Central Valley Regional Water Quality Control Board
22/23/24 September 2010 Board Meeting

Response to Comments
for the
City of Galt
City of Galt Wastewater Treatment Plant and Reclamation Facility
Tentative Waste Discharge Requirements
REVISED 21 SEPTEMBER 2010

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. CA0081434 (NPDES Permit) renewal, and the tentative Times Schedule Order (TSO), for the City of Galt (Discharger) City of Galt Wastewater Treatment Plant and Reclamation Facility (Facility).

The tentative NPDES Permit was issued for public comment on 8 July 2010 with comments due by 9 August 2010. The Central Valley Water Board received public comments regarding the tentative NPDES Permit by the due date from the Discharger, the California Urban Water Agencies (CUWA), the California Sportfishing Protection Alliance (CSPA), and the Central Valley Clean Water Association (CVCWA). Minor changes were made to the tentative NPDES Permit based on public comments received.

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

CITY OF GALT (DISCHARGER) COMMENTS

Discharger Comment No. 1. The Copper Effluent Limitations should be Revised to Reflect Representative Data.

The Discharger comments that the tentative NPDES Permit fails to utilize representative data in copper effluent limits derivation calculations. The Discharger further comments that the 11 March 2002 receiving water data point is older than 4 and one-half years, contrary to EPA Guidance for discharger's submitting effluent data with NPDES permit application, and therefore, should not be used since it doesn't represent current conditions.

RESPONSE: Central Valley Water Board staff does not concur that the 11 March 2002~~12~~ data point should be excluded from the receiving water dataset analysis. Staff conducted an analysis of receiving water conditions based on receiving monitoring data available to determine limitations necessary to protect present and future beneficial uses. A robust dataset is critical in analyzing receiving water conditions, and in some cases, receiving water monitoring data span over decades providing statistically greater confidence level of the critical conditions of the receiving water. However, in this case, only two years of receiving water monitor samples were available for the receiving water analysis to determine the critical

conditions, if any, of copper concentrations in the receiving water: 1) Eleven monthly samples collected between February 2002 through January 2003, and then 2) Twelve monthly samples collected from April 2007 through March 2008. The Discharger did not collect any other receiving water monitoring samples for copper.

A statistical evaluation of the two years of receiving water monitoring data shows that the 11 March 20021~~2~~ monitoring sample of 4.8 µg/L is within the normal distribution (bell curve) of the dataset and that an outlier would exceed 7 µg/L, which indicates that the 11 March 200211~~2~~ monitoring sample is representative of the receiving water. Additionally, since the Discharger only monitored for a two year period (2/02 – 1/03 and 4/07 – 3/08), there is not enough information to determine that the single receiving water criteria exceedance is consistent with the 1-in-3 year average frequency for criteria excursions recommended by US EPA. Without any other information, or additional receiving water monitoring results, the single criteria excursion at 4.8 µg/L that occurred on 11 March 200211~~2~~ is relevant and critical to calculating water quality based effluent limitations to protect beneficial uses of the receiving water.

Discharger Comment No. 2. Receiving Water Limitation for Temperature Should be Removed

The Discharger comments that the Temperature Receiving Water Limitation, section V.A.15 of the tentative NPDES Permit, should be removed based upon State Water Resources Control Board's (State Water Board) determination in WQO 2002-0015 that "[e]stablishing a natural receiving water temperature is problematic since there may be 'natural flows' only during short periods of the year," and subsequently remanded the permit for the Central Valley Water Board to impose temperature controls based upon site-specific study results.

RESPONSE: Central Valley Water Board staff does not concur that the receiving water limitation for temperature should be removed. Based upon the Discharger's site-specific flow monitoring study in Laguna Creek during the period from September 2006 through March 2008 (conducted by Robertson-Bryan, Inc. (RBI), consultants for the Discharger), Laguna Creek background flows are throughout most of the year. The Discharger submitted a final Flow Monitoring Study report to Central Valley Water Board on 23 February 2010 as part of the *City of Galt Wastewater Treatment Plant Effluent and Receiving Water Quality Study Report,* by West Yost Associates (The Final Report). The Final Report concluded that "Laguna Creek had consistent background flow during October through April and that 2006 and 2007 were relatively low rainfall years; therefore, the flows monitored represent conservative values typical during critical low flow conditions." The Final Report further concluded that "Natural Laguna Creek flows are supplemented by year-round discharges from Sacramento Municipal Utilities District's Rancho Seco facility, which discharges roughly 20 cubic feet per second." (pp. 32-34) The Final Report cited Laguna Creek flow measurements ranged from 9 cubic feet per second (cfs)(May) to

39 cfs (February), and zero flow during the month of June only. Therefore, since even under conservative critical conditions Laguna Creek flows during most of the year, receiving water temperatures are readily available and should not be problematic. However, should Laguna Creek not contain flows during a month (e.g. June), then the Discharger should report 'no-flow' conditions, and thus no effect to receiving water, to comply with the NPDES Permit Temperature Receiving Water Limitation.

The Discharger also requests that compliance determination language be included to provide for appropriate averaging periods. The Temperature Receiving Water Limitation is an instantaneous maximum; however, the Basin Plan states that "appropriate averaging periods may be applied provided that beneficial uses will be fully protected." The Discharger should conduct a site-specific temperature study to propose temperature limitations or other temperature controls to protect the beneficial uses of the receiving water. The tentative NPDES Permit contains a reopener clause (Special Provision VI.C.1.c.ii.) that allows the permit to be reopened for modification based upon the new information from the site-specific study.

Discharger Comment No. 3. Effluent Limitation for Bis-2 should be Removed.

The Discharger comments that the detection of Bis-2 in the effluent monitoring sample obtained on 6 March 2008 is a false-positive, based upon a second sample, collected on that same day, that did not indicate concentrations of Bis-2 (non-detect). Thus, the Discharger concludes that the effluent discharge does not demonstrate reasonable potential, and therefore, the tentative NPDES Permit should not contain an effluent limitation for Bis-2.

RESPONSE: Central Valley Water Board staff does not concur that the effluent limitations for Bis-2 should be removed. Based on the Discharger's monitoring results obtained from April 2007 through March 2008, the maximum observed upstream receiving water concentration was 5.2 µg/L, and the maximum effluent concentration (MEC) for Bis-2 was 1.9 µg/L, both obtained on 6 March 2008. The Discharger also collected a second effluent monitoring sample ("field dup") 25 minutes after the first sample (the MEC), which did not show detections of Bis-2 concentrations. Laboratory QA/QC results did not show detections of Bis-2 in the "field bank", in the "method blank", nor in the "lab control blank", which indicates that the sampling and lab techniques were not contaminated. The Discharger asserts that the "field dup" non-detection supports that the MEC was a false-positive. The State Water Resources Control Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP) provides for the Central Valley Water Board to use its discretion to determine if available data is representative of the corresponding water quality sample. Central Valley Water Board staff does not concur that the analytical results of the second effluent sample (non-detection of Bis-2) collected by the Discharger is sufficient to not use the analytical results of the first

effluent sample (Bis-2 concentration levels detected at 1.9 µg/L) in the reasonable potential analysis. The QA/QC lab results of the "field bank", "method blank", "lab control blank" obtained on that day indicate that contamination did not occur. Since the Discharger did not provide information to support that the first-sample analytical results is a false-positive (e.g. a split sample where two different labs analyze the same sample for possible resulting differences; or additional QA/QC lab information), Central Valley Water Board staff concludes that concentrations of Bis-2 were detected in the effluent discharge on 6 March 2008. Therefore, the effluent discharge demonstrates reasonable potential to cause or contribute to an in-stream excursion above the criterion for bis (2-ethylhexyl) phthalate.

Discharger Comment No. 4. Revise the Instantaneous Maximum pH value to 8.2 standard units (s.u.).

The Discharger requests that the maximum permitted pH value be changed to 8.2 s.u. from 8.0 s.u., which is overly restrictive.

RESPONSE: Central Valley Water Board staff concurs. Previous Order No. R5-2004-001 (NPDES Permit CA0081434) contains an instantaneous maximum pH value at 8.5 s.u. to comply with the Basin Plan objectives, in part, for pH. 133 weekly monitoring pH values obtained from January 2007 through April 2010, indicated that the minimum pH level in the effluent leaving the Discharger's chlorine contact chamber was 6.53 s.u. and that the maximum pH level was 7.75, with a standard deviation of 0.3. Based on this data, it appears that the proposed instantaneous maximum pH value at 8.0 s.u. is overly restrictive and could put the Discharger in immediate non-compliance with the proposed instantaneous maximum pH limit. Therefore, it is reasonable to require the instantaneous maximum pH limit of 8.2 s.u., which is more stringent than the previous Order instantaneous maximum pH limit. The tentative NPDES Permit instantaneous maximum pH limit has been changed to 8.2 s.u., and to reflect this change where appropriate.

Discharger Comment No. 5. Total Coliform Limitation should be Changed from a 7-day Median to a Monthly Median.

The Discharger comments that the total Coliform Limitation should be changed from a 7-day median to a monthly median since analytical results cannot be obtained in less than 4-days from sampling, and therefore, it would not be possible to obtain data points within a 7 day period.

RESPONSE: Central Valley Water Board staff does not concur that the total coliform limit should be changed from a 7-day median to a monthly median based on the amount of days necessary to obtain test results. Compliance with a 7-day median total coliform effluent limitation of 23 MPN/mL is technically feasible through a properly operated secondary treatment facility. Twice weekly sampling is currently required in the tentative NPDES Permit. If the Discharger finds it necessary, it can

monitor more frequently to demonstrate compliance with this interim effluent limit. The permit allows the Discharger to take a total coliform sample on Day 1, in which results will be available typically by Day 5. If the results exceed the required median, then the Discharger may take three more samples (Day 5, Day 6 and Day 7), which will provide the opportunity to show compliance with results from more than one sample. The existing secondary facility already meets the subject limitation; therefore Central Valley Water Board staff believes the requirements in the permit are feasible.

Discharger Comment No. 6. Biosolids Requirements should be Revised for Clarity.

The Discharger requests that section VI.C.5 of the tentative NPDES Permit be revised for clarity and consistency with the State Water Board's General Order for Land Application of Biosolids.

RESPONSE: Comment noted. The tentative NPDES Permit has been changed to reflect the comment and corresponding suggested changes to be consistent with the State Water Board's General Order for Land Application of Biosolids. Some of the changes were made and are included in the agenda version of the NPDES permit, while others are proposed as late revisions., ~~except changes #5, #7, and #8 as explained below:~~

~~In request #5, the Discharger requests that sections b. xx through xviii, on pages 32 and 33, include the phrase "for Class B biosolids." However, the phrase "sections b. xx through xviii" is unclear, and therefore, a change was not made.~~

~~In request #7, the Discharger requests that the phrase "biosolids application area" be removed from the following provision since this section is titled "Biosolids Storage Requirements." However, for lack of a better place, it is important that biosolids application areas are managed to prevent biosolids discharges to surface waters during a 100-year flood event. A change was not made.~~

> ~~*All staging, storage, and biosolids application areas shall be designed, constructed, operated, and maintained to prevent washout or inundation due to floods at return frequency of 100 years.*~~

~~In request #8, the Discharger requests that provision VI.C.5.c.v and v.i. should be modified to more accurately reflect the General Order. This statement is too general and vague to understand or consider. Provisions VI.C.5.c.v and vi. are requirements consistent with similar permits for biosolids application. A change was not made.~~

Discharger Comment No. 7. The Requirement for Quarterly Groundwater Reports Prepared under the Direct Supervision of a Registered Engineer Should Be Removed

The Discharger comments that the requirement for Quarterly Groundwater Monitoring Reports prepared under the direct supervision of a registered engineer is overly stringent and cost prohibitive.

RESPONSE: Central Valley Water Board staff does not concur. The requirement that "Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Engineer or Professional Geologist and signed by the registered professional" is not a new requirement. Since installation of the monitoring wells, the Discharger's quarterly groundwater monitoring reports submitted to the Central Valley Water Board have been under the direction of, and signed by, a Certified Geologist.

Discharger Comment No. 8. The Compliance Date for Copper in the TSO should be Consistent Throughout.

RESPONSE: Comment noted and the proposed TSO has been changed to consistently identify the Copper Compliance Date of 1 September 2015.

CUWA COMMENTS

CUWA COMMENT # 1: In regards to the proposed Order, CUWA commends Central Valley Water Board "staff on their commitment to protecting the drinking water beneficial use in the Delta."

Response: Comment noted.

CUWA COMMENT # 2: CUWA is working with the Central Valley Water Board staff on the technical studies needed to address numerous water quality concerns and to support a Basin Plan amendment to provide greater protection of drinking water supplies. Based on these efforts, CUWA expects that the Basin Plan will be amended in 2013 to incorporate additional protection of drinking water supplies. Therefore CUWA requests that the following reopeners be added to the tentative NPDES Permit.

Response: Comment noted, and the tentative NPDES Permit has been modified to include the following reopeners in section VI.C.1.:

"**h. Central Valley Drinking Water Policy**. If water quality objectives are adopted for organic carbon and/or pathogens to protect drinking water supplies in the Central Valley Region, this Order may be reopened for addition and/or modification of effluent limitations and requirements, as appropriate, to require compliance with the applicable water quality objectives."

"i. Nutrient Numeric Endpoint Process. If water quality objectives are adopted for nutrients to protect drinking water supplies and other beneficial uses in the Central Valley Region, this Order may be reopened for addition and/or modification of effluent limitations and requirements, as appropriate, to require compliance with the applicable water quality objectives.

"j. CV-SALTS. If water quality objectives are adopted for salinity to protect drinking water supplies and other beneficial uses in the Central Valley Region, this Order may be reopened for addition and/or modification of effluent limitations and requirements, as appropriate, to require compliance with the applicable water quality objectives."

"k. Ammonia Studies. The ammonia effluent limitations in this Order are based on USEPA's recommended National Ambient Water Quality Criteria for protection of freshwater aquatic life. However, studies are ongoing to evaluate the effect of ammonia and nutrient ratios on phytoplankton productivity and species composition, as well as, studies to evaluate the sensitivity of delta smelt and other aquatic species to ammonia toxicity. In addition, USEPA has drafted new ammonia criteria in response to findings that several freshwater mussel species are significantly more sensitive to ammonia than the organisms evaluated for the existing criteria. The Nature Conservancy and U.S. Forest Service have conducted a survey and found freshwater mussels in several areas of California, including the Sacramento River. Based on the result of these or other studies, and based on whether the draft USEPA ammonia criteria are adopted, this Order may be reopened to modify the ammonia effluent limitations, as appropriate."

"l. Regional Monitoring Program. The State and Regional Water Boards are committed to creation of a coordinated Regional Monitoring Program to address receiving water monitoring in the Delta for all Water Board regulatory and research programs. When a Regional Monitoring Program becomes functional, this permit may be reopened to make appropriate adjustments in permit-specific monitoring to coordinate with the Regional Monitoring Program."

CUWA COMMENT # 3: CUWA requests that the proposed Order include a notification requirement to alert downstream drinking water agencies of any wastewater spills that may reach Delta waters.

Response: Comment noted. To provide clarification, the Central Valley Water Board Standard Provisions, section VI.A.2.f., in the tentative NPDES Permit has been modified as shown below in underline format:

f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal, and adequate public notification to downstream water agencies or others who might contact the non-complying discharge.

CALIFORNIA SPORTFISHING PROTECTION ALLIANCE (CSPA) COMMENTS

CSPA Comment No. 1. Mass-based Effluent Limits

CSPA comments that the tentative NPDES Permit fails to contain mass-based effluent limitations for Bis(2-ethylhexyl)phthalate, Carbon Tetrachloride, Chlorodibromomethane, Copper, Cyanide, Dichlorobromomethane, Lead, and Nitrate plus Nitrite as required by 40 CFR 122.45(b).

RESPONSE: Central Valley Water Board staff does not concur. 40 CFR 122.25(f) states the following:

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

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

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

(iii) If in establishing permit limitations on a case-by-case basis under §125.3, limitations expressed in terms of mass are infeasible because the mass of the pollutant discharged cannot be related to a measure of operation (for example, discharges of TSS from certain mining operations), and permit conditions ensure that dilution will not be used as a substitute for treatment.

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

40 CFR section 122.25(f)(1)(ii) states that mass limitations are not required when applicable standards are expressed in terms of other units of measurement. The numerical effluent limitations for bis(2-ethylhexyl)phthalate, carbon tetrachloride, chlorodibromomethane, copper, cyanide, dichlorobromomethane, lead, and nitrate plus nitrite in the tentative NPDES Permit are based on water quality standards and objectives. These are expressed in terms of concentration. Pursuant to 40 CFR 122.25(f)(1)(ii), expressing the effluent limitations in terms of concentration is in accordance with federal regulations.

Mass limitations for oxygen demanding substances, bioaccumulative substances, and constituents with an associated 303(d) listing are included in the tentative NPDES Permit. The tentative NPDES Permit specifically includes mass limitations for 1) BOD_5, 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., bis(2-ethylhexyl)phthalate, carbon tetrachloride, chlorodibromomethane, copper, cyanide, dichlorobromomethane, lead, and nitrate plus nitrite), mass-based effluent limitations are not included in the tentative NPDES Permit.

CSPA Comment No. 2. Effluent Limitations for Aluminum, Arsenic, Iron, and Manganese

CSPA comments that the tentative NPDES Permit improperly regulates effluent limitations for aluminum, arsenic, iron, and manganese as annual averages contrary to Federal Regulations 40 CFR 122.45(d)(2). Federal Regulation 40 CFR 122.45 (d)(2) requires that permit for POTWs establish Effluent Limitations as average weekly and average monthly unless impracticable. Establishing the Effluent Limitations for aluminum, arsenic, iron, and manganese in accordance with the Federal Regulation is not impracticable. Proof of impracticability is properly a steep slope and the Central Valley Water Board has not presented any evidence that properly and legally limiting aluminum, arsenic, iron, and manganese is impracticable.

RESPONSE: Central Valley Water Board staff does not concur. The effluent limitations for total aluminum, total iron, and total manganese are based on the Secondary MCLs, therefore, the tentative NPDES Permit includes annual average effluent limitations for these constituents. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. For Secondary MCLs, Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Since water that meets these requirements on an annual average basis is suitable for drinking, it is impracticable

to calculate average weekly and average monthly effluent limitations because such limits would be more stringent than necessary to protect the 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.

However, staff does concur with the public comment regarding arsenic. Arsenic is a California Toxic Rule (CTR) constituent. The SIP applies directly to the control of CTR priority pollutants. Therefore, Central Valley Water Board staff recalculated the arsenic effluent limitation in accordance with section 1.4 of the SIP. As a result, the annual average effluent limitation for arsenic of 10 µg/L has been changed in the tentative NPDES Permit to a monthly average effluent limitation at 10 µg/L.

CSPA Comment No. 3. Effluent Limitation for Copper

CSPA comments that the tentative NPDES Permit utilizes an outdated water quality standard and water effects ratio (WER) in developing an effluent limitation for copper contrary to Section 122.44(d) of 40 CFR. CSPA contends that, instead, the tentative NPDES Permit should utilize the latest US EPA objective for copper based on the Biotic Ligand Model (BLM).

RESPONSE: Central Valley Water Board staff does not concur. Copper is a CTR priority pollutant. The CTR contains water quality criteria for copper based on hardness, and also contains conversion factors and WER to adjust the copper criteria. For pollutants listed in the CTR, such as copper, the SIP establishes a step-by-step procedure for determining reasonable potential and developing water quality-based effluent limitations (WQBELs). Central Valley Water Board staff properly applied the CTR and SIP when establishing the WQBELs for the copper in the tentative NPDES Permit.

As CSPA commented, US EPA has also promulgated an objective for copper based on the BLM (*Aquatic Life Ambient Freshwater Quality Criteria—Copper 2007 Revision*). The BLM cannot be used in developing WQBELs in NPDES permits; a Basin Plan amendment allowing adjustment of an established criteria must be completed, or US EPA must change the CTR. 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. But 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 NPDES Permit, which must comply with the final CTR and SIP.

CSPA Comment No. 4. Tentative NPDES Permit Misapplies a technical report and utilizes assimilative capacity when NO assimilative capacity is available within the receiving water to develop hardness based effluent limitations for metals.

CSPA comments that the tentative NPDES Permit utilizes the reasonable worst-case estimated downstream ambient hardness in calculating the CTR criteria for hardness dependant metals inappropriately. CSPA contends that the use of downstream hardness in calculating the criteria, based on an approach by a 2006 study (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.), may only be utilized if mixing conditions are considered. CSPA further comments that the tentative NPDES Permit "utilizes assimilative capacity within the receiving waters to develop Effluent Limitations for hardness dependant metals despite very clear Findings that the receiving water provides NO assimilative capacity."

RESPONSE: Central Valley Water Board staff does not concur. Central Valley Water Board staff properly applied the 2006 Study in developing water quality-based effluent limitations (WQBELs) for hardness-based metals in the tentative NPDES Permit. In the 2006 Study, Dr. Emerick states that "*The purpose of this paper is to describe methodologies for assigning fixed effluent limitations for hardness based metals that will be protective under all dilution conditions when the final mixed receiving water/effluent hardness is less than 400 mg/L, without being overly restrictive. Unless otherwise stated, the equations presented herein were developed for occasional effluent dominated conditions (i.e. an effluent discharge can constitute up to 100 percent of stream flow at times) and no use of environmental assimilative capacity (i.e. receiving water contaminant concentrations at water quality objectives prior to discharge of effluent). The methodologies can be easily modified to account for restricted ranges of fractional effluent to be present in a receiving water or to allow use of environmental assimilative capacity."* The tentative NPDES Permit appropriately applies the 2006 Study in developing WQBELs for hardness-based metals in the tentative NPDES Permit.

The Fact Sheet of the tentative NPDES Permit contains a thorough discussion on the various methodologies used according to the 2006 Study, and Tables F-4 through F-6 clearly show the various methodologies under all mixing conditions, from zero to 100% effluent,. The Fact Sheet also states that these methodologies are only used when all conditions are met (e.g., the receiving water metals concentrations do not exceed the CTR criteria). In this case, the copper effluent limitations were not developed using the 2006 Study's methodologies because the receiving water copper data indicate there may be periods when the copper concentrations may exceed the CTR criteria. This is contrary to one of the assumptions in the 2006 Study. The Fact Sheet on p. F-20 states, "*These procedures are applicable to calculate the CTR criteria for chronic cadmium, chromium III, nickel, and zinc. However, the receiving water has been shown to exceed the CTR criteria for the Concave Down Metal copper, based on paired*

hardness and metals receiving water data from February 2002 through March 2008. This is not consistent with the assumptions of the 2006 Study, therefore, these procedures for calculating the ECA for Concave Down Metals is not applicable for copper. The procedure for selecting the appropriate hardness for copper is discussed below." The tentative NPDES Permit appropriately applies the 2006 Study, and does not utilize assimilative capacity within the receiving water, in developing WQBELs for hardness-based metals in the tentative NPDES Permit.

CSPA Comment No. 5. Effluent Limitations for Metals Based on Hardness

CSPA comments that the tentative NPDES Permit fails to use ambient upstream receiving water hardness in determining reasonable potential and establishing effluent limitations for hardness-dependant metals as required by Federal Regulations, the California Toxics Rule (CTR, 40 CFR 131.38(c)(4)).

CSPA contends that the Central Valley Water Board's approach in using the downstream hardness to conduct a reasonable potential analysis (RPA) uses the allowance of a mixing zone prior to conducting the RPA, which is inappropriate and unprotective of the receiving water aquatic life beneficial use.

RESPONSE: The proposed tentative NPDES Permit has established the criteria for hardness-dependant metals based on the reasonable worst-case estimated ambient hardness as required by the SIP, the CTR, and Order No. R5-2008-0008 (City of Davis). The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4), Table 4, note 4.) The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. Therefore, the State Water Board concluded that where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Davis Order, p. 11).

In the Davis Order, the State Water Board points out that the requirements for selecting the appropriate hardness for calculating the CTR metals criteria is conflicting in the CTR and the SIP. The CTR requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones (e.g., 1Q10 and 7Q10 receiving water low flows); whereas, the SIP's steady-state method requires the selection of critical or worst-case parameters. These can be in conflict for hardness, because often in receiving waters the critical worst-case hardness conditions do not coincide with the design low flow conditions. The lowest hardness conditions typically occur during high river flows, due to the low hardness in surface runoff from precipitation or snowmelt[1]. The State Water Board concludes

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

that, "*Thus, the regional water boards have considerable discretion in the selection of hardness. Regardless of which method is used for determining hardness, the selection must be protective of water quality criteria, given the flow conditions under which the particular hardness exists*." (*Id.*, p.10.).

In the tentative NPDES Permit, the reasonable worst-case estimated downstream ambient hardness was used for calculating the CTR criteria. As shown in Tables F-4 and F-6, the calculated CTR criteria are protective under all discharge and flow conditions assuming worst-case conditions for upstream ambient hardness and metals concentrations.

CSPA contends that the upstream ambient receiving water hardness must be used to calculate the CTR metals criteria. The approach used in the proposed NPDES Permit establishes the hardness based on the downstream mixed hardness. This is appropriate, because the effluent includes metals and hardness. It is impossible to discharge one without the other. Not considering the hardness of the effluent can result in toxicity as the discharge mixes with the receiving water. Using the minimum observed upstream receiving water hardness in this case would result in more stringent criteria, but CSPA does not discuss what would happen in cases where the effluent hardness is lower than the upstream receiving water hardness. Following CSPA's advice, effluent limitations for metals would be set where the effluent is toxic and would need to be mixed with the higher hardness receiving water to meet the CTR criteria. Central Valley Water Board staff doubts CSPA would condone such a discharge.

CSPA quotes the CTR with regards to a concern when an effluent raises the hardness of the receiving watering. It states, "*A hardness equation is most accurate when the relationship between hardness and the other important inorganic constituents, notably alkalinity and pH, are nearly identical in all of the dilution waters used in the toxicity tests and in the surface waters to which the equation is to be applied. If an effluent raises hardness but not alkalinity and/or pH, using the lower hardness of the downstream hardness might provide a lower level of protection than intended by the 1985 guidelines.*" (Federal Register, Volume 65, No. 97/Thursday, May 18th 2000 (31692)) CSPA asserts this means that the upstream receiving water hardness must be used in the CTR equations. Effluents from municipal wastewater treatment plants have similar characteristics to the receiving water with regard to the relationships between hardness, alkalinity, and pH. Municipal wastewater treatment plants must maintain neutral pH and sufficient alkalinity for the biological processes to work properly, especially for nitrification. Therefore, the condition that the CTR warns against is not present in municipal wastewater treatment plant effluent. This language in the CTR confirms that "ambient" may be defined as downstream of the discharge after mixing with the effluent, thus, the use of downstream mixed hardness is appropriate under these conditions as the State Water Board found in the Davis Order.

CSPA takes the State Water Board's quotes out of context in the Davis Order (WQ 2008-0008). For the City of Davis NPDES permit, the upstream receiving water hardness was used. However, in the City of Davis NPDES permit the use of the lowest hardness during low flows was used, rather than the lowest hardness during all flow conditions. The State Water Board found that in order to account for acute conditions that may occur even during high flows, the Central Valley Water Board must consider the hardness of the receiving water during all flow conditions, high and low. CSPA takes this statement as a requirement to only use the upstream receiving water hardness. However, the State Water Board actually concluded that where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Davis Order, p. 11).

CSPA contends that since a lower effluent limit would be required using the minimum observed upstream ambient hardness to calculate the CTR criteria, that this means a mixing zone and dilution is required. This is not accurate. Although a lower effluent limit can be calculated, dilution is not needed. The criteria are dependent on hardness, so the criteria changes as the hardness changes downstream. A mixing zone is a zone near the point of discharge where criteria are not met. A mixing zone is needed when the effluent exceeds criteria and requires mixing and dilution with the receiving water before the criteria are met. As shown in Tables F-5 and F-6 of the Fact Sheet (Attachment F), considering the known conditions and using worst-case assumptions, the effluent does not exceed the criteria and any mixture of effluent and receiving water does not exceed the criteria. A mixing zone is therefore not necessary in this situation.

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

CSPA Comment No. 6. Tentative NPDES Permit does not comply with Title 27 nor the Antidegradation Policy.

Part a. CSPA comments that the tentative NPDES Permit fails to recognize that any increase in applied load [biosolids] will result in continued groundwater degradation.

CSPA comments that groundwater concentrations for Total Dissolved Solids (TDS), nitrate, and arsenic near the wastewater treatment facility exceed water quality objectives. CSPA contends that though the tentative NPDES Permit establishes groundwater limitations for these constituents, it fails to recognize that any increase in applied load [biosolids] will result in continued groundwater degradation. CSPA asserts that the tentative NPDES Permit does not comply with CCR Title 27 and the Antidegradation Policy for the disposal of sludge and must be amended accordingly.

RESPONSE: Central Valley Water Board staff does not concur. The tentative NPDES Permit does not allow an increase in applied biosolids load to land. The tentative NPDES Permit retains the same loading rates to land for arsenic from the previous permit Order No. R5-2004-0001 to ensure that degradation does not occur. Because the Discharger's expansion from 3.0 MGD to 4.5 MGD does not involve an expansion of the amount of disposal to land, there would be no change to the potential groundwater quality effects of the expansion related to wastewater reuse. As discussed in the Fact Sheet, the Discharger will be constructing a new biosolids dewatering facility that will produce biosolids cakes. The biosolids cakes will be tilled into the soil within the designated reuse area, which replaces the current practice of injecting sludge into the soil. Thus, any potentially negative effect of current sludge injection operations would decrease.

Groundwater is generally encountered at approximately 57 to 80 feet below the ground surface. The Facility's groundwater monitoring system consists of 8 wells, including 2 background wells. Based on groundwater monitoring results from March 2005 through June 2010, arsenic concentrations in 5 of the 6 compliance monitoring wells comply with the Basin Plan water quality objectives for arsenic (concentrations in 4 wells are statistically less than both the arsenic water quality objective and background groundwater quality, concentrations in 1 well is statistically less than background groundwater quality). However, one well, MW-1 located south of the Facility's treatment systems, shows concentrations statistically greater (at 12.1 µg/L) than the arsenic water quality objectives and background groundwater quality. But, quarterly monitoring results since January 2007 consistently show groundwater concentrations statistically less (at 9.5 µg/L) than both the arsenic water quality objectives and background groundwater quality. Thus, for arsenic, the groundwater quality associated with the Facility's disposal of sludge does comply with the Basin Plan, and therefore, meets the preconditions to qualify for exemption from Title 27. The Title 27 language in the Fact Sheet has been modified to clarify the findings.

Part b. CSPA comments that the tentative NPDES Permit the Land Application of treated Wastewater is not exempted from Title 27 pursuant to Section 20090(h) (Reuse Exemption).

CSPA disagrees with Central Valley Water Board staff in citing Title 27 Section 20090(h) for exempting the treated wastewater applied to the reuse area. CSPA asserts that the State Water Board clearly states in the City of Lodi WQO 2009-0005

(City of Lodi Order) that wastewater applied to land must meet the preconditions of Title 27 §20090. SWRCB - Exemptions. (C15: §2511).

RESPONSE: Central Valley Water Board staff does not concur. In the City of Lodi Order, the State Water Board cited the definition of "recycled water," which is water that is suitable for reuse, "as a result of treatment of waste." The State Water Board's City of Lodi decision concluded that the Reuse Exemption did not apply because all the wastewater was not treated. In this case, unlike that of the City of Lodi, all the wastewater applied to land for reuse is fully treated to at least secondary level. Therefore, the fully treated wastewater applied to land for reuse may be exempt from Title 27 under the reuse exemption of section 20090(h).

CSPA Comment No. 7. Effluent Limitations for Aluminum

CSPA comments that the proposed Order does not contain effluent limitations for aluminum in accordance with Federal Regulations 40 CFR 122.44, US EPA's interpretation of the regulation, and California Water Code, Section 13377.

RESPONSE: CSPA argues that the chronic criterion (87µg/L) recommended by the USEPA Ambient Water Quality Criteria for Aluminum should be applied for this discharge. The chronic criterion is based on studies conducted on waters with low pH (6.5 to 6.8 pH units) and hardness (<10 mg/L as $CaCO_3$), which are conditions not commonly observed in Central Valley receiving waters like the Laguna Creek. Consequently, the criterion is likely overly protective for this application. For similar reasons, the Utah Department of Environmental Quality (Department) only applies the 87 µg/L chronic criterion for aluminum where the pH is less than 7.0 and the hardness is less than 50 mg/L as $CaCO_3$ in the receiving water after mixing. For conditions where the pH equals or exceeds 7.0 and the hardness is equal to or exceeds 50 mg/L as $CaCO_3$, the Department regulates aluminum based on the 750 µg/L acute criterion. In the case of Laguna Creek the available data indicates that the pH ranges from 6.4 to 9.5 standard units with the median at 7.5 standard units, and the downstream hardness ranges from 39 to 132 mg/L with a median of 58 mg/L as $CaCO_3$. It is likely that application of the stringent chronic criteria (87µg/L) is overly protective. Therefore, using best professional judgment, only the acute criterion (750 µg/L) was applied in the tentative NPDES Permit.

CSPA Comment No. 8. Effluent Limitations for Antimony

CSPA disagrees with Central Valley Water Board staff in excluding the 8 November 2005 effluent monitoring sample data value (at 6.7 µg/L) from the reasonable potential analysis (RPA) dataset. CSPA comments that the Central Valley Water Board staff discarded the 8 November 2005 data without any justification, based on Federal Regulations 40 CFR 122.44(d) that states, in part, "where valid, reliable, and representative effluent data or instream background data are available they MUST be used in applicable reasonable potential and limits derivation calculations. Data may not

be arbitrarily discarded or ignored." Therefore, CSPA asserts that the tentative NPDES Permit must contain an effluent limitation for antimony.

RESPONSE: Central Valley Water Board staff does not concur. Section 1.2 of the SIP states, in part, that "the RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy. Instances where such consideration is warranted include, but are not limited to, the following: evidence that a sample has been erroneously reported or is not representative of effluent or ambient receiving water quality. . ." As clearly stated in the Fact Sheet of the tentative NPDES Permit, the 8 November 2005 effluent monitoring sample is not "representative" of the effluent. A total of 15 samples were evaluated, and excluding the data value at 6.7 µg/L, the next highest detected concentration from the remaining 14 samples was at 0.23 µg/L and the average concentration is 0.10 µg/L. Using best professional judgment, Central Valley Water Board staff determined that the 8 November 2005 single data value at 6.7 µg/L is not representative of the effluent water quality (MEC at 0.23 µg/L and average at 0.10 µg/L), and therefore, exercised discretion as allowed by Section 1.2 of the SIP and considered the 8 November 2005 data inappropriate to use in determining reasonable potential. However, this Order requires antimony effluent samples taken monthly for one full year, and includes a reopener should the effluent discharge demonstrate reasonable potential.

CSPA Comment No. 9. Effluent Limitations for Chromium VI

CSPA comments that the tentative NPDES Permit fails to include an effluent [limitation] for Chromium VI as required by Federal Regulations 40 CFR 122.44, because the "wastewater discharge maximum observed effluent concentration was 27 µg/L," which exceeds the "Water Quality Standard for chromium VI [at] 16.0 µg/L."

RESPONSE: Central Valley Water Board staff does not concur. The maximum observed effluent concentration (MEC) out of 12 samples is 1.5 µg/L. The 27 µg/L chromium VI result was from the receiving water, not the effluent. As clearly stated in Section IV.C.3.lof the Fact Sheet of the tentative NPDES Permit, this value is an outlier and the Central Valley Water Board is authorized by the SIP to use its discretion to not use this unrepresentative data in the RPA.

CSPA Comment No. 10. Effluent Limitation for Fluoride

CSPA comments that the tentative NPDES Permit fails to include an effluent [limitation] for Fluoride as required by Federal Regulations 40 CFR 122.44, because the "wastewater discharge maximum observed effluent concentration was 4,520 µg/L," which exceeds the "Water Quality Standard for fluoride [at] 2,000 µg/L."

RESPONSE: Central Valley Water Board staff does not concur. The maximum observed effluent concentration (MEC) out of 2 samples is 180 µg/L, The 4520 µg/L fluoride result was from the receiving water, not the effluent. As clearly stated in Section IV.C.3.r of the Fact Sheet of the tentative NPDES Permit, this value is an outlier and the Central Valley Water Board is authorized by the SIP to use its discretion to not use this unrepresentative data in the RPA.

CSPA Comment No. 11. Effluent Limitations for Settleable Solids

CSPA comments that the tentative NPDES Permit fails to include an Antidegradation Policy discussion with regard to the removal of the settleable solids effluent limitations. CSPA asserts that failure to include settleable solids effluent limitations in the tentative NPDES Permit is contrary to 40CFR122.44.

RESPONSE: Central Valley Water Board staff does not concur. The Antidegradation Policy discussion in the Fact Sheet of the tentative NPDES Permit states "All other constituent would [either] improve the water quality in Skunk Creek and Laguna Creek," which includes settleable solids. Additionally, the tentative NPDES Permit requires settleable solids effluent samples monitored monthly, and includes a reopener should the effluent discharge demonstrate reasonable potential.

However, CPSA is correct that the previous permit (Order No. R5-2004-0001) contained settleable solids effluent limitations. However, the record reveals that the Facility upgrade resulted in improved effluent quality. Before the Facility upgrade, the MEC for settleable solids was 2.2 mL/L and the average was 0.2 mL/L; post-upgrade monitoring results show that the effluent did not contain detectable concentrations of settleable solids at a method detection level of less than 0.1 mL/L. Based on existing post-upgrade monitoring data, there is not a reasonable potential for the effluent from the Facility to cause or contribute to an excursion above applicable water quality standards for settleable solids. Therefore, the tentative NPDES Permit appropriately does not contain an effluent limitation for settleable solids.

CSPA Comment No. 12. Antidegradation Analysis

CSPA comments that the tentative NPDES Permit has an inadequate antidegradation analysis that does not comply with the requirements of Section 101(a) of the Clean Water Act, Federal Regulations 40 CFR 131.12, the State Board's Antidegradation Policy (Resolution 68-16) and California Water Code (CWC) Sections 13146 and 13247.

RESPONSE: Central Valley Water Board staff does not concur. The Discharger developed and submitted to the Central Valley Water Board a report titled, *Antidegradation Analysis for the City of Galt Wastewater Treatment Plant Expansion Project*, August 2009, (prepared by Robertson-Bryan, Inc. under contract to West

Yost Associates on behalf of the City of Galt). This Antidegradation Analysis Report provided a complete antidegradation analysis following the guidance provided by State Water Board Administrative Procedures Update (APU) 90-004. Pursuant to the APU, the Report evaluated whether changes in water quality resulting from the proposed increase in discharge (4.5 mgd year-round tertiary treated discharge) (1) are consistent with the maximum benefit to the people of the state, (2) will not unreasonably affect beneficial uses, (3) will not cause water quality to be less than water quality objectives, and (4) provides protection for existing in-stream uses and water quality necessary to protect those uses. The satisfaction of the Antidegradation Requirement is discussed in detail in the Fact Sheet (pp. F-51 through F-58).

With respect to land discharges, additional flow cannot be land applied, because the agricultural area is completely built-out. Since the land reuse discharge flow does not increase, there is no change to the potential groundwater quality effects of the expansion project related to irrigation reuse. Further, as a result of the Facility upgrades and improved effluent quality, it is expected that any potentially negative groundwater quality effects of current operations would decrease. Therefore, no antidegradation issues with respect to groundwater impacts from irrigation reuse are addressed in the Fact Sheet of the tentative NPDES Permit. By approving the land discharges in prior orders, the Board determined that these land discharges meet the requirements of Resolution 68-16.

CVCWA COMMENTS

CVCWA Comment No. 1. Copper Effluent Limits

The Tentative Order includes an average monthly effluent limitation of 3.1 micrograms per liter (ug/L) and maximum daily effluent limitation of 4.3 ug/L for copper. (Tentative Order at p. 12.) As explained in the hardness section of the Tentative Order's fact sheet, the concave up/concave down approach traditionally used to derive such limitations was not used in this case. (*Id.* at pp. F-20 to F-22.) The proposed effluent limitations are overly stringent and the use of the concave up/concave down approach is technically sound and otherwise appropriate for the City's discharge. Therefore, we request that you revise the final effluent limitations for copper in accordance with the concave up/concave down approach.

RESPONSE: Central Valley Water Board staff does not concur. In the proposed permit, where appropriate, the methodology developed in a 2006 Study[1] was used to establish the appropriate receiving water hardness to develop protective water quality-based effluent limitations for CTR metals with hardness-dependent criteria. As discussed in the Fact Sheet, the proposed Order established the criteria for

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

hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP[1], the CTR[2] and State Water Board Order No. WQO 2008-0008 (City of Davis). The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4), Table 4, note 4.) The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQO 2008-0008, p. 11). The Central Valley Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10.).

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

One key assumption made in the 2006 Study is that the background metals concentration is at the criteria (e.g., does not exceed the criteria). However, the receiving water has been shown to exceed the CTR criteria for copper, based on paired hardness and metals receiving water data from February 2002 through March 2008. Therefore, the methodology described in the 2006 Study was not used for copper. As discussed in the State Water Board's Davis Order, The Central Valley Water Board has considerable discretion in determining ambient hardness (*Id.*, p.10.) Due to concerns with elevated copper in the receiving water exceeding the CTR criteria, Central Valley Water Board staff used a more conservative approach for establishing the CTR criteria for copper, by using the lowest upstream receiving water hardness to calculate the criteria. Based on the site-specific conditions for this discharge, this approach is reasonable and necessary to protect the beneficial uses of the receiving water.

CVCWA Comment No. 2. Bis-2 Effluent Limits

The Tentative Order also includes an average monthly effluent limitation of 1.8 ug/L and maximum daily effluent limitation of 3.6 ug/L for Bis-2. (Tentative Order at p. 12.) A

[1] The SIP does not address how to determine the 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.
[2] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), 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.

single detection was the basis for the finding of reasonable potential for Bis-2 even though duplicate sample results were non-detect. Bis-2 is a common contaminant of sample containers, sampling apparatus and analytical equipment. The source of the Bis-2 value is likely plastics used for sampling or analytical equipment and thus not representative of the effluent or receiving water quality. Therefore, we ask that you exclude the suspect sample from the reasonable potential analysis, remove the effluent limitations for Bis-2 from the Tentative Order and revise the fact sheet accordingly. The State Water Resources Control Board approved this approach in its recent order regarding the City of Tracy's waste discharge requirements. (Order WQ 2009-0003 at pp. 17-18.)

RESPONSE: Central Valley Water Board staff does not concur. See response to Discharger Comment No. 3. Furthermore, for two reasons the City of Tracy situation is not applicable to the City of Galt. First, for the City of Tracy a split sample was collected, which is where one effluent sample is collected and split for analysis at two separate laboratories. For the City of Galt a duplicate grab sample was collected approximately 30 minutes after the first sample. It would not be unusual to have different results from two grab samples collected at different times. Second, for the City of Tracy, the issue was that one sample result was a j-flagged estimated value and other sample result was an actual result above the reporting level. The result with the higher degree of confidence (i.e., measured above reporting level) was used in the reasonable potential analysis. For the City of Galt, the issue is one sample that is non-detect and one sample with a detection above the reporting level. In addition, regardless if the effluent sample is considered, the maximum background Bis-2 concentration exceeds criteria. Therefore, an effluent limitation is necessary in accordance with the SIP.