



California Sportfishing Protection Alliance

"An Advocate for Fisheries, Habitat and Water Quality"

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20 June 2016

Ms. Nichole Morgan, Supervising WRCE
Mr. Joshua Palmer, Sr. WRCE
Ms. Elizabeth Thayer, WRCE
Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6144
RB5S-NPDES-Comments@waterboards.ca.gov

VIA: Electronic Submission
Hardcopy if Requested

RE: Renewal of Waste Discharge Requirements (NPDES No. CA0077712) for City of Auburn Wastewater Treatment Plan, Placer County

Dear Mesdames Morgan, Thayer and Mr. Palmer,

The California Sportfishing Protection Alliance (CSPA) has reviewed the proposed Waste Discharge Requirements (NPDES No. CA0077712) for City of Auburn Wastewater Treatment Plant (Permit) and respectfully submits the following comments.

CSPA requests status as a designated party for this proceeding. CSPA is a 501(c)(3) public benefit conservation and research organization established in 1983 for the purpose of conserving, restoring, and enhancing the state's water quality and fishery resources and their aquatic ecosystems and associated riparian habitats. CSPA has actively promoted the protection of water quality and fisheries throughout California before state and federal agencies, the State Legislature and Congress and regularly participates in administrative and judicial proceedings on behalf of its members to protect, enhance, and restore California's degraded water quality and fisheries. CSPA members reside, boat, fish and recreate in and along waterways throughout the Central Valley, including Placer County.

The proposed Permit fails to contain an Effluent Limitation for aluminum based on chronic toxicity in accordance with Federal Regulations 40 CFR 122.44, US EPA's interpretation of the regulation, and California Water Code, Section 13377.

The proposed Permit, pages F-17 and 18, states that:

*"f. **Water Effect Ratio (WER) for Aluminum.** The Discharger conducted studies to evaluate the toxicity of aluminum in Auburn Ravine. In June 2010, the Discharger began an Aluminum Water-Effect Ratio (WER) Study using USEPA's Interim Guidance on Determination and Use of Water-Effect Ratios for Metals. Toxicity tests were conducted using a range of dilutions from 100 percent effluent to 100 percent laboratory water. The*

test species was Cerodaphnia dubia. 100 percent survival was observed at every aluminum concentration up to 5,000 ug/L. In October 2010, the Discharger continued the Aluminum WER study using 100 percent Auburn Ravine water ranging to 100 percent lab water. The test species were Cerodaphnia dubia and Rainbow Trout. Cerodaphnia dubia was the more sensitive test species. On 16 November 2010, the Discharger submitted a report titled "City of Auburn Aluminum Toxicity Study", that presented information that may be used to develop a site specific water-effect ratio (WER) for aluminum. A site-specific aluminum WER for Auburn Ravine was calculated to be >12.4. The study showed that aluminum concentrations in excess of 5,000 ug/L had no significant effects on the tested species. Application of the site-specific aluminum WER results in a chronic aluminum water quality criterion of >1079 ug/L. The Aluminum Toxicity Study completed to date demonstrated that aluminum concentrations exceeding 5,000 ug/L had no significant effects on the tested species.

The City of Auburn Aluminum Toxicity Study followed USEPA's Interim Guidance on Determination and Use of Water-Effect Ratios for Metals, USEPA, February 1994. No significant effects were shown in samples containing extremely high aluminum concentrations, so only one testing event was conducted after consultation with Central Valley Water Board staff. This means that a complete WER study was not performed. However, the information provided in the City of Auburn Aluminum Toxicity Study is sufficient for use in interpreting the Basin Plan's narrative toxicity objective. The Aluminum Toxicity Study indicates that a WER of >12.4 applied to the NAWQC is protective of aquatic life in the Auburn Ravine. Implementing a WER of >12.4 to the 87 ug/L chronic criterion results in a chronic aquatic life criterion of >1078.8 ug/L. The Aluminum Toxicity Study did not evaluate the acute criterion, therefore, the appropriate criterion to implement the Basin Plan's narrative toxicity objective for the protection of the aquatic beneficial use is the acute criterion of 750 ug/L, as recommended by USEPA's NAWQC. In this instance, the most stringent water quality objective for aluminum is the Department of Public Health's Secondary Maximum Contaminant Level (MCL) of 200 ug/L. Based on the site-specific evaluation of the effluent data, implementation of the 200 ug/L MCL will be protective of aquatic life and human health beneficial uses." (Emphasis added)

As stated, a complete WER was not performed. Yet, the proposed Permit uses the results of the incomplete WER to eliminate the chronic water quality criterion for aluminum.

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." The Basin Plan contains a narrative water quality objective for toxicity that states in part that "[a]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life" (narrative toxicity objective). Where numeric water quality objectives have not been established, 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a), proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter. U.S. EPA developed National Recommended Ambient Water Quality Criteria for

protection of freshwater aquatic life for aluminum to prevent toxicity to freshwater aquatic life. The recommended ambient criteria four-day average (chronic) and one-hour average (acute) criteria for aluminum are 87 mg/l and 750 mg/l, respectively.

US EPA's 87 ug/l chronic criterion was developed using low pH and hardness testing. California Central Valley waters, the Sacramento River, at the Valley floor, have been sampled to have hardness as low as 39 mg/l CaCO₃ by the USGS in February 1996 for the *National Water Quality Assessment Program*. Contributory streams, especially foothill streams, have also been sampled and shown to contain even lower hardness levels. US EPA recognized in their ambient criteria development document, (Ambient Water Quality Criteria for Aluminum, EPA 440/5-86-008) that the pH was in the range 6.5 to 6.6 and that the hardness was below 20 mg/l. Typical values for pH and hardness in the Central Valley alone warrant use of the chronic ambient criteria for aluminum. Despite the hardness and pH values used in the development of the criteria; U.S. EPA's conclusions in their *Ambient Criteria for the Protection of Freshwater Aquatic Life* recommends that application of the ambient criteria as necessary to be protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria.

The Regional Board and their proposed Permit cites US EPA's *Ambient Criteria for the Protection of Freshwater Aquatic Life for Aluminum* (criteria) as not being representative or necessary because the chronic criteria were based on a low hardness and low pH. The Regional Board cites one section of the criteria development document but ignores the final recommendation to use the recommended criteria absent a site-specific objective for aluminum. The Regional Board then defaults to the US EPA recommended acute criteria of 750 ug/l. The Regional Board's citation of the criteria development document is incomplete its review, for example the *criteria* development document (EPA 440/5-86-008) also cites that:

169 ug/l of aluminum caused a 24% reduction in the growth of young brook trout.
174 ug/l of aluminum killed 58% of the exposed striped bass.
Bioaccumulation factors ranged from 50 to 231 for young brook trout exposed to aluminum for 15 days.
Aluminum at 169 ug/l caused a 24% reduction in the weight of young brook trout.

US EPA recommends that understanding the *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* is necessary in order to understand the text, tables and calculations of a criteria document. The Regional Board's assessment of the use of low hardness and low pH clearly shows they did not heed EPA's advice in reviewing the criteria development procedures for water quality criteria or the final recommendations. The Regional Board occasionally cites individual aluminum toxicity testing at Yuba City; again individual testing is not a valid replacement for developing fully protective criteria. A prime example of a state utilizing good water quality standards development techniques for developing a site specific standard for aluminum is the state of Indiana where a final chronic criterion of 174 ug/l was established in 1997. In 2003, Canada adopted pH dependent freshwater aquatic life criteria for aluminum that ranges from 84 ug/l to 252 ug/l. Ignoring the final recommendation of the criteria misses the protective intermediate measures to protect against mortality and reductions to growth and reproduction. The Regional Board's

single use of the acute criteria for aluminum is not protective of the beneficial uses of the receiving stream.

The drinking water maximum contaminant level (MCL), which is included as a Basin Plan Water Quality Chemical Constituents Objective, for aluminum is 1,000 as a primary MCL and 200 µg/l as a secondary MCL.

Based on information included in analytical laboratory reports submitted by the Discharger, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life, and, therefore to violate the Basin Plan's narrative toxicity objective.

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." US EPA has interpreted 40 CFR 122.44(d) in *Central Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting Program* (Factsheets and Outreach Materials, 08/16/2002) that although States will likely have unique implementation policies there are certain tenets that may not be waived by State procedures. These tenets include that "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." The California Water Code (CWC), Section 13377 states in part that: "...the state board or the regional boards shall...issue waste discharge requirements... which apply and ensure compliance with...water quality control plans, or for the protection of beneficial uses..." Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. A water quality standard for Failure to include an effluent limitation for aluminum in the proposed permit violates 40 CFR 122.44 and CWC 13377.

The proposed Permit contains numerous incomplete assessments of other water bodies at other wastewater treatment plants for aluminum. However, there is no relevance to this information. There is no scientific evidence that the water column chemistry is similar for any of the cited locations or that the sensitive aquatic life species are the same. Site specific water quality standards may be developed for individual constituents, such as aluminum, but the Regional Board simply cites one incomplete assessment after another and presents not a simple point of evidence that the data from other locations is in any way relevant to the City of Auburn. If the Regional Board and the wastewater Dischargers are so convinced that aluminum is not chronically toxic to fish in the Central Valley, why do they not actually complete one of their studies? Why have they not developed an actual site-specific limitation of water quality standard? Year after year the Regional Board continues to cite incomplete and irrelevant data to defend the failure to adequately regulate aluminum as recommended time after time by US EPA and their properly adopted ambient criteria for the protection of freshwater aquatic life.

On February 16, 2012, US EPA issued a letter to the Regional Board commenting on the Clear Creek NPDES permit. That letter, as it relates to aluminum is also applicable to the City of Auburn.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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February 16, 2012

Bryan J. Smith
Supervising Water Resource Control Engineer
Central Valley Regional Water Quality Control Board
415 Knollcrest Drive, Suite 100
Redding, CA 96002

Re: Tentative Order/Draft NPDES Permit for Clear Creek Community Services District
Water Treatment Plant (NPDES Permit No. CA0083828)

Dear Mr. Smith:

Thank you for the opportunity to review and comment on the tentative order/draft permit (NPDES Permit No. CA0083828) for the discharge from the Clear Creek WTP to Clear Creek, which was public noticed on January 17, 2012. We were not afforded the opportunity to review and comment on a preliminary draft version of this permit provided only one day before the permit was public noticed. We have concerns about the draft permit that need to be addressed to ensure the permit effectively protects water quality and complies with NPDES requirements. Specifically, we are concerned with the use of the Arid West recalculation procedure to implement alternative aluminum criteria for the narrative toxicity standard and that applicable wasteload allocations have not been included in the permit. Pursuant to 40 CFR 123.44, we reserve the right to object to issuance of this permit if our concerns are not addressed.

A. Aluminum

As numeric criteria for aluminum are not included in the Basin Plan or California Toxics Rule, the Central Valley Water Board (Regional Board) implements the Basin Plan's narrative toxicity standard with other "relevant numerical criteria and guidelines developed and/or published by other agencies and organizations" (*Water Quality Control for the Sacramento and San Joaquin River Basins* (Basin Plan), p. IV-17.00). In the past, the Regional Board used EPA's National Recommended Water Quality Criteria for aluminum to implement the narrative standard, since the chronic criterion is the most stringent of applicable aluminum criteria. Other criteria that may be applicable are included in the State Water Resources Control Board's (State Board) *Compilation of Water Quality Goals* searchable online database, which includes State and federal

drinking water standards (primary and secondary maximum contaminant levels), agricultural water quality goals, and EPA's National Recommended Water Quality Criteria. The Basin Plan references this compilation of criteria for use in implementing the narrative water quality standards.

For a couple of years, dischargers in the Central Valley have been contesting the use of the EPA criteria for aluminum in implementation of the narrative standard. The dischargers contest the use of the 87 ug/l chronic criterion for the protection of aquatic life due to information included in a footnote to the criteria, which recommends a Water Effects Ratio be developed for three reasons:

1. "The value of 87 $\mu\text{g/l}$ is based on a toxicity test with the striped bass in water with $\text{pH} = 6.5\text{--}6.6$ and hardness $<10\text{ mg/L}$. Data in "Aluminum Water-Effect Ratio for the 3M Plant Effluent Discharge, Middleway, West Virginia" (May 1994) indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time.
2. In tests with the brook trout at low pH and hardness, effects increased with increasing concentrations of total aluminum even though the concentration of dissolved aluminum was constant, indicating that total recoverable is a more appropriate measurement than dissolved, at least when particulate aluminum is primarily aluminum hydroxide particles. In surface waters, however, the total recoverable procedure might measure aluminum associated with clay particles, which might be less toxic than aluminum associated with aluminum hydroxide.
3. EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 g aluminum/L, when either total recoverable or dissolved is measured."

Antibacksliding and antidegradation concerns arise when the previous permit contains effluent limits for aluminum based on the EPA criteria and the Regional Board implements less stringent criteria in a reissued permit. EPA raised these concerns in our June 24, 2010 letter regarding the Placer County SMD 1 WWTP permit. EPA also expressed these concerns at the September 22, 2010 Board meeting regarding both the Placer County SMD 1 WWTP and the City of Auburn WWTP permits. Since then, the Regional Board has been implementing the next most stringent criteria (the secondary MCL of 200 ug/l) when there are no previous permit limits and the hardness of the receiving water is substantially greater than 10 mg/l.

Additionally, the State Board remanded the El Dorado Irrigation District Deer Creek WWTP permit to the Regional Board based on a petition by the California Sportfishing Protection Alliance regarding the implementation of appropriate criteria for aluminum (*CA SPA v. CRWQCB, Case #34-2009-80000309*). The December 2, 2010 decision concluded that the Regional Board did not sufficiently justify the use of the secondary MCL in lieu of EPA's chronic aluminum criterion for the protection of aquatic life.

In the Clear Creek WTP draft permit, the Regional Board decided that the EPA chronic aluminum criterion was overly stringent based on the following:

1. The hardness of Clear Creek ranges from 29 – 39 mg/l, which is greater than the hardness used to develop the EPA criteria ($<10\text{ mg/l}$).

2. The pH of Clear Creek ranges from 4.2 – 7.7 S.U., which is different than the pH range used in the development of the EPA criteria (6.5 – 6.6 S.U.).
3. The chronic criterion calculated with the Arid West recalculation procedure and the minimum Clear Creek hardness (29 mg/l) is 325 ug/l.
4. The City of Auburn study, performed with hardness and pH similar to Clear Creek, resulted in an aluminum criterion of 1,079 ug/l.

Considering the facility's maximum effluent concentration of aluminum was 139 ug/l, the Regional Board found no reasonable potential to exceed the 200 ug/l secondary MCL or the 325 ug/l recalculated criteria, and therefore, no effluent limit for aluminum was imposed.

Although there are no backsliding issues because the previous permit did not include an effluent limitation for aluminum, the Regional Board has not provided sufficient justification for the use of the secondary MCL or the Arid West recalculated criteria in determining reasonable potential and establishing effluent limitations. EPA has not formally changed its recommended aluminum criteria and the appropriate aluminum criteria for higher hardness situations remains uncertain. EPA's criteria apply to a large pH range of 6.5 – 9.0 S.U. The footnote to EPA's criteria recommends a water effects ratio be conducted, but this footnote does not invalidate the current recommended criteria. It appears that the discharger would meet EPA's chronic criteria for aluminum at least some of the time, as the effluent concentration varies between 29 - 139 ug/l, and since the discharger uses poly-aluminum chloride in the treatment process, the control of aluminum in the discharge is important.

It is inappropriate to assume the Arid West recalculation procedure is valid for use in the Central Valley. The procedure addresses arid ecoregions in the southwest and the species list has not been demonstrated to be appropriate for the Central Valley. It is our understanding that the Regional Board is drafting a white paper that fully evaluates the applicability of the Arid West procedure to the Central Valley; however, this report has not been provided prior to implementing the procedure in permits. The Arid West Report specifically states that, "it is strongly recommended that local state and regional USEPA staff should be consulted prior to using these findings to support or propose regulatory change" (p. ii, *Evaluation of the EPA Recalculation Procedure in the Arid West Technical Report*, Arid West Water Quality Research Project, May 2006). We have not been consulted on use of this procedure prior to its implementation in permits and we were not provided sufficient time to review and comment on the pre-public notice draft of the Clear Creek WTP permit, as agreed to in our NPDES Memorandum of Agreement with the California State Board.

The State Board decision on the El Dorado Irrigation District Deer Creek WWTP permit cited above states, "there is no evidence showing that the criteria calculated in the Arid West Report properly may be applied to other streams in the West." It also states, "it is not clear, for example, that the aquatic species resident to the "arid" West are representative of the contaminant sensitivity of species resident to the other areas in the West. In the absence of evidence that the conclusions of the Arid West Report can be extrapolated to other areas, the Court finds that the usefulness of the Report is limited.

The Report may provide guidance for the development of site-specific criteria, but it does not establish a new set of criteria applicable to all streams in the West region.”

Lastly, it is inappropriate to use an incomplete water effects ratio study for a different waterbody (Auburn Ravine) as further justification to choose less stringent criteria for implementation of the narrative standard in other permits.

In conclusion, the Regional Board must provide adequate justification for this new approach to implementing the narrative toxicity standard. Since the white paper is not finalized, any permits that implement this approach and their associated fact sheets must describe, in detail, the applicability of the Arid West recalculation procedure to Central Valley waters, the details of the procedure, and how it is different than the EPA recalculation procedure. The EPA recalculation procedure can be found in Appendix L of EPA's Water Quality Standards Handbook:
http://water.epa.gov/scitech/swguidance/standards/upload/2002_06_11_standards_handbook_handbookappxL.pdf

We expect the Regional Board to reconsider the reasonable potential analysis for the Clear Creek WTP permit and consult with us on this new approach. We look forward to working with you to establish a technically and legally sound procedure in the white paper for determination of the appropriate numeric aluminum criteria to implement the narrative toxicity standard in the Basin Plan.

B. TMDL Wasteload Allocations

Based on the information included in the Fact Sheet, it is unclear whether TMDLs developed in the Central Valley for mercury, chlorpyrifos and diazinon are applicable to the discharge. The Fact Sheet refers to the TMDL for diazinon, but should fully explain whether or not the TMDLs are applicable. If so, the permit must include water quality-based effluent limitations consistent with the wasteload allocations.

We appreciate the opportunity to provide input on the draft permit. If you would like to discuss these comments, please contact Elizabeth Sablad of my staff at (415) 972-3044.

Sincerely,



David Smith, Manager
NPDES Permits Office (WTR-5)

The proposed permit contains an inadequate reasonable potential by using incorrect statistical multipliers as required by Federal regulations, 40 CFR § 122.44(d)(1)(ii) for non-priority pollutants, specifically aluminum and salinity constituents.

Federal regulations, 40 CFR § 122.44(d)(1)(ii), state “when determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, **the variability of the pollutant or pollutant parameter in the effluent**, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.” Emphasis added. The reasonable potential analysis fails to consider the statistical variability of data and laboratory analyses as explicitly required by the federal regulations. The proposed Permit simply uses the highest recorded sampling data point in assessing reasonable potential, Regional Board staff did no statistical analysis in developing the permit for non-priority pollutants. The procedures for computing variability are detailed in Chapter 3, pages 52-55, of USEPA’s *Technical Support Document for Water Quality-based Toxics Control*. A statistical analysis results in a projected maximum effluent concentration (MEC) based on laboratory variability and the resulting MEC is greater than was obtained from the actual sampling data. The result of using statistical variability is that a greater number of constituents will have a reasonable potential to exceed water quality standards and therefore a permit will have a greater number of effluent limitations. The intentional act of ignoring the Federal regulation has a clear intent of limiting the number of regulated constituents in an NPDES permit. The failure to utilize statistical variability results in significantly fewer Effluent Limitations that are necessary to protect the beneficial uses of receiving waters. The reasonable potential analyses for non-CTR constituents are flawed and must be recalculated.

The Central Valley Regional Water Board (Region 5) NPDES Proposed Permit Establish Effluent Limitations for Metals Based On the Hardness of the Effluent and/or the Downstream Water as Required by Federal Regulations, The California Toxics Rule (CTR, 40 CFR 131.38(C)(4)) and Uses Mixing to Determine Reasonable Potential and Develop Effluent Limitations Contrary to the SIP, Section 1.4.2.2.

Federal Regulation 40 CFR 131.38(c)(4) states that: “For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/l or less as calcium carbonate, the actual ambient hardness of the surface water shall be used in those equations.” (Emphasis added). The definition of *ambient* is “in the surrounding area”, “encompassing on all sides”. Ambient conditions are in-stream conditions unimpacted by the discharge. Confirming this definition, the SIP Sections 1.4.3.1 *Ambient Background Concentration as an Observed Maximum* and 1.4.3.2 state in part that: “If possible, preference should be given to ambient water column concentrations measured immediately upstream or near the discharge, but not within an allowed mixing zone for the discharge. The RWQCB shall have discretion to consider if any samples are invalid for use as applicable data due to evidence that the sample has been erroneously reported or the sample is not representative of the ambient receiving water column that will mix with the discharge.” The Sacramento Superior Court in Case No. 34-2013-80001358-CU-WM-GDS (CSPA vs the Regional Water Quality Control Board regarding the Sacramento Regional Wastewater Treatment Plant) held that the “ambient hardness of the surface water” could not contain wastewater effluent.

The Regional Board has used the effluent hardness and the instream effluent hardness measured immediately downstream of the point of discharge, calling such “ambient”. Ambient is defined as “surrounding”; not “in the middle of”. Regional Board staff have begun to define any hardness used (effluent, upstream and downstream) as being “ambient”. The result of using a higher effluent or downstream hardness value is that metals are toxic at higher concentrations, discharges have less reasonable potential to exceed water quality standards and the resulting Permits have fewer Effluent Limitations.

The proposed Permit, page F-16, states that:

“Assimilative Capacity/Mixing Zone. Based on the available information, the worst-case dilution for Auburn Ravine is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that discharge limitations are end-of-pipe limits with no allowance for dilution within the receiving water.

Prior to 2005, the Discharger conducted a mixing zone study and submitted the results of a study of the variation of a conservative constituent (electrical conductivity) downstream of the point of discharge. However, the Discharger’s study recommended that additional studies and modification of the diffuser would be necessary to determine how much assimilative capacity exists, if any, for any individual constituent. No further information/studies have been provided by the Discharger. Therefore, dilution and assimilative capacity within the receiving water were not considered in establishing effluent limitations in this Order. For pollutants that demonstrated reasonable potential, effluent limitations were applied at the point of discharge.” (Emphasis added)

The hardness of the effluent ranged from 66 mg/L to 130 mg/l. The minimum ambient receiving water hardness was 13 mg/l.

The proposed Permit, page F-19, states that: “Staff recommends that the Board use the ambient hardness values shown in Table F-5...” The hardness data in Table F-5 ranges from 44 to 66 mg/l.

The hardness values in Table F-5 can only be calculated as the effluent mixes with the receiving stream. The hardness values in Table F-1 are described as “Downstream ambient hardness” and “upstream ambient hardness” the downstream “ambient” hardness is a mixture of the effluent and the upstream ambient hardness. Proposed Permit, page F-23, states that “EPA’s simple mass balance equation is used to evaluate if discharge at the computed ECA is protective.”

EPA’s simple mass balance equation is from US EPA’s Permit Writers Manual (EPA-833-K-10—001, September 2010) page 6-24. The mass balance equation is used to determine parameters as wastewater mixes with a receiving stream.

Table F-5 hardness data and the use of EPA’s simple mass balance equation confirms that mixing of the surface water and the effluent was used to derive the hardness data points used in determining if reasonable potential exists for hardness dependent metals and for the development of effluent limitations.

First: The proposed Permit, as cited above, clearly states that since the receiving stream is ephemeral a mixing zone was not appropriate of allowed.

Second: The SIP, Section 1.4.2.2, contains extensive requirements for a mixing zone study, which must be analyzed before a mixing zone is allowed for a wastewater discharge. A mixing zone analysis has not been conducted for hardness dependent toxic metals.

Third: The Permit Writers Manual, page 6-28, states that “...if there is rapid and complete mixing in a river or stream, the permit writer could use a simple mass-balance equation to model the effluent and receiving water.” There is no information in the record that there is rapid and complete mixing in Auburn Ravine. To the contrary, since the mixing zones were in part denied due to the diffuser configuration, one can assume that complete and rapid mixing was not occurring.

Fourth: The Permit Writers Manual, page 6-24, states that: “*For modeling heavy metals in an incomplete mix situation, the permit writer might choose the CORMIX model. For pollutants such as BOD, nutrients, or non-conservative parameters, the effects of biological activity and reaction chemistry should be modeled, in addition to the effects of dilution, to assess possible impacts on the receiving water. This manual focuses only on dilution of a pollutant discharged to the receiving water and does not address modeling biological activity or reaction chemistry in receiving waters. For additional information, permit writers should discuss modeling that accounts for biological activity or reaction chemistry with water quality modelers or other water quality specialists as needed and consult EPA’s Water Quality Models and Tools Website.*” Most current toxicity studies carefully vary test water characteristics like pH, calcium, alkalinity, dissolved organic carbon, chloride, sodium, suspended solid s, and others while observing the responses of test organisms. Use of the US EPA Simple mass balance equation does not account for other parameters that impact toxicity and is overly simplistic and inappropriate to use to develop or evaluate limitations for toxic hardness dependent metals. The fact that metals toxicity can be affected by all the cited parameters is well documented in the CTR biological opinion and in US EPA’s development of the latest ambient criteria for copper (*Aquatic Life Ambient Freshwater Quality Criteria—Copper 2007 Revision*). The model for copper requires ten input parameters to calculate a freshwater copper criterion (a saltwater BLM is not yet available): temperature, pH, dissolved organic carbon (DOC), calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity.

The result of using a higher effluent or downstream hardness value is that metals are toxic at higher concentrations, discharges have less reasonable potential to exceed water quality standards and the resulting Permits have fewer Effluent Limitations. The most typical wastewater discharge situation is where the receiving water hardness is lower than the effluent hardness. Metals are more toxic in lower hardness water. For example; if the receiving water hardness is 25 mg/l and the effluent hardness is 50 mg/l a corresponding chronic discharge limitation for copper based on the different hardness’s would be 2.9 ug/l and 5.2 ug/l, respectively. Obviously, the limitation based on the ambient receiving water hardness is more restrictive. The Regional Board’s arguments with regard to effluent and/or downstream receiving water hardness can only be made if in-stream mixing is considered. Mixing zones may

be granted in accordance with extensive requirements contained in the SIP and the Basin Plan to establish Effluent Limitations. Mixing zones cannot be considered in conducting a reasonable potential analysis to determine whether a constituent will exceed a water quality standard or objective. The Regional Board's approach in using the effluent or downstream hardness to conduct a reasonable potential analysis and consequently establish effluent limitations can only be utilized if mixing is considered; otherwise the ambient (upstream) hardness results in significantly more restrictive limitations. A mixing zone allowance has not been discussed with regard to this issue and therefore does not comply with the SIP.

The Regional Board incorrectly cited the State Board's Water Quality Order (WQO)(No. 2008 0008) for the City of Davis as allowing complete discretion in utilizing the downstream hardness in deriving limits for toxic metals. WQO 2008 0008 in requiring the Regional Board to modify their permit states: "Revise the Fact Sheet to include a discussion of the appropriate hardness to use to protect from acute toxicity impacts (which can occur in short-term periods including storm events) in the receiving waters. The Fact Sheet should also state that the lowest valid upstream receiving water hardness values of 78 mg/l for Willow Slough Bypass and 85 mg/l for Conaway Ranch Toe Drain should be used to determine reasonable potential for the effluent to exceed the hardness-dependent metal CTR criteria, unless additional evidence and analysis, consistent with this Order, demonstrates that different hardness values are appropriate to use and are fully protective of water quality." The Regional Board did not use the lowest observed upstream hardness as required in WQO 2008 0008. The Regional Board has not provided additional evidence and analysis demonstrating that different hardness is fully protective of beneficial uses. To the contrary, the Regional Board does not address the March 24, 2000 the US Fish and Wildlife Service (Service) and the National Marine Fisheries Service (NMFS) CTR Biological Opinion cited above stating that the use of hardness alone is not protective of beneficial uses and recommending the sole use of the ambient upstream hardness in developing limits for toxic metals.

The issue is that the Regional Board fails to comply with the regulatory requirement to use the ambient instream hardness for limiting hardness dependent metals under the CTR. Use of the effluent or the effluent receiving water mix simply does not meet the definition of the actual ambient hardness of the receiving stream. The proposed Permit failure to include Effluent Limitations for metals based on the actual ambient hardness of the surface water is contrary to the cited Federal Regulation and must be amended to comply with the cited regulatory requirement.

The proposed Permit Page F-19 states that: "The ambient receiving water hardness values shown in Table F-5 are consistent with design discharge conditions and will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions." The proposed Permit then on Page F-21 states that because the receiving stream is ephemeral the design flow is zero, however on the same page assesses the design flow as CTR design discharge conditions (1Q10 = 1.05 cfs) and 7Q10 = 1.50 cfs) have been selected to represent reasonable worst case receiving water flow conditions. The design flow in an ephemeral stream should appropriately be zero.

The proposed Permit, page F-21, states that: "*As shown above in Figure F-1, ambient hardness is variable. Because of the variation, there is no single hardness value that describes the ambient*

receiving water for all possible scenarios (e.g., minimum, maximum, mid-point). While the hardness selected must be the hardness of the ambient receiving water, selection of an ambient receiving water hardness that is too high would result in effluent limitations that do not protect beneficial uses. Also, the use of minimum ambient hardness would result in criteria that may not be representative considering the wide range of ambient conditions.

Reasonable worst-case ambient conditions. To determine whether a selected ambient hardness value results in effluent limitations that are fully protective while complying with federal regulations and state policy, staff have conducted an analysis considering varying ambient hardness and flow conditions. To do this, the Central Valley Water Board has ensured that the receiving water hardness and criteria selected for effluent limitations are protective under “reasonable-worst case ambient conditions. These conditions represent the receiving water conditions under which derived effluent limitations would ensure protection of beneficial uses under all ambient flow and hardness conditions.”

The use of the upstream minimum surface water ambient hardness would result in criteria that are fully protective and prevent toxicity to aquatic organisms. The Regional Board’s use of US EPA’s simple mass balance equation does not provide any evidence that the developed criteria is protective under any circumstances. The mass balance equation assumes a rapid and complete mix within the receiving stream, which has not been documented. The simple mass balance equation does not account for the numerous other parameters that can influence metals toxicity. The Regional Board has no reliable information that using a hardness other than the lowest observed upstream ambient hardness is protective of the aquatic life beneficial use of the receiving stream.

The reasonable potential analysis for all hardness dependent metals must be recalculated using the lowest observed upstream ambient hardness and limitations developed accordingly.

The proposed Permit contains Effluent Limitations less stringent than the existing permit contrary to the Antidegradation requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1).

Under the Clean Water Act (CWA), point source dischargers are required to obtain federal discharge (NPDES) permits and to comply with water quality based effluent limits (WQBELs) in NPDES permits sufficient to make progress toward the achievement of water quality standards or goals. The antidegradation and antidegradation rules clearly spell out the interest of Congress in achieving the CWA’s goal of continued progress toward eliminating all pollutant discharges. Congress clearly chose an overriding environmental interest in clean water through discharge reduction, imposition of technological controls, and adoption of a rule against relaxation of limitations once they are established.

Upon permit reissuance, modification, or renewal, a discharger may seek a relaxation of permit limitations. However, according to the CWA, relaxation of a WQBEL is permissible only if the requirements of the antidegradation rule are met. The antidegradation regulations prohibit EPA from reissuing NPDES permits containing interim effluent limitations, standards or conditions less stringent than the final limits contained in the previous permit, with limited exceptions.

These regulations also prohibit, with some exceptions, the reissuance of permits originally based on best professional judgment (BPJ) to incorporate the effluent guidelines promulgated under CWA §304(b), which would result in limits less stringent than those in the previous BPJ-based permit. Congress statutorily ratified the general prohibition against backsliding by enacting §§402(o) and 303(d)(4) under the 1987 Amendments to the CWA. The amendments preserve present pollution control levels achieved by dischargers by prohibiting the adoption of less stringent effluent limitations than those already contained in their discharge permits, except in certain narrowly defined circumstances.

When attempting to backslide from WQBELs under either the antidegradation rule or an exception to the antibacksliding rule, relaxed permit limits must not result in a violation of applicable water quality standards. The general prohibition against backsliding found in §402(o)(1) of the Act contains several exceptions. Specifically, under §402(o)(2), a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant *if*: (A) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation; (B)(i) information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (ii) the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section; (C) a less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy [(e.g., Acts of God)]; (D) the permittee has received a permit modification under section 1311(c), 1311(g), 1311(h), 1311(i), 1311(k), 1311(n), or 1326(a) of this title; or (E) the permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit, and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

Even if a discharger can meet either the requirements of the antidegradation rule under §303(d)(4) or one of the statutory exceptions listed in §402(o)(2), there are still limitations as to how far a permit may be allowed to backslide. Section 402(o)(3) acts as a floor to restrict the extent to which BPJ and water quality-based permit limitations may be relaxed under the antibacksliding rule. Under this subsection, even if EPA allows a permit to backslide from its previous permit requirements, EPA may never allow the reissued permit to contain effluent limitations which are less stringent than the current effluent limitation guidelines for that pollutant, or which would cause the receiving waters to violate the applicable state water quality standard adopted under the authority of §303.49.

Federal regulations 40 CFR 122.44 (l)(1) have been adopted to implement the antibacksliding requirements of the CWA:

(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must

be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under Sec. 122.62.)

(2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

(i) Exceptions--A permit with respect to which paragraph (1)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if:

(A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;

(B)(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);

(C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;

(D) The permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or

(E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

(ii) Limitations. In no event may a permit with respect to which paragraph (1)(2) of this section applies be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result in a violation of a water quality standard under section 303 applicable to such waters.

The proposed Permit states that: *“The previous permit, WDR Order R5-2010-0090-01 contained effluent limitations for aluminum, based on data available in 2010. New information is available in 2015 and 2016, which was not available at the time of issuance of the previous permit. The maximum receiving water concentration of aluminum was 200 µg/L and the MEC was 270 µg/L. The highest annual average effluent concentration is 71 µg/L, which does not exceed the MCL. Therefore, reasonable potential does not exist for aluminum to exceed the criteria. Thus, removal*

of the effluent limitations for aluminum from Order R5-2016-XXXX meets the exception in CWA section CWA 402(o)(2)(B)(i) and complies with the Antidegradation Policies.

The previous permit, WDR Order R5-2010-0090-01 contained effluent limitations for EC, based on data available in 2010. New information is available in 2015 and 2016, which was not available at the time of issuance of the previous permit. A review of the Discharger's monitoring reports for 2012 to 2015, shows an average effluent EC of 321 $\mu\text{mhos/cm}$, with a range from 48 $\mu\text{mhos/cm}$ to 437 $\mu\text{mhos/cm}$. These levels do not exceed the Secondary MCL. The discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity and this Order does not contain effluent limitations for salinity. Thus, removal of the effluent limitations for EC from Order R5-2016-XXXX meets the exception in CWA section CWA 402(o)(2)(B)(i) and complies with the Antidegradation Policies.

The previous permit, WDR Order R5-2010-0090-01 contained effluent limitations for lead (AMEL = 1.3 $\mu\text{g/L}$ and MDEL = 2.2 $\mu\text{g/L}$) with criteria calculated to be 38 $\mu\text{g/L}$ (acute) and 1.5 $\mu\text{g/L}$ (chronic) based on data available in 2010. New information is available in 2015 and 2016, which was not available at the time of issuance of the previous permit. The observed maximum effluent concentration (MEC) was 1.2 $\mu\text{g/L}$ based on 36 effluent samples collected between May 2012 and April 2015. The criteria calculated for lead were 37 $\mu\text{g/L}$ and 1.5 $\mu\text{g/L}$. The discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for lead and this Order does not contain effluent limitations for lead. Thus, removal of the effluent limitations for lead from Order R5-2016-XXXX meets the exception in CWA section CWA 402(o)(2)(B)(i) and complies with the Antidegradation Policies.

The previous permit, WDR Order R5-2010-0090-01 contained an effluent limitation for manganese (50 $\mu\text{g/L}$ as a monthly average) based on data available in 2010. New information is available in 2015 and 2016, which was not available at the time of issuance of the previous permit. The MEC for manganese was 61 $\mu\text{g/L}$; however, the average concentration of 14 $\mu\text{g/L}$ manganese, does not exceed the criterion. Therefore, reasonable potential does not exist for manganese and this Order does not contain effluent limitations for manganese. Thus, removal of the effluent limitations for manganese from Order R5-2016-XXXX meets the exception in CWA section CWA 402(o)(2)(B)(i) and complies with the Antidegradation Policies.”

Aluminum – “new information” is not described in the proposed Permit. The Regional Board staff simply failed to properly assess the statistical variability as required by federal regulation as cited above and project the maximum effluent concentration. The Regional Board also failed to include the chronic criteria based effluent limitation, which clearly indicates reasonable potential exists for aluminum to exceed toxic levels.

EC – there is no “new” information as defined by the regulations, the Regional Board staff simply failed to properly assess the statistical variability as required by federal regulation as cited above and project the maximum effluent concentration.

Lead – there is no “new” information as defined by the regulations. The Regional Board simply failed to use the lowest hardness data in assessing reasonable potential. An effluent limitation for lead must be included in the proposed Permit.

Manganese - there is no "new" information as defined by the regulations, the Regional Board staff simply failed to properly assess the statistical variability as required by federal regulation as cited above and project the maximum effluent concentration.

Thank you for considering these comments. If you have questions or require clarification, please don't hesitate to contact us.

Sincerely,



Bill Jennings, Executive Director
California Sportfishing Protection Alliance



Richard McHenry
California Sportfishing Protection Alliance
Director of Permits and Compliance