limit of 8.0 can be attained. Data shows that the pH in the storage/polishing reservoir rises as high as 10.3. A reopener provision has been added to the proposed Order that would allow the permit to be opened to modify the pH effluent limit and ammonia effluent limits should the discharger provide new information justifying the lower pH limit.

### **Discharger Comment No. 2. Numeric WET Chronic Toxicity Trigger**

The Discharger requests that the Board re-consider the proposed chronic toxicity trigger of 1 chronic toxicity unit (TUc). The Discharger comments that the permit prohibits discharge when dilution in Bloods Creek is less than 20:1, and therefore requests that the chronic toxicity trigger be set at 20 TUc. The Discharger further comments that use of the proposed 1 TUc toxicity value as a trigger for accelerated monitoring would not be reasonable and would ultimately be costly to the District.

**RESPONSE:** Central Valley Water Board staff does not concur. The Discharger's requested change to the chronic whole effluent toxicity (WET) trigger would require a mixing zone. As discussed above in the response for copper and lead, a mixing zone has not been granted. Therefore, the discharge must exhibit no toxicity at the point of discharge before mixing with Bloods Creek, which results in a WET trigger of 1 TUc. The proposed Order includes a reopener provision to allow the permit to be opened in the event the Discharger conducts a mixing zone study for chronic toxicity.

### **Discharger Comment No. 3. Compliance Schedules for Final Effluent Limits for Aluminum and Ammonia**

The Discharger comments that the identified tasks and corresponding due dates are too specific and do not provide sufficient flexibility in order to achieve compliance with the Tentative Order. The Discharger requests that the Tentative Order compliance schedule provisions be revised by eliminating tasks v, vi, vii, and viii.

**RESPONSE:** Central Valley Water Board staff concurs. In section VI.C.7. Compliance Schedules, tasks v, vi, vii, and viii of the compliance schedule for aluminum and ammonia were removed from the proposed Order.

#### **Discharger Comment No. 4. Domestic Supply and Agricultural Supply, Page F-17**

The Discharger comments that the finding on Page F-17 of the Fact Sheet is not reflective of actual domestic and agricultural supply beneficial uses on Bloods Creek. The Discharger comments that the water rights cited in the Fact Sheet of the tentative permit are not correct. The Discharger further comments that the probability that new water rights will be secured on Bloods Creek downstream of the discharge point is low because the Stanislaus River and its tributaries (including Bloods Creek) are listed on the most recent State Water Resources Control Board Declaration of Fully Appropriated Streams. The Discharger also comments that the area downstream of the discharge point is public forest lands with no potential for private development, and that water uses that could be measurably affected by the discharge are fixed and will not increase in any significant manner.

**RESPONSE:** Central Valley Water Board staff reviewed the comment and Fact Sheet. The reference to a downstream water right on Bloods Creek was removed, however there are water rights on other downstream waters (e.g., North Fork Stanislaus River). Reference to increase in future domestic and agricultural uses in Bloods Creek was removed from the proposed Order.

#### **Discharger Comment No. 5. Water Contact and Non-Contact Recreation, Page F-18**

The Discharger comments that the finding on page F-18 of the Fact Sheet is not reflective of actual water contact and non-contact beneficial uses on Bloods Creek during the permitted discharge period. The Discharger further comments that recreational use during times of permitted discharge is generally limited to cross-country skiing (non-contact), and that it is unlikely that early season recreational users would experience exposure to Bloods Creek due to high flows and cold water temperatures.

**RESPONSE:** Central Valley Water Board staff reviewed the comment and Fact Sheet. Language has been added to the proposed Order to reflect that public contact with the receiving waters may be limited during typical discharge seasons due to snow and wet conditions. However, the potential for public contact is possible and continues to be a beneficial use that must be protected.

#### **Discharger Comment No. 6. Groundwater Recharge, Page F-18**

The Discharger comments that the finding on Page F-18 of the Fact Sheet should be reflective of the permitted discharge period. The Discharger further comments that it should not be stated in the fact sheet that the District's discharges to the creek threaten

groundwater quality, as Bloods Creek will be a gaining stream with positive flow into the creek from groundwater during discharge events.

**RESPONSE:** Central Valley Water Board staff does not concur. Although the groundwater table may be typically at its highest during the discharge period and flow from Bloods Creek to the groundwater is unlikely during this time period, the potential exists that during the discharge period the water table could be below the level of Bloods Creek. Therefore, groundwater could be affected. No changes have been made to the Fact Sheet.

#### **Discharger Comment No. 7. Hardness-Dependent CTR Metals, Page F-20**

The Discharger comments that the reference to the Sacramento Superior Court Order is not applicable.

**RESPONSE:** Central Valley Water Board staff concurs. The citation to Sacramento Superior Court Order (Case No. 34-2009-80000309) has been removed.

#### **Discharger Comment No. 8. WQO, Page F-41**

The Discharger comments that the statement in the last paragraph of Page F-41 of the Fact Sheet, which describes the basis for applying Title 22 tertiary requirements, is not reflective of the Order R5-2005-0139 findings. The Discharger comments that it is more reasonable to assume the Title 22 tertiary requirements were included in Order R5-2005-0139 based on requirements for discharges to unrestricted recreational impoundments, and that the storage reservoir was incorrectly assumed to be a recreational impoundment subject to Title 22 standards.

**RESPONSE:** The Discharger's assumption that the Title 22 tertiary requirements were applied in Order R5-2005-0139 based on the regulations for discharges to unrestricted recreational impoundments is inaccurate. The implementation of the Title 22 tertiary requirements were based on a recommendation by the Department of Public Health in a letter dated 27 September 2005. The Fact Sheet has been revised to clarify the basis for implementing Title 22 tertiary requirements in Order R5-2005-0139.

#### **Discharger Comment No. 9. Satisfaction of Anti-Backsliding Requirements, Pages F-50 and F-51**

The Discharger comments that the statement in the last paragraph on Page F-51 is not reflective of the Order.

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**RESPONSE:** Central Valley Water Board staff concurred and revised the language in the Satisfaction of Anti-Backsliding Requirements section of the Fact Sheet to clarify the basis for implementing Title 22 tertiary requirements in Order R5-2005-0139. .

### **TIME SCHEDULE ORDER**

#### **Discharger Comment No. 10. Copper and Lead Effluent Limitations**

The Discharger comments that the identified tasks with corresponding due dates contained in the schedule are too specific and do not provide sufficient flexibility for compliance with the Tentative Order. The Discharger requests that compliance schedule provisions be revised by eliminating tasks iv, v, vi, and vii. The Discharger further comments that tasks iv and v have different compliance dates for construction of treatment plant upgrades than contained in the compliance schedule for Aluminum and Ammonia. The Discharger requests that the dates of compliance, if included, should be the same as for Aluminum and Ammonia.

**RESPONSE:** Central Valley Water Board staff concurs. Tasks v, vi, vii, and viii of the time schedule for copper and lead were removed from the proposed TSO.

### **TENTATIVE PERMIT ALTERNATIVE – ATTACHMENT B**

#### **Discharger Comment. Tertiary Treatment Alternative**

Pursuant to Bear Valley Water District's (District) transmittal letter, the District submits the following analysis and detailed comments on the Tentative Permit Alternative (Alternative) and accompanying Time Schedule Order for the renewal of NPDES NO. CA 00085146. Based upon the following analysis, the District believes the Tentative Permit Alternative is fundamentally flawed and is not an appropriate Alternative for the Board's consideration.

**RESPONSE:** Central Valley Water Board staff concurs. With the support of DPH and the many factors of safety surrounding the potential discharge, the tentative permit alternative to implement tertiary treatment requirements has been removed from consideration.

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### **CSPA COMMENTS**

**Designated Status Request:** CSPA requested designated party status for the Regional Water Board hearing scheduled for 3/4/5 August 2011 with regard to the proposed Orders for the Bear Valley Water District Wastewater Treatment Plant

(WWTP). The commenter will be granted designated party status for the subject hearing.

### **CSPA Comment No. 1. Incomplete Report of Waste Discharge**

CSPA comments that the proposed permit is based on an incomplete Report of Waste Discharge and in accordance with Federal Regulations 40 CFR 122.21 (e) and (h), 40 CFR 124.3 (a)(2), the State's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP), and California Water Code Section 13377. CSPA further comments that the permit should not be issued until the discharge is fully characterized and a protective permit can be written.

**RESPONSE:** CSPA comments that proposed Order is incorrect in stating that "effluent" was used to conduct the reasonable potential analysis (RPA). The proposed Order explains that since there has been no surface water discharges during the last permit term, water quality data collected at the surface of the storage/polishing pond was used to conduct the RPA. CSPA is correct that the Fact Sheet uses the term "effluent" to describe this data, which is not completely accurate. The proposed Order has been modified to make it clear throughout the Fact Sheet that when the term "effluent data" is used it is referring to the water quality data collected from the storage/polishing pond, not actual effluent data when discharging to Bloods Creek. The Discharger has not discharged to Bloods Creek in more than eleven years, so there is no current, representative effluent data available. The Discharger has conducted substantial monitoring of the storage/polishing pond in order to characterize the possible effluent discharge.

CSPA comments further that the samples collected at the surface of the storage/polishing pond may not be representative of the discharge, because lower quality water near the bottom of the pond may be discharged during surface water discharge events. Based on this presumption CSPA contends that the report of waste discharge is incomplete. Central Valley Water Board staff does not concur. The discharge system draws water from the surface of the pond. It is therefore appropriate to characterize the discharge by collecting water quality samples near the surface. If a surface water discharge occurs, the proposed Order requires a complete characterization of the discharge. The proposed Order also includes a reopener provision that allows the permit to be opened based on new information, such as new water quality data. If the effluent data demonstrates reasonable potential for any constituent that is currently not regulated by effluent limits, the permit may be reopened to include new effluent limits.

CSPA also comments that constituents of emerging concern (CECs) have not been addressed in the proposed Order. The issue of pharmaceuticals and other emerging contaminants is a concern of the State and Regional Water Boards. However, the science is too uncertain at this point to require each publicly-owned treatment works to monitor for numerous constituents that have the potential to be found in the

discharge. The State Water Board is currently working to develop a monitoring program for these constituents. It is premature to include the monitoring at this time.

### **CSPA Comment No. 2. Effluent Limitations for Dissolved Oxygen (DO)**

CSPA comments that the proposed permit fails to include effluent limitations for Dissolved Oxygen as required by 40 CFR 122.44, and the permit should not be adopted in accordance with California Water Code Section 13377. CSPA further comments that the wastewater discharge has not been adequately characterized, and that the discharge presents a reasonable potential to exceed the water quality objective for DO.

**RESPONSE:** Central Valley Water Board does not concur. For several reasons the discharge does not have reasonable potential to cause or contribute to a violation of the Basin Plan's water quality objective for dissolved oxygen<sup>1</sup> in Bloods Creek. First, the conditions in which a discharge would occur is during extremely wet years when the storage/polishing pond will contain a significant amount of rain/snow melt. Based on the monitoring data during these conditions the concentrations of oxygen demanding substances, such as biochemical oxygen demand, ammonia, and total suspended solids were very low. Secondly, the dissolved oxygen levels measured in the storage/polishing pond are typically greater than the water quality objective, averaging 11 mg/L during the discharge season based on 101 samples from June 2006-June 2010. Finally, the proposed Order includes a discharge prohibition that ensures the discharge makes up no more than 5% of the receiving water flow (i.e., 20:1 flow ratio). There are some data points less than the objective, but due to the large dilution it is not expected to impact the receiving water. Due to these reasons the discharge does not have reasonable potential to cause or contribute to a violation of the Basin Plan's water quality objective for dissolved oxygen in Bloods Creek. The proposed Order includes effluent and receiving water monitoring for dissolved oxygen and a receiving water limitation for dissolved oxygen to ensure compliance with the Basin Plan water quality objective.

### **CSPA Comment No. 3. Effluent Limitations for pH**

CSPA comments that the proposed Permit fails to include an Effluent Limitation for pH as required by 40 CFR 122.44, and the permit should not be adopted in accordance with California Water Code Section 13377. CSPA comments that the Water Quality Standard for pH is that pH not be depressed below 6.5 nor raised above 8.5 pH units, and that the wastewater discharge ranged in pH from 4.85 to 10.3 pH units. CSPA further comments that pH is not a conservative constituent, and that the Board's use of an equation for conservative constituents to determine reasonable potential is not appropriate for pH. CSPA also comments that the Board has not conducted any mixing

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<sup>1</sup> The Basin Plan water quality objective for dissolved oxygen is 7 mg/L, as a minimum.

zone analysis for pH and has not considered the water quality impacts of very low pH within the area where mixing occurs.

**RESPONSE:** CSPA points out that an equation derived for conservative constituents was incorrectly used for pH in the proposed Order and that water quality-based effluent limits are required for pH. Central Valley Water Board staff concurs. Water quality-based effluent limits for pH have been added to the proposed Order, based on the Basin Plan's water quality objective for pH. Due to the large dilution, it is likely the discharge is not impacting the pH of Bloods Creek. Therefore, a reopener provision has been added to allow the removal of the WQBELs for pH, should the Discharger conduct a study that adequately demonstrates the discharge causes no reasonable threat to exceed the Basin Plan water quality objectives in Bloods Creek.

#### **CSPA Comment No. 4. Effluent Limitation for Color**

CSPA comments that the proposed Permit fails to include an Effluent Limitation for color as required by 40 CFR 122.44 and the permit should not be adopted in accordance with California Water Code Section 13377. CSPA comments that CCR Title 22 contains a drinking water MCL for color of 15 units, and that color in the water can reduce light penetration, which reduces photosynthesis and therefore vascular plant growth.

**RESPONSE:** Central Valley Water Board staff does not concur. The proposed Order includes a discharge prohibition that ensures the discharge makes up no more than 5% of the receiving water flow (i.e., 20:1 flow ratio) and requires sufficient removal of biochemical oxygen demand and total suspended solids that ensures the discharge will not cause or contribute to an exceedance of the Title 22 MCL for color. The proposed Order includes a receiving water limit based on the Basin Plan's water quality objective for color that ensures compliance with the objective.

#### **CSPA Comment No. 5. BOD and TSS Removal**

CSPA comments that the proposed Permit, based on a secondary level of treatment, will likely be violated for the requirement that 85% of the BOD and TSS be removed from the waste stream. CSPA comments that because the facility was designed for land disposal, and sampling has only occurred at the pond surface (which is not representative of the discharge), that it is unlikely that the secondary effluent requirements will be met.

**RESPONSE:** Central Valley Water Board staff was also concerned about the Discharger being able to comply with the 85 percent removal of BOD and TSS. Based on the Discharger's self-monitoring reports it appears the Discharger can consistently meet the percent reduction requirements on a monthly average basis, as required in the proposed Order. In addition, 40 CFR 133.102, in describing the minimum level of

effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent.

### **CSPA Comment No. 6. Mass-Based Effluent Limits for Copper, Lead, and Aluminum**

CSPA comments that the proposed Permit fails to contain mass-based effluent limitations for Copper, Lead, and Aluminum as required by 40 CFR 122.45(b). CSPA comments that concentration is not a basis for design flow, and that mass limits are critically important in order to assure that the facility is properly designed and capable of removing individual pollutants and to assure that the treatment facilities are not overloaded with the individual pollutant. CSPA further comments that the proposed Permit reduces the level of treatment from tertiary to secondary, as tertiary systems have difficulty meeting limitations for metals.

**RESPONSE:** The rationale for the establishment of mass-based effluent limitations is discussed in the Fact Sheet, Section IV.D.1. Federal Regulations at 40 CFR section 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, lead, and aluminum in the proposed Order are based on water quality standards and objectives. These are expressed in terms of concentration. Pursuant to 40 CFR section 122.25(f)(1)(ii),

expressing the effluent limitations in terms of concentration is expressly allowed and is in no way contrary to Federal Regulations.

The proposed Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water. Incorporation of concentration-based limitations fully protects the aquatic life beneficial use.

### **CSPA Comment No. 7. Effluent Limitations for Chronic Toxicity**

CSPA comments that the proposed Permit does not contain Effluent Limitations for chronic toxicity and therefore, does not comply with Federal Regulations at 40 CFR 122.44 (d)(1)(i), and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP). CSPA further comments that monthly or quarterly toxicity testing is not sufficient to state that a domestic wastewater treatment plant has not discharged toxic constituents in toxic concentrations during a five year life of an NPDES permit.

**RESPONSE:** CSPA contends that a chronic WET limit is required simply due to the presence of chemical-specific toxic pollutants in the discharge. Central Valley Water Board staff does not concur. The reasonable potential analysis is performed pollutant-by-pollutant, including toxicity. Due to the lack of discharge events during the last permit term, there is no chronic whole effluent toxicity (WET) data that indicates there is reasonable potential for toxicity to exist. Pursuant to Section 1.3 of the SIP<sup>2</sup>, the proposed Order includes monitoring for chronic WET, in lieu of effluent limits. A reopener provision is included that allows the permit to be opened to add a chronic toxicity effluent limit if chronic WET monitoring data demonstrates there is reasonable potential.

### **CSPA Comment No. 8. Incorrect Statistical Multipliers for Aluminum, Ammonia, Nitrate, Electrical Conductivity, Total Dissolved Solids (TDS), Chlorine, and Manganese**

CSPA comments that the reasonable potential analysis fails to consider the statistical variability of data and laboratory analyses as explicitly required by Federal Regulations 40 CFR 122.44(d)(1)(ii). CSPA also comments that not using the statistical variability of

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<sup>2</sup> Section 1.3, Step 8, states, "If data are unavailable or insufficient, as described in section 1.2, to conduct the above analysis for the pollutant...the RWQCB shall require additional monitoring for the pollutant in place of a water quality-based effluent limitation."

date intentionally limits the number of regulated constituents in an NPDES Permit. CSPA further comments that sampling TDS at the surface of the storage pond is incorrect.

**RESPONSE:** Central Valley Water Board staff does not concur. Until adoption of the SIP by the State Water Board, USEPA's Technical Support Document for Water Quality-based Toxics Control (TSD) was the normal protocol followed for permit development for all constituents. The SIP is required only for 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, we use the RPA procedures from the SIP to evaluate reasonable potential for both CTR/NTR and non-CTR/NTR constituents.

CSPA's comment is specific to aluminum, ammonia, chlorine, manganese, nitrate, electrical conductivity (EC), and total dissolved solids (TDS). Using the SIP protocol for conducting the RPA in the proposed Order is appropriate. Regardless, for the constituents listed in CSPA's comment, using the TSD RPA protocol requested by CSPA would have absolutely no effect on the permit limits. The permit already includes effluent limits for ammonia, aluminum, chlorine, and manganese, and using the TSD RPA protocol for nitrate, EC, and TDS would result in the determination of no reasonable potential, as was determined in the proposed Order.

### **CSPA Comment No. 9. Effluent Limitations for Iron and Manganese**

CSPA comments that effluent limitations for Iron and Manganese are improperly regulated as an annual average contrary to Federal Regulations 40 CFR 122.45 (d)(2), and should be regulated as average weekly and average monthly limits unless impracticable. CSPA comments that these effluent limits would not be impracticable. CSPA further comments that the Regional Board fails to note that drinking water rights have been issued downstream of the wastewater treatment plant.

**RESPONSE:** Central Valley Water Board staff does not concur. The effluent limitations for total iron and total manganese are based on the Secondary MCLs, therefore, the proposed Order includes annual average effluent limitations for these constituents. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. For Secondary MCLs, Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Since water that meets these requirements on an annual average basis is suitable for drinking, it is impracticable to calculate average weekly and average monthly effluent limitations because such limits would be more stringent than necessary to protect the MUN beneficial use. Central Valley Water Board staff has determined that an averaging period similar to what is used by California Department of Public Health for those parameters regulated by Secondary MCLs is appropriate, and that using shorter averaging periods is impracticable because it sets more stringent limits than necessary.

### **CSPA Comment No. 10. Effluent Limitation for Ammonia**

CSPA comments that the developed effluent limitation for ammonia is incorrect and unprotective of the aquatic life beneficial use of the receiving water, and that the proposed Permit does not include an effluent limitation for ammonia that complies with the requirements of 40 CFR 122.44. CSPA further comments that the Regional Board fails to use the high measured storage pond pH of 10.3 in the derivation of acute criterion. CSPA also comments that the wastewater has exhibited a higher pH than the receiving stream and would therefore exhibit a greater toxicity for ammonia.

**RESPONSE:** As discussed in response to CSPA Comment No. 8, water quality-based effluent limits (WQBELs) for pH have been added to the proposed Order, which includes an instantaneous maximum limit of 8.5. The WQBELs for ammonia have been derived based on USEPA's National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for ammonia. The acute (1-hour) criteria vary based on pH and the chronic (30-day) criteria vary based on pH and temperature.

**Acute Criteria.** The reasonable worst-case acute (1-hour) criterion was established using a pH value of 8.5, which is the instantaneous maximum effluent limitation required in the proposed Order. The discharge cannot exceed a pH of 8.5, therefore, the instantaneous maximum limit was used to calculate a acute criterion of 2.14 mg/L (as N) that was used to calculate the WQBELs for ammonia.

**Chronic Criteria.** To determine the reasonable worst-case chronic criterion, pH and temperature data of the effluent and receiving water were evaluated. A chronic criterion was calculated for each day when paired temperature and pH were measured using receiving water and effluent data recorded during the discharge season from August 2007 through June 2010. Rolling 30-day average chronic criteria were determined, because the chronic criteria have a 30-day averaging

period. The minimum 30-day average chronic criterion was used as the reasonable worst-case 30-day average chronic criterion, or 30-day CCC. The resulting 30-day CCC is 6.75 mg/L (as N) based on the receiving water data and 3.43 mg/L (as N) based on the effluent data. The lower of these 30-day CCC's were used in the proposed Order to establish the WQBELs for ammonia.

CSPA comments that only receiving water pH and temperature data were used to determine the 30-day CCC, and that the effluent data should have been used. The effluent pH was evaluated by staff, but it was not discussed in the Fact Sheet. The discussion regarding the determination of the ammonia criteria has been clarified in the Fact Sheet. There are no changes to the final effluent limits for ammonia.

### **CSPA Comment No. 11. Basin Plan, Implementation Policy for Application of Water Quality Objectives for Additive Toxicity**

CSPA comments that the proposed Permit fails to discuss the potential for additive toxicity and fails to comply with the Basin Plan.

**RESPONSE:** Central Valley Water Board staff acknowledges the potential impact to aquatic life and human health as a result of additive toxicity when discharges of the pollutants of concern (e.g., all carcinogens) are discharged at the same time and at levels that exceed applicable water quality objectives during critical low flow times. The proposed permit only allows for this intermittent discharge during high flow periods. An accurate evaluation of additivity would require extensive data collection and analysis necessary to determine if there is additive toxicity. In addition, the Central Valley Water Board uses several mechanisms, including not allowing dilution, within an Order to protect against toxic and carcinogenic effects. For this Discharger, the Central Valley Water Board establishes WQBELs using conservative assumptions (e.g., no dilution) designed to be protective of receiving water quality (based on applicable water quality objectives established to protect against acute and chronic toxicity and human health carcinogenicity). In addition, the Central Valley Water Board requires whole effluent toxicity testing designed specifically to determine whether the combination of pollutants contained in a discharge result in toxic effects.

### **CSPA Comment No. 12. Reasonable Potential Analysis, Effluent Limitations, and Receiving Water Limitations**

CSPA comments that the proposed Permit fails to include a reasonable potential analysis for Effluent Limitations as prescribed by 40 CFR 122.44 or to include a proper enforcement mechanism for violation of Receiving Water Limitations based on Basin Plan water quality standards. CSPA further comments that the proposed Permit will allow for Chlorine to be discharged for approximately two years while a study is completed and a compliance project is completed if necessary. CSPA suggests that the

compliance schedule to meet the final effluent limitation for chlorine residual be modified to be no more than a week. CSPA also comments that the Proposed permit should include a requirement of a study of the presence of CEC's in the wastewater discharge and the effectiveness of different treatment technologies in removing CEC's.

**RESPONSE:** Central Valley Water Board staff does not concur. The Facility's primary method of disposal is to land. The proposed Order that allows a surface water discharge is only needed during heavy rain/snowfall years when there is insufficient storage capacity to contain the excessive snowmelt. Based on water balances a discharge is not expected to occur for precipitation years less than 1-in-25 years, and the total amount of discharge would be temporary and minimal, solely to allow the Discharger to comply with the reservoir freeboard requirements during heavy precipitation years/events. The proposed Order includes discharge prohibitions that require the storage/polishing reservoir is more than 2/3 full before discharging and requires a 20:1 flow ratio (Bloods Creek:effluent) when discharging. Due to minimal amount of discharge, there is no reasonable potential for the discharge to cause or contribute to an exceedance of the Basin Plan's water quality objective for biostimulatory substances, color, dissolved oxygen, pH or toxicity (See also response to CSPA Comments Nos. 2, 3, and 4).

CSPA contends that the proposed Order allows chlorine to be discharged. This is completely inaccurate. The proposed Order includes effluent limitations for chlorine residual that must be met immediately. There is no compliance schedule for chlorine residual. The Discharger has the option of installing dechlorination facilities or conducting a study to determine if there is sufficient oxidation in the storage/polishing pond to reduce the chlorine residual. This does not exempt the Discharging from meeting the final effluent limits for chlorine residual.

CSPA also comments on threatened toxicity from constituents of emerging concern (CECs). See response to CSPA Comment No. 1 regarding CECs.

### **CSPA Comment No. 13. Notification Requirements**

CSPA comments that the proposed Permit contains notification requirements that fail to notify the parties most at risk from the wastewater discharge. CSPA comments that the public downstream of the wastewater treatment plant holding water rights to use the stream for food crop irrigation, domestic and drinking water uses should be the first to be notified.

**RESPONSE:** The proposed Order is protective of all beneficial uses, including contact recreation and municipal and domestic supply. The notification requirements in the proposed Order are based on requests from the Department of Public Health and the Stockton East Water District, and are adequate. The proposed Order includes provisions that require the Discharger to adequately notify the public should a non-compliant discharge to Bloods Creek occur.

### **CSPA Comment No. 14. Certified Labs**

CSPA comments that the proposed Permit fails to comply with California Water Code Section 13176 by allowing environmental analyses to be conducted by a non-certified laboratory.

**RESPONSE:** The General Monitoring Provisions Section I.C. of Attachment E - Monitoring and Reporting Program, has been revised to clarify permit requirements, as follows:

**C.** *Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the Department of Public Health (DPH). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, turbidity, temperature, and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided that the analysis is in accordance with 40 CFR 136 or an USEPA approved alternative test procedure, and a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.*

Although the language has been updated in the proposed Order, the Central Valley Water Board staff do not concur that it is factually or legally possible for the Discharger to comply with the requirements of Water Code section 13176 in the manner suggested by CSPA. The Central Valley Water Board cannot specify the manner of compliance with section 13176.

A certified laboratory would have to send out its personnel and lab equipment to collect an onsite sample for chlorine residual, dissolved oxygen, pH, and temperature. Due to the holding time requirements, it is not possible for the sample to be returned to a certified lab for proper analysis. In addition, it is not legally or factually possible to require ELAP certification of individual personnel or equipment not affiliated with a certified laboratory, because ELAP only certifies laboratories.

ELAP certification of a laboratory does not improve the data quality because the quality of the data is related to maintaining manufacturer specified calibration procedures, maintenance procedures, proper use of the equipment and proper

Quality Assurance/Quality Control (QA/QC) methods. In Attachment D, Standard Provisions, the proposed permit requires QA/QC requirements for the Discharger to maintain equipment calibration and maintenance procedures on record for the past 5 years, which assures reliable results and maintenance of the equipment to manufacturer's standards. The Discharger presently has a QA/QC program in place where all operators are trained on proper calibration and use of the equipment. Per USEPA 40 CFR 136, methods 4500 H and B can be performed in the field with a handheld pH meter with a combination electrode that is calibrated with at least 2 standards that bracket the pH samples.

Finally, section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that that apply to NPDES permits pursuant to the Clean Water Act. (Wat. Code §§ 13370, subd. (c), 13372, 13377.)

Therefore, based on the above discussion, it is not legally or factually possible for the Regional Board to require chlorine residual, dissolved oxygen, pH, or temperature analysis in accordance with California Water Code section 13176, which states:

- (a) The analysis of any material required by this division shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code.
- (b) A person or public entity of the state shall not contract with a laboratory for environmental analyses for which the State Department of Public Health requires accreditation or certification pursuant to this chapter, unless the laboratory holds a valid certification or accreditation.

Changes to the Fact Sheet, section VI.B., have been made to clarify monitoring for constituents with short holding times as follows:

- 3.** California Water Code section 13176, subdivision (a), states: "The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code." The Department of Public Health certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that that apply to NPDES permits pursuant to the Clean Water Act. (Wat. Code §§ 13370, subd. (c), 13372, 13377.) Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with Clean Water Act requirements. (Wat. Code § 13372, subd. (a).) The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, pH,

and turbidity, and immediate analysis is required for temperature. (40 C.F.R. § 136.3(e), Table II) Due to the remote location of the Facility, it is both legally and factually impossible for the Discharger to comply with section 13176 for constituents with short holding times.

### **CSPA Comment No. 15. Municipal and Domestic Beneficial Uses of Receiving Stream**

CSPA comments that the proposed Permit fails to include limitations that are protective of the Municipal and Domestic Beneficial Uses of the receiving stream contrary to Federal Regulations 40 CFR 122.4, 122.44(d), and California Water Code Section 13377. CSPA further comments that tertiary treatment is deemed necessary to protect the designated beneficial uses of food crop irrigation and contact recreation within the receiving stream.

**RESPONSE:** The Facility is located at an elevation above 7,000 feet. Consequently, the Facility can receive significant snow influx directly into the storage/polishing pond. During wet years when a discharge is required, the water balances showed that the pond contains predominantly rain/snow melt. The pond contains at most only 30 percent wastewater under these conditions. The Discharger developed water balances for several water year precipitation events. Table 1, below, shows the anticipated discharge to Bloods Creek under the different water years.

**Table 1: Water Balance Results**

<b>Water Year Precipitation</b>	<b>Total Volume Discharged to Bloods Creek (Million Gallons)</b>	<b>Months of Discharge</b>
Average Year	0	N/A
1-in-5 Year	0	N/A
1-in-10 Year	0	N/A
1-in-25 Year	9	May
1-in-50 Year	18	May
1-in-100 Year	54	May-June

The proposed Order requires at least 20:1 dilution in Bloods Creek when discharging. Considering that the wastewater is already diluted in the pond by rain/snow melt, the actual total dilution would be at least 66:1. Based on the large dilution, the low frequency of discharges, and discharges that would occur during

periods when the rivers are running highest due to snow melt, DPH recommended secondary treatment for this Facility to protect public exposure to pathogens.

CSPA contends that DPH made its recommendation based on inaccurate and incomplete information. Central Valley Water Board staff does not concur. See response to CSPA Comment No. 1 regarding the characterization of the effluent.

CSPA also contends that the proposed Order is not protective of the municipal and domestic water supply (MUN) beneficial use of the receiving water. Central Valley Water Board staff does not concur. The proposed permit is fully protective of MUN beneficial use of the receiving water. The commenter claims that for pathogens, the most sensitive beneficial use is MUN, due to the direct ingestion of the water, and the proposed permit only discusses protection of the contact recreation (REC-1) and agricultural water supply (AGR) beneficial uses with respect to pathogens.

There are no numeric water quality objectives applicable to the receiving water for pathogens for the protection of MUN. The only water quality objective that applies to surface waters is the bacteria objective in the Basin Plan, which states, *"In waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml."* The proposed Order includes effluent limitations for pathogens based on a site-specific recommendation by DPH for protection of MUN, REC-1 and AGR.

In site-specific situations<sup>3</sup> where a discharge is occurring to a stream with a nearby water intake used as a domestic water supply without treatment, the DPH has recommended Title 22 tertiary treatment requirements for the protection of MUN, as well as protecting REC-1 and AGR. However, DPH has recommended a 20:1 dilution ratio in addition to the Title 22 tertiary treatment requirement to protect the domestic water supply only where there are existing users of raw water near the treatment plant outfall. In this case, there are no such known uses in the vicinity of the discharge, so tertiary treatment plus 20:1 dilution is not necessary to protect the MUN, REC-1 or AGR uses.

The chemical constituents narrative objective states, "Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses." The narrative toxicity objective states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." When necessary, the Central Valley Water Board adopts numeric effluent limitations to implement these objectives. The *Policy for Application of Water Quality Objectives* states, "To evaluate compliance with the

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<sup>3</sup> For example, see Waste Discharge Requirements Order No. R5-2007-0133 (NPDES No. CA0079391) for the City of Jackson Wastewater Treatment Plant, Amador County.

narrative water quality objectives, the Central Valley Water Board considers, on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations (e.g., State Water Board, California Department of Health Services, California Office of Environmental Health Hazard Assessment, California Department of Toxic Substances Control, University of California Cooperative Extension, California Department of Fish and Game, USEPA, U.S. Food and Drug Administration, National Academy of Sciences, U.S. Fish and Wildlife Service, Food and Agricultural Organization of the United Nations). In considering such criteria, the Board evaluates whether the specific numerical criteria, which are available through these sources and through other information supplied to the Board, are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective.”

In this case, however, there are no known users of raw water (i.e., existing uses of untreated domestic water) in the vicinity of the discharge, and there is no evidence of beneficial use impacts. For public water supplies, wastewater discharges do not require drinking water treatment plants to add any additional treatment, since state and federal law require residual chlorine and/or ultraviolet disinfection of surface water. (See, e.g., Surface Water Treatment Rule, 40 C.F.R. Part 141, Subpart H; Cal. Code of Regs. Title 22, section 64447.) Wastewater discharges do not interfere with such treatment processes. In this case, moreover, there are no public drinking water intakes near the treatment plant outfall. Thus, 20:1 dilution combined with tertiary filtration requirements are not required. A receiving water limit of zero pathogens would require the disinfection of the receiving water that would be toxic to aquatic life in the receiving water. Pathogens are not bio-accumulative, so discharges at the permitted levels do not threaten any potential uses of the receiving water for untreated domestic use. Therefore, the requirement to implement secondary treatment with 20:1 dilution adequately protects beneficial uses and is appropriate for this site under the case-by-case approach described in the *Policy for Application of Water Quality Objectives*.

The State Water Board has already determined that tertiary treatment is not necessary when dilution exceeds 20:1. (Order WQ 2004-0010 (City of Woodland).) The City of Woodland order addressed REC-1 and not MUN, which was not an existing use of the receiving water. However, the State Water Board has twice concluded that it is appropriate for the Central Valley Water Board to rely on DPH guidance in determining the level of treatment necessary to protect human health. (*Id.*, p. 11; Order WQ 2002-0016 (City of Turlock), p. 11.)

In summary, there are no numeric water quality objectives for pathogens for the protection of MUN. Therefore, the Central Valley Water Board, when developing NPDES permits, implements recommendations by DPH for the appropriate disinfection requirements for the protection of MUN, as well as REC-1 and AGR. The disinfection requirements in the proposed Order implement DPH's site-specific

recommendations and are fully protective of the beneficial uses of the receiving water.

### **CSPA Comment No. 16. Anti-Backsliding Requirements**

CSPA comments that the proposed Permit contains Effluent Limitations less stringent than the existing permit contrary to the Antibacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1). CSPA further comments that the Regional Board's proposed Permit does not contain "new" information regarding the discharge that would allow the relaxation of limitations under 40 CFR 122.44.

**RESPONSE:** Central Valley Water Board staff does not concur. Section IV.D.4 of the proposed Order clearly addresses the Antibacksliding issues for this permit renewal, including the constituents discussed in CSPA's comments.

### **CSPA Comment No. 17. Effluent Limitations for Metals Based on Effluent Hardness**

CSPA comments that the proposed Permit establishes effluent limitations for metals based on the hardness of the effluent as opposed to the ambient instream receiving water hardness and fails to use the mandated equations as required by Federal Regulations 40 CFR 131.38(c)(4), and the California Toxics Rule (CTR). CSPA also comments that it is highly unlikely that the wastewater hardness could be as low as 6.9 mg/L, and that the hardness data is at best questionable.

**Response:** CSPA comments that references to "effluent data" are incorrect, because the sampling was from the storage/polishing pond, not the effluent. This comment was addressed in response to CSPA Comment No. 1.

The remainder of CSPA's comment regarding the establishment of effluent limitations for hardness-based metals is for an entirely different facility and tentative permit. CSPA apparently cut and pasted from its comments on the tentative permit for the El Dorado Irrigation District Deer Creek Wastewater Treatment Plant. All references to the fact sheet do not correspond to the proposed Order for the Bear Valley Water District. Regardless, we have provided a response below for portions of CSPA's comment that are applicable to the Bear Valley Water District tentative Order. Furthermore, CSPA refers to the Sacramento Superior Court decision regarding the El Dorado Irrigation Deer Creek Wastewater Treatment Plant (California Sportsfishing Protection Alliance v. California Regional Water Quality Control Board, Central Valley Region, Sacramento Superior Court Case No. 34-2009-80000309) (EID Court Decision). The EID Court Decision is only applicable to the El Dorado Irrigation District. The Bear Valley Water District was not a party to this decision, therefore, it is not applicable to the Bear Valley Water District.

CSPA contends that the proposed Order establishes effluent limits for CTR metals based on the incorrect hardness. CSPA has five main arguments:

- a) Effluent hardness cannot be used in any way to establish CTR criteria;
- b) The wrong equations were used to calculate the CTR criteria;
- c) The definition of “ambient” is incorrect;
- d) The “Emerick” paper cannot be used; and
- e) The wrong method is used for establishing a protective limitation.

*a) Effluent hardness cannot be used in any way to establish CTR criteria;*

The proposed Order establishes the CTR hardness-dependent metals criteria based on the reasonable worst-case downstream ambient hardness in accordance with the CTR and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP), and is consistent with the guidance provided by the State Water Resources Control Board (State Water Board) in WQO 2008-0008 (City of Davis).

The methodology for calculating effluent limits for metals with CTR hardness dependent criteria described in the proposed Order establishes the criteria based on the reasonable worst-case downstream ambient hardness and ensures these metals in the discharge do not cause receiving water toxicity under any downstream receiving water condition. Under the methodology, all hardness conditions that could occur in the ambient downstream receiving water after the effluent has mixed with the water body were considered. The proposed effluent limitations are fully protective of aquatic life in all areas of the receiving water affected by the discharge under all flow conditions, at the fully mixed location, and throughout the water body including at the point of discharge into the water body.

The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4)) The CTR does not define whether the term “ambient,” as applied in the regulations, necessarily requires the consideration of upstream or downstream hardness conditions.

In Order WQ 2008-0008, the State Water Board concluded that regional water boards have considerable discretion in determining ambient hardness as long as the hardness values are protective under all flow conditions. (Order WQ 2008-0008, pp. 10-11.)<sup>4</sup>

CSPA continues to state that only the effluent hardness was considered in the development of the CTR metals effluent limits. This is incorrect. The proposed

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<sup>4</sup> This includes, for example, using different receiving water hardness values for wet and dry conditions (*Ibid*, p. 10), using upstream receiving water hardness (*Ibid*, p. 10), or using downstream receiving water mixed hardness (*Ibid*, p. 11).

Order clearly demonstrates that the reasonable worst-case downstream hardness has been used to calculate the criteria. This is shown in Tables F-6, F-7, and F-8. These tables demonstrate that the proposed effluent limits for the CTR metals do not cause or contribute to an exceedance of the CTR criteria in the receiving water. The tables show the fully mixed hardness and metals concentrations downstream of the discharge for all possible flow conditions (i.e., high receiving water flow conditions to the effluent-dominated condition, which can occur at the point of discharge before mixing with the receiving water). CSPA also contends that the effluent hardness cannot be considered in the evaluation of the appropriate CTR criteria.

*b) The wrong equations were used to calculate the CTR criteria;*

CSPA also contends that the incorrect equations were used to calculate the CTR criteria. This contention is directed at the equation for calculating the ECA for Concave Up Metals (i.e., Equation 4 in the proposed Order). Central Valley Water Board staff disagrees. Equation 4 is not used in place of the CTR equation. Rather, Equation 4 is used in place of iteratively determining the reasonable worst-case downstream hardness to use in the CTR equation. Equation 4, which is derived using the CTR equation, is used as a direct approach for calculating the ECA that is always protective considering the reasonable worst-case conditions in the receiving water (i.e., reasonable worst-case downstream hardness). The CTR equation has been used to evaluate the receiving water downstream of the discharge at all discharge and flow conditions to ensure the ECA calculated using Equation 4 is protective. For example, this is shown in Table F 8 of the proposed Order, and included below for convenience.

For this discharge, the use of Equation 4 results in more stringent effluent limits for concave up metals than using the CTR equation. For example, for lead, the lowest possible fully-mixed downstream hardness is 6.9 mg/L (see last row of Table F-6, below), which corresponds to a total recoverable chronic ECA of 0.11 µg/L, using the CTR equation. However, a lower chronic ECA is required to ensure the discharge does not cause toxicity at any location in the receiving water downstream of the discharge, which would be a violation the Basin Plan's narrative toxicity objective<sup>5</sup>. This is because for concave up metals, mixing two waters with different hardness with metals concentrations at their respective CTR criteria will always result in CTR criterion exceedances<sup>6</sup>. As shown in Table F-6, a chronic ECA of 0.10 µg/L is necessary to be protective under all discharge conditions. In this example for lead, for any receiving water flow condition (high flow to low flow), the fully-mixed downstream ambient lead concentration is in compliance with the CTR criteria.

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<sup>5</sup> "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan, p. III-8.01.)

<sup>6</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. (p. 5702)

**Table F-8. Lead ECA Evaluation**

<b>Lowest Observed Effluent Hardness</b>		<b>6.9 mg/L</b>			
<b>Lowest Observed Upstream Receiving Water Hardness</b>		<b>10 mg/L</b>			
<b>Highest Assumed Upstream Receiving Water Lead Concentration</b>		<b>0.10 µg/L<sup>1</sup></b>			
<b>Lead ECA<sub>chronic</sub><sup>2</sup></b>		<b>0.10 µg/L</b>			
<b>Effluent Fraction<sup>6</sup></b>		<b>Mixed Downstream Ambient Concentration</b>			
		<b>Hardness<sup>3</sup> (mg/L)</b>	<b>CTR Criteria<sup>4</sup> (µg/L)</b>	<b>Lead<sup>5</sup> (µg/L)</b>	<b>Complies with CTR Criteria</b>
High Flow  Low Flow	1%	10	0.17	0.10	Yes
	5%	9.8	0.17	0.10	Yes
	15%	9.5	0.16	0.10	Yes
	25%	9.2	0.15	0.10	Yes
	50%	8.5	0.14	0.10	Yes
	75%	7.7	0.12	0.10	Yes
	100%	6.9	0.11	0.10	Yes

- <sup>1</sup> Highest assumed upstream receiving water lead concentration based on the upstream receiving water lead method detection limit because lead was not detected in Bloods Creek.
- <sup>2</sup> ECA determined iteratively until all mixtures of effluent and receiving water are in compliance with the CTR criteria.
- <sup>3</sup> Fully mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 3.
- <sup>4</sup> Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.
- <sup>5</sup> Fully mixed downstream ambient lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction using Equation 3.
- <sup>6</sup> The effluent fraction ranges from 1% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

*c) The definition of “ambient” is incorrect;*

CSPA believes ambient should be defined as the receiving water surrounding the effluent. This is not logical, because the CTR criteria are designed for protection of aquatic life in the receiving water, regardless of whether there is a wastewater effluent discharge or not. The fact that a wastewater discharge is present does not eliminate the Clean Water Act requirement to protect beneficial uses. The Discharger did not request a mixing zone. The reasonable definition of the term “ambient,” as applied in the CTR to ensure protection of aquatic life, is that “ambient” refers to the surface water surrounding the aquatic life.

CSPA seems to make this argument to make the case that the upstream receiving water hardness should be used. When there is a wastewater effluent discharge, it is absolutely necessary to consider the effluent hardness when evaluating the CTR criteria downstream of the discharge. The effluent discharges both metals and hardness. It is not possible to discharge one without the other. Simply ignoring the effluent hardness could result in toxicity downstream of the discharge. CSPA states, however, that, “The wastewater effluent is not ‘surface water’.”, and cannot be

considered, per the CTR. On the contrary, once a wastewater effluent is discharged to a receiving water it becomes the surface water and all beneficial uses must be protected. The CTR states that, “...*the criteria apply throughout the water body including at the point of discharge into the water body.*” CTR criteria are receiving water criteria, that apply upstream and downstream of wastewater discharges, even at the point of wastewater discharges. Therefore, it is clear that once a wastewater effluent is discharged to a receiving water, it becomes part of the surface water. Ignoring the effects of the wastewater effluent hardness could result in toxicity in the receiving water.

CSPA further provides a discussion of the biological opinion from the US Fish and Wildlife Service and National Marine Fisheries Service on the promulgation of the CTR. Because the biological opinion was submitted on the proposed CTR rulemaking, US EPA would have considered the specific comment in the development of the final rulemaking of the CTR. Therefore, these comments by CSPA are directed at the CTR, not the tentative Order, which must comply with the final CTR and SIP. Central Valley Water Board staff properly applied the SIP and CTR when establishing WQBELs for the CTR metals with hardness dependent criteria.

*d) The “Emerick” paper cannot be used*

CSPA contends that use of the 2006 Study is inappropriate because it does not utilize the hardness of the surface water, does not use the CTR equations, and ignores other water quality parameters that affect the toxicity of metals. Central Valley Water Board staff disagrees. As discussed above, the effluent limits in the proposed Order are not based solely on the effluent hardness. They are based on the reasonable worst-case downstream ambient hardness, and consider the effect of the effluent hardness on the receiving water. This is consistent with the SIP, CTR, and the Davis Order, and is entirely appropriate. Also discussed above, the 2006 Study utilizes the CTR equations to establish the CTR hardness-dependent metals criteria.

Finally, CSPA’s contention regarding the use of only hardness, and ignoring other water qualities that affect metal toxicity (e.g., pH, alkalinity, dissolved organic carbon, calcium, sodium, chloride, etc.), to establish the CTR criteria is misplaced. As CSPA commented, US EPA has also released a Clean Water Act section 304 criteria document for copper based on the Biotic Ligand Model (*Aquatic Life Ambient Freshwater Quality Criteria—Copper 2007 Revision*) (BLM). The criteria document is a non-regulatory scientific assessment intended as guidance only. (*Id.*, Foreward, p. iii.) Thus, the BLM cannot be used in developing WQBELs in NPDES permits; an EPA-approved Basin Plan or SIP amendment allowing adjustment of the established criteria must be completed, or US EPA must change the CTR. Therefore, these comments by CSPA are directed at the CTR, not the tentative Order, which must comply with the final CTR and SIP. CSPA’s contention is with regard to the CTR, not the proposed Order. The Central Valley Water Board is required to implement

the CTR and SIP, which for the hardness-dependent metals, means using hardness to establish the CTR criteria.

*e) Establishing a Protective Limitation.*

CSPA contends that “For the great majority of wastewater discharges to surface waters the hardness of the effluent is much greater than the hardness or the upstream surface water. In such cases, use of the higher hardness of the effluent to calculate discharge limitations for hardness dependant metals results in significantly less stringent discharge limitations.” CSPA appears to be stating this as a reason the Emerick method should not be used in this case. Central Valley Water Board staff does not concur. Those water bodies are not at issue in this permit. The Emerick method properly implements the CTR, by using the reasonable worst-case downstream ambient hardness to calculate the CTR criteria. As stated above, this is consistent with the CTR, SIP, as well as the Davis Order, which is applicable to this discharge.

CSPA also comments that “It has been questioned whether the Regional Board’s default use of the “Emerick” method constitutes an underground regulation. ‘Regulation’ means every rule, regulation, order, or standard of general application or the amendment, supplement, or revision of any rule, regulation, order or standard adopted by any state agency to implement, interpret, or make specific the law enforced or administered by it, or to govern its procedure.” (Government Code section 11342.600).”

In June 2009, CSPA requested the Office of Administrative Law to issue an opinion finding the “Emerick” method to be an underground regulation. The Office of Administrative Law rejected CSPA’s claim, and declined to issue an opinion.

CSPA concedes that under the circumstance where the upstream hardness is higher than the effluent hardness, use of the upstream surface water hardness will produce criteria that are not sufficiently protective of water quality. This is the condition observed at Bloods Creek. CSPA states that the unique circumstances do not nullify the regulatory requirements to use the upstream ambient surface water hardness or to use the CTR prescribed equations when calculating criteria for hardness dependant metals. CSPA claims that the methodology to protect water quality in these rare events is prescribed in the federal regulations: the CTR method must be followed to show that the developed criteria are not protective of water quality; 40 CFR 122.44 (d)(1) should be cited as requiring the development of limitations more stringent than the promulgated effluent limitations; and use of the CTR prescribed method using the lower hardness used to develop the more protective limitations.

Central Valley Water Board staff does not concur. This is precisely why, when evaluating the ambient hardness for calculation of the CTR criteria the use of downstream ambient hardness is necessary: because it accounts for changes in hardness caused by the effluent.

### **CSPA Comment No. 18. Antidegradation Analysis**

CSPA comments that the proposed Permit fails to contain an adequate antidegradation analysis that complies 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. CSPA comments that the proposed permit relaxes the effluent limitations for BOD, TSS, Iron, Manganese, and Total Coliform Organisms and removes a limitation for Turbidity.

**RESPONSE:** Central Valley Water Board staff does not concur. Section IV.D.5 of the proposed Order clearly addresses the Antidegradation issues for this permit renewal. The proposed Order does not allow for an increase in flow or mass of pollutants to the receiving water. In fact, the proposed permit restricts the conditions in which a discharge is allowed, therefore resulting in less flow and a decreased level of mass loading from the existing permit. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. Secondary level treatment of the discharge in this case will fully protect beneficial uses of the receiving waters. Due to the minimal interim frequency of discharge during wet weather conditions that provides significant dilution, an increased level of treatment (i.e. tertiary treatment) does not provide for further protection of beneficial uses. The impact on existing water quality will be insignificant.

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### **CVCWA COMMENTS**

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#### **CVCWA Comment 1. Secondary Treatment Requirement at 20:1 Dilution**

CVCWA supports the proposed tentative order provision allowing discharge of secondary effluent during periods when the receiving water has a dilution ratio of at least 20:1. CVCWA comments that the proposed provision will provide for the reasonable protection of beneficial uses of Bloods Creek and that it will allow the Discharger to meet its permit requirements without the construction of costly tertiary treatment facilities.

**RESPONSE:** Central Valley Water Board staff concurs. The tentative permit alternative that specifies tertiary filtration will not be presented in the agenda package for adoption.

### **CVCWA Comment No. 2. Aluminum Effluent Limits**

CVCWA requests that the Central Valley Water Board reconsider the proposed effluent limits for Aluminum based on recent Water Effects Ratio (WER) studies conducted by other dischargers. CVCWA comments that the proposed Aluminum effluent limits are overprotective in Central Valley foothill streams and that the use of Aluminum WER results based on these studies would be reasonable. CVCWA further comments that the Board should not consider USEPA's chronic criterion of 87 µg/l, and instead should use the criterion of 750 µg/l for the protection of aquatic life.

**RESPONSE:** See Response to Discharger Comment No. 1.

### **CVCWA Comment No. 3. Copper and Lead Effluent Limits**

CVCWA requests that the Central Valley Water Board reconsider proposed effluent limits for copper and lead. CVCWA comments that effluent limits for copper and lead were derived using 100% effluent and that the limits should be calculated using an effluent fraction of 5% because the permit only allows discharge when there is a 20:1 dilution in the receiving water.

**RESPONSE:** See Response to Discharger Comment No. 1.

### **CVCWA Comment No. 4. Ammonia Effluent Limits**

CVCWA requests that the Central Valley Water Board consider an effluent limit for pH in the proposed permit that would establish a maximum pH of 8.0 and a minimum pH of 6.0. CVCWA comments that a pH limit of 8.0 would allow for higher ammonia effluent limits compared to the proposed Permit, where ammonia effluent limits are derived based on a pH effluent limit of 8.5. CVCWA further comments that a minimum pH of 6.0 is justified since the discharge will only occur when dilution in the receiving water is 20:1 or higher.

**RESPONSE:** See Response to Discharger Comment No. 1.

### **CVCWA Comment No. 5. Numeric WET Chronic Toxicity Trigger**

CVCWA requests that the Central Valley Water Board reconsider the proposed chronic toxicity trigger of 1 TUc. CVCWA comments that it would be reasonable to set the chronic toxicity trigger at 20 TUc, since discharge will only occur when dilution in the receiving water is 20:1 or higher. CVCWA further comments that the Discharger would be harmed by the proposed value of 1 TUc because of the high cost of accelerated testing.

**RESPONSE:** See Response to Discharger Comment No. 2.

### **CVCWA Comment No. 6. Compliance Schedule for Aluminum and Ammonia**

CVCWA comments that the identified tasks and due dates in the compliance schedule of the Tentative Order are too specific and do not provide the Discharger with needed flexibility. CVCWA requests that the compliance schedule provisions be revised by eliminating tasks v, vi, vii, and viii.

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

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## **SEWD COMMENTS**

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### **SEWD Comment. SEWD Supports the Tentative NPDES Permit with Several Permit Requirements**

SEWD comments that based on information provided, the recommendation of the California Department of Public Health, and discussions with the Discharger's Engineer, SEWD will forgo its request for tertiary treatment provided the following permit requirements are included:

1. Limit any discharge from this treatment facility as a last resort, and only during periods when the effluent would receive a minimum of 20:1 dilution from Bloods Creek;
2. Shorten the allowed discharge season (currently January through June) to April through June;
3. Require the Discharger to conduct an inflow/infiltration study and implement the findings of the study;
4. Require on a daily basis that both the dilution standard is continuously met and appropriate water quality sampling (BOD, COD, etc.) is reported of any discharge to Bloods Creek at the point of discharge;
5. Continue to investigate methods to maximize land disposal;
6. Require all new development to mitigate the impacts of their additional demand on the treatment facility; and
7. Require the Discharger to notify SEWD in advance of any planned discharge.

**RESPONSE:** Central Valley Water Board staff concurs with the above list of requirements, with the exception of shortening the discharge season to April-June. The Discharger requested the same discharge season in the event there are early warm rains that cause the pond to fill quickly. Regardless, the prohibition requiring the storage/polishing pond to be at least 2/3 full prior to discharge will in most cases effectively shorten the discharge season. Furthermore, the Discharger is committed to only discharging under emergency conditions. Therefore, the likelihood of a discharge between January and March is minimal, but the Discharger requested the operational flexibility to discharge.

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## **Residential Ratepayer COMMENTS**

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**Residential Ratepayer Comments.** Numerous e-mails/letters were received from residential ratepayers of the Bear Valley Water District. The comments were mostly form letters supporting the proposed Order requiring secondary treatment.

**RESPONSE:** Central Valley Water Board staff concurs. Based on a recommendation of the DPH, the proposed Order requires secondary treatment for the protection of public health and the tentative permit alternative to implement tertiary treatment requirements has been removed from consideration.