



CVCWA

Central Valley Clean Water Association

Representing Over Fifty Wastewater Agencies

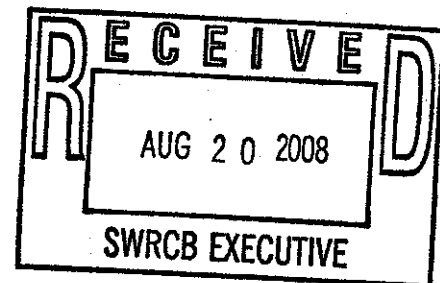
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HUMBERTO MOLINA - TREASURER, MERCED

August 19, 2008

Sent via U.S. mail and electronic mail

Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
101 I Street, 24th Floor [95814]
PO Box 100
Sacramento, CA 95812-0100
Email: commentletters@waterboards.ca.gov



Subject: **SWRCB/OCC File A-1894, September 2, 2008 Board Meeting**

Dear Ms. Townsend:

The Central Valley Clean Water Association (CVCWA) submits the following comments in response to the State Water Resources Control Board's (SWRCB) Draft Order with regard to the Petition of California Sportfishing Protection Alliance (CSPA) for Review of Waste Discharge Requirements for the City of Davis (City) Wastewater Treatment Plant, RWRCB/OCC File A-1894. More specifically, CVCWA provides the following comments in strong opposition to the proposed hardness selection approach contained in the SWRCB Draft Order.

CVCWA represents the interests of more than 60 wastewater treatment agencies in the Central Valley in regulatory matters related to water quality and the environment. Included in that membership are a number of agencies that will be directly, adversely impacted by the proposed hardness selection approach identified in the Draft Order.

The California Toxics Rule (CTR) (40 C.F.R. § 131.38.) sets state water quality standards for many priority pollutants, including several metals whose toxicity to aquatic life is related to hardness and/or water quality characteristics that are usually correlated with hardness and so the criteria are expressed as a function of hardness. Increasing the hardness has the effect of decreasing the toxicity of metals. Section 131.38(b)(2) of the CTR presents the hardness-dependent equations for freshwater metals criteria. The metals with hardness-dependent criteria include: cadmium, copper, chromium (III), lead, nickel, silver, and zinc. The CTR further specifies that when less than 400 mg/L as CaCO₃, the actual ambient hardness is to be used in

the equations to determine the criteria. Additionally, the CTR specifies that the hardness used shall be consistent with the design discharge conditions for design flows and mixing zones.

In general, and in the specific case of the City of Davis' treated effluent discharge, ambient hardness changes at the immediate point of discharge and thereafter downstream as the effluent mixes with the receiving water. Likewise, the hardness-dependent CTR metals criteria change at the point of discharge and downstream in the receiving water. The criteria used in a "reasonable potential analysis" to assess whether an effluent may cause or contribute to an exceedance of a water quality standard must necessarily be based on the hardness levels at the point of discharge and downstream. In the case of the City of Davis' discharge, the effluent generally increases the hardness in the receiving water and decreases the toxicity of the metals to aquatic organisms at the point of discharge and downstream.

In the Draft Order, it is stated that (1) the Regional Water Quality Control Board (Regional Water Board) has considerable discretion for selecting appropriate hardness values, (2) it is not always necessary to select the lowest hardness values from high flow or storm event conditions, and (3) effluent limitations must always be protective of water quality criteria under all flow conditions. However, the Draft Order then stipulates that the Regional Water Board should have selected the lowest upstream hardness corresponding to a storm event condition without an adequate analysis or discussion of why the discretion of the Regional Water Board should be overturned, why it is necessary to select the lowest storm condition hardness in the City's case, or why the effluent limitations calculated by the Regional Water Board were not protective of water quality criteria under all flow conditions. Whereas the conclusions reached in the Draft Order regarding the selection of hardness values for the Davis permit were not supported by a defensible analysis which considers the hardness in the receiving water and how it changes the metals criteria at the point of discharge and downstream, the Draft Order also failed in not considering information in the record that would have addressed the adequacy of the Regional Water Board's determinations.

The City proposed an approach and a scientific justification for hardness selection in a technical memorandum (See "Hardness Dependent Trace Metals Criteria" technical memorandum to Keith Smith, dated August 29, 2005) submitted as part of its Report of Waste Discharge (ROWD). The intent of the City's memorandum was to describe a technically defensible methodology for the determination of the appropriate hardness value to be used in the permitting for the City's discharge. However, the hardness selection approach described in the technical memorandum is in fact applicable to all discharges in the Central Valley. In addition, the City's proposed approach which will result in effluent metals limits determinations that are protective of receiving water aquatic life under all conditions of upstream and effluent flow rates and hardness levels.

As described in the City's memorandum, the CTR equations for the hardness-dependent metals criteria contain metal specific parameters for both acute and chronic criteria in CTR paragraph(b)(2) Table 1. Depending on the parameters for the specific metal and criterion, the relationship with hardness may curve downward (concave) or curve upward (convex). The curve shapes for the acute and chronic criteria for the metals are as follows:

Concave (downward curve): cadmium (chronic), chromium (III), copper, nickel, and zinc

Convex (upward curve): cadmium (acute), lead, and silver (acute).

As further described in the City's memorandum, the characteristic curves for each metal can be used to determine the design hardness selection necessary to provide protection to aquatic life in the receiving water at the point of discharge and downstream. As discussed in the memorandum, for metals with concave (downward) curves, selecting the minimum effluent hardness to calculate the criteria used in effluent limit determinations is protective of aquatic life under all receiving water conditions because any mixture of upstream receiving water and effluent will result in metals concentrations that are less than the criteria derived from and applicable to the hardness of that mixture. For metals with convex (upward) curves, a slightly modified approach is necessary to ensure the effluent criteria are always protective of aquatic life. For the metals governed by a convex curve, both upstream receiving water hardness and effluent hardness need to be considered. Equation (2) in the City's memorandum details the specific methodology for the combination of receiving water and effluent hardness that is required to determine effluent criteria for the protection of aquatic life under all flow conditions, regardless of whether the upstream hardness is greater or lower than the effluent hardness. Figure 1 in the City's technical memorandum is a graphical representation of the concave and convex cases. The City's proposed approach holds for receiving water flows from zero to infinity and for conditions where receiving water hardness is either greater or lower than the effluent hardness. Because the hardness selection under the City's approach is not dependent on receiving water flowrates, it is applicable to all receiving water conditions, including the design low flows condition specified in the CTR.

During review of the Tentative Order for the City's NPDES permit, CVCWA worked extensively with the staff of the Central Valley Regional Water Board and the SWRCB to discuss the approach proposed by the City. It was, and is, CVCWA's goal to gain consensus on this technically valid approach to hardness selection for hardness-based trace metal regulation that may be consistently applied to discharges across the Central Valley.

The City's approach was presented as an option for deriving hardness-dependent metals criteria in the Regional Water Board's Staff Report for the June 22, 2007 hearing, and was noticed as Enclosure 2 with the September 4, 2007 Tentative Order. (See Staff Report, Consideration of NPDES Permit Renewal for City of Davis Wastewater Treatment Plant at p. 5; See also Enclosure 2, Hardness Option, Proposed Waste Discharge Requirements for the City of Davis (for consideration by the Regional Water Board at the 25/26 October 2007 Regional Water Board meeting).) At the time that the City's permit was issued and adopted, the approach embodied in the City's memorandum was still under review and consideration by the Regional Water Board staff. (See Hearing Transcript for City of Davis, Wastewater Treatment Plant, Yolo County, (June 22, 2007) (June Hearing Transcript) at 12:3-24; See also Hearing Transcript for City of Davis, Wastewater Treatment Plant, Yolo County, (October 25, 2007) (October Hearing Transcript) at 50:8 – 51:13.) However, instead of using the City's proposed approach, the Regional Water Board staff recommended, and the Regional Water Board adopted, an alternative, but reasonable approach that used "the most reasonable hardness value that [] is protective of water quality." (Id. at 65:17-24; See also Id. at 50:12-15, 53:16-20.) While CVCWA maintains the City's approach is technically precise method for hardness selection, the City accepted the Regional Water Board decision on hardness selection for their permit because, although more conservative, it approximates the technically correct method in the case of the City's discharges and represents a reasonable regulatory alternative.

The same cannot be argued for the proposed hardness selection approach in the Draft Order. The approach in the Draft Order lacks technical justification, would lead to unreasonable

regulatory outcomes, and would move away from a science-based approach that should be used to address this important regulatory issue.

The proposed approach contained in the Draft Order is fundamentally flawed in that it bases NPDES permitting decisions regarding hardness based metals criteria solely on the use of upstream receiving water hardness, in isolation of and without consideration for effluent hardness or flow condition. It does not consider water quality conditions that occur at the point of discharge and downstream that aquatic organisms actually experience. The approach proposed in the Draft Order is stated as necessary to deal with conditions that occur during seasonal wet weather high flow conditions without an analysis support this position. The implication in the Draft Order is that the wet-weather flow period is a more critical condition than the critical low flow condition upon which hardness selection is based in the City of Davis' NPDES permit. The proposed approach in the Draft Order lacks any scientific analysis of the technical issues surrounding hardness and ignores the proposal offered by the City and the Regional Water Board. Further, the Draft Order states that the permit adopted by the Regional Water Board is not protective of the wet weather flow condition, a finding that is in error, as described herein. The proposed approach in the Draft Order is technically and legally unsupportable, as there is no consideration of the ambient conditions influenced by the discharge and it fails to address design conditions that occur downstream of the City's discharge as required by the California Toxics Rule CTR.

As a final argument, CVCWA wishes to emphasize that the CTR requires the hardness selection to be based on the low flow design condition. In the NPDES permit for the City of Davis, the design condition is the 7Q10 or 1Q10 critical low flow situation where the effluent is undiluted by receiving water. In that case, there is no upstream receiving water flow and the effluent hardness is the appropriate value to use to establish the metals criteria used in permitting. The City's proposed approach considers this design condition and is consistent with the CTR requirement. The proposed approach in the Draft Order is in conflict with the CTR requirement.

In summary, the City of Davis's Technical Memorandum regarding hardness selection outlines a scientifically sound approach to the selection of critical hardness values in NPDES permitting considering all possible conditions of upstream flow, upstream hardness, effluent flow and effluent hardness. The City's proposed approach can be used to select the critical hardness value to calculate criteria for trace metals for effluent limit determinations that are protective of aquatic life beneficial uses under all discharge and receiving water conditions. The approach advocated by the City of Davis exists in the record as an uncontroverted technical benchmark for the consideration of hardness in NPDES permitting.

The alternative approach used by the Regional Water Board in the City of Davis permit was slightly more conservative than the approach advocated by Davis and supported by CVCWA. Since the approach advocated by the City is protective during all combinations of effluent and receiving water flow, the same level of protection holds for the approach used by the Regional Water Board. The Regional Water Board's analysis and permitting determinations is applicable to all levels of upstream hardness and flow rates. Therefore, the argument that a new approach, as advocated in the Draft Order, is needed to be protective of the seasonal high flow period in the receiving water is fundamentally inaccurate.

CVCWA is very concerned with the hardness selection approach contained in the Draft Order, because the approach would result in the City and many other communities in the Central Valley,

large and small, to be significantly harmed by the implementation of the unreasonable and overprotective hardness selection approach contained in the Draft Order. By not considering the influence of the discharge on hardness levels in the receiving water, the proposed approach in the Draft Order would generally lead to overly restrictive water quality criteria that would result in unwarranted and unnecessarily stringent effluent limits, unnecessary effluent monitoring, and severe compliance problems for many communities.

CVCWA appreciates the opportunity to provide these comments. In light of the fact that the Regional Water Board's approach is protective, we recommend that the SWRCB modify the Draft Order to dismiss CSPA's claims regarding hardness and the determination of reasonable potential for hardness-dependent metals.

Sincerely,



Debbie Webster
Executive Officer

c: Keith Smith, City of Davis
Pamela Creedon, CVRWQCB
Roberta Larson, CASA (electronic mail only)
Jim Colston, Tri-TAC (electronic mail only)

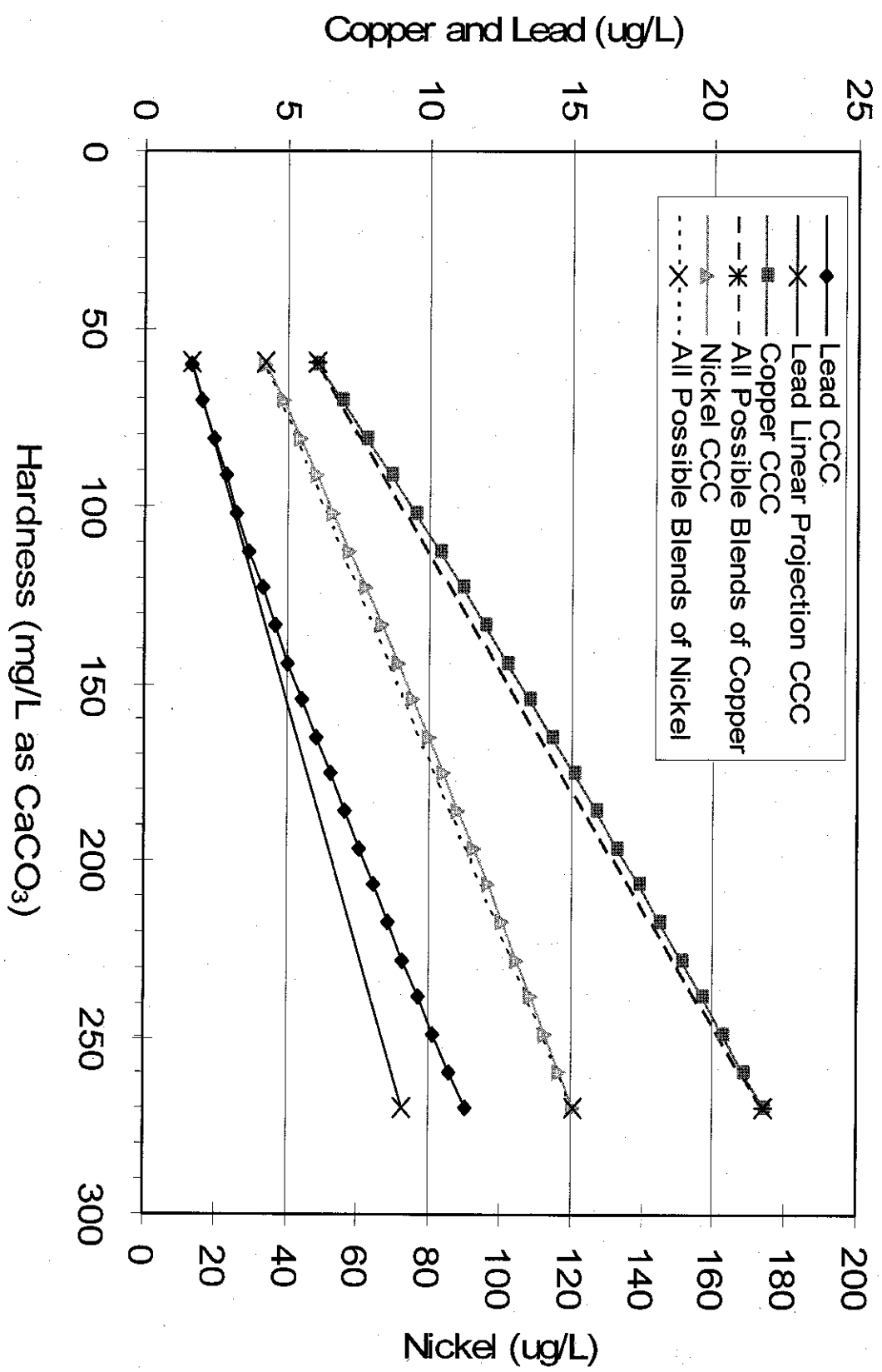
Hardness Selection

- CTR criteria for select metals hardness-dependent
- Hardness selection required to calculate water quality criteria
- Water quality criteria to determine if effluent will cause or contribute to exceedance of water quality standard
- Hardness selection currently at issue

Hardness Selection Approaches

- City proposed approach in ROWD based on technical analysis considering all flows and hardness levels – technically and legally accurate
- RWQCB approach more conservative than City's proposed approach – technically and legally sufficient
- Draft Order approach ignores record and actual impact of City's discharge – technically inaccurate and legally flawed

City's Approach



Hardness for Criteria Calculation

Selected Hardness
(mg/L as CaCO₃)

Approach	Willow (001)	Conaway (002)	Remarks
City	270	320	Always Protective
RWQCB	190	250	More Conservative
A-1894	78	85	Overly Stringent Not Technically Based Conflicts with CTR

Conclusion

- Draft Order approach not technically based
- Draft Order approach does not assess effect of discharge on receiving water
- Draft Order approach contrary to CTR
- Draft Order approach will result in unreasonable and significant impacts to Central Valley discharges with no actual additional level of protection to aquatic organisms
- Recommend SWRCB dismiss petitioner contentions regarding hardness