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For Petitioner California Sportfishing Protection Alliance

BEFORE THE STATE WATER RESOURCES CONTROL BOARD

**In the Matter of Waste Discharge Requirements For)
City of Grass Valley Wastewater Treatment Plant;)
California Regional Water Quality Control Board –) **PETITION FOR REVIEW**
Central Valley Region, Order No. R5-2009-0067)
NPDES No. CA0079898)
_____)**

Pursuant to Section 13320 of California Water Code and Section 2050 of Title 23 of the California Code of Regulations (CCR), California Sportfishing Protection Alliance (“CSPA” or “petitioner”) petitions the State Water Resources Control Board (State Board) to review and vacate the final decision of the California Regional Water Quality Control Board for the Central Valley Region (“Regional Board”) in adopting Waste Discharge Requirements (NPDES No. CA0079898) for City of Grass Valley Wastewater Treatment Plant, on 12 June 2009. *See* Order No. R5-2009-0068. The issues raised in this petition were raised in timely written comments.

1. NAME AND ADDRESS OF THE PETITIONERS:

California Sportfishing Protection Alliance
3536 Rainier Avenue
Stockton, California 95204
Attention: Bill Jennings, Executive Director

2. THE SPECIFIC ACTION OR INACTION OF THE REGIONAL BOARD WHICH THE STATE BOARD IS REQUESTED TO REVIEW AND A COPY OF ANY ORDER OR RESOLUTION OF THE REGIONAL BOARD WHICH IS REFERRED TO IN THE PETITION:

Petitioner seeks review of Order No. R5-2009-0068, Waste Discharge Requirements (NPDES No. CA0079898) for the City of Grass Valley Wastewater Treatment Plant. A copy of the adopted Order is attached as Attachment No. 1.

3. THE DATE ON WHICH THE REGIONAL BOARD ACTED OR REFUSED TO ACT OR ON WHICH THE REGIONAL BOARD WAS REQUESTED TO ACT:

12 June 2009

4. A FULL AND COMPLETE STATEMENT OF THE REASONS THE ACTION OR FAILURE TO ACT WAS INAPPROPRIATE OR IMPROPER:

CSPA submitted detailed comment letters on 12 January 2009 and 10 May 2009. Those letters and the following comments set forth in detail the reasons and points and authorities why CSPA believes the Order fails to comport with statutory and regulatory requirements. The specific reasons the adopted Orders are improper are:

A. The Permit amendment includes misleading and incorrect information regarding domestic and municipal beneficial uses of the receiving waters.

The Permit amendment states that:

“As stated above, the beneficial uses of Wolf Creek include municipal and domestic supply. However, there are no documented drinking water intakes downstream of the discharge. In a letter to the Regional Water Board dated 6 August 2007, the Nevada Irrigation District (NID), which uses water diverted from Wolf Creek a couple of miles downstream from Discharge Point No. 001 to transport water from upper watershed areas to western Nevada County, indicated that they do not use the diverted water as a supply for treated water (potable) and were not aware of anyone using the diverted water for in-home use. In a second letter to the Regional Water Board on 3 March 2009, NID outlined their uses of water diverted from Wolf Creek downstream of Discharge Point No. 001 as follows:

- “• *All District raw water sales off Wolf Creek below the City of Grass Valley are for agricultural use only.*
- *The District does not own operate any domestic water treatment plants that use water from Wolf Creek below the City of Grass Valley. There is no domestic water service by the District with water from Wolf Creek.*
- *District policy and State law prohibit the District from providing raw water for human consumption. In February of 2000, a survey was conducted of all District year-round water users. The 2000 survey indicated all year-round water users off the Wolf Creek system below the City of Grass Valley have a well on their property as their domestic water supply.”*

Although there are no known drinking water intakes downstream of the discharge point and NID policy and State law prohibit NID from providing raw water for human consumption, municipal and domestic supply is a designated beneficial use of Wolf Creek that must be protected. The requirements of this Order are protective of the municipal and domestic supply in Wolf Creek.”

In discussing Nevada Irrigation District’s providing raw water for consumption we present the following excerpt from the Regional Board’s NPDES permit for Placer County SMD-1 (ORDER NO. R5-2005-0074, NPDES NO. CA0079316): “In reviewing whether existing and/or potential uses of the Sacramento River, between the Colusa Basin Drain and the I Street Bridge, and for the Bear River, are applicable to Coon Creek, Dry Creek, and Rock Creek, the Regional Board considered the following facts:

a. Municipal and Domestic Supply and Agricultural Irrigation and Stock Watering Supply: Municipal, domestic and food crop irrigation beneficial uses have been site-specifically confirmed for waters downstream of the wastewater treatment plant. State Board Resolution No. 88-63, a part of the Basin Plan pursuant to Regional Board Resolution 89-056, requires the Regional Board to assign the beneficial uses of municipal and domestic supply, to Rock Creek, Dry Creek, and Coon Creek. The State Water Resources Control Board (SWRCB) has issued numerous water rights, for domestic and irrigation uses, on Main Canal and downstream waters, the Sacramento River, the Bear River, and the Feather River, downstream of the discharge. Many of the waterways downstream of the discharge are managed by irrigation districts and retain the domestic and irrigation beneficial uses. Nevada Irrigation District (NID) controls the flows in Dry Creek, Coon Creek, and Camp Far West Ditch. Staff of NID confirmed the existence of domestic uses of this water by reporting that water from Camp Far West Ditch is utilized for in-home use. NID requires the homeowner to purchase 5 gallons of bottled drinking water per month. NID sells water from Coon Creek and Camp Far West Ditch and has assessed the principal uses as family garden use and pasture irrigation. Over a distance of approximately 25 miles on Camp Far West Ditch, there are 37 irrigation customers, two of whom have irrigation water connected to their homes. Riparian Rights, for landowners along streams and rivers, are not recorded with the SWRCB and have precedence over other water rights and may include domestic and municipal uses. The wastewater

discharge occurs in a residential area and the effluent immediately flows through numerous yards lining the Creek. Home garden irrigation has been identified as an existing beneficial use of the receiving stream.” (Emphasis added)

There is no indication in the Permit amendment that the Regional Board investigated the issuance of water rights by the State Board along Wolf Creek to confirm the presence or absence of domestic and municipal users.

There is no indication in the Permit amendment that the Regional Board considered Riparian Rights, for landowners along streams and rivers, which may not be recorded with the SWRCB and have precedence over other water rights and may include domestic and municipal uses. On 11 March 2009 the Sacramento Bee reported as follows: “Vicky Whitney, deputy director of the state Water Resources Control Board, said officials know little about the amount of water consumed by so-called "riparian" water rights holders. Riparian rights, usually attached to properties that border streams, are the most senior category of water entitlement in California. Riparian rights holders must annually report to the state how much water they divert. But Whitney said only about 10 percent do so, and her agency does not have the power to enforce compliance.” CSPA representatives have observed numerous pipes along Wolf Creek; the Regional Board’s conclusion that domestic and municipal uses do not exist along this water body is unsupported, undocumented and conclusory.

B. The Permit amendment inappropriately removes Effluent Limitations for copper, lead and zinc based on a reasonable potential analysis utilizing the hardness of the effluent as opposed to the ambient receiving water hardness as required by Federal Regulations, the California Toxics Rule (CTR, 40 CFR 131.38(c)(4)).

The Permit amendment Fact Sheet contains the following excerpts:

“Copper. The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. The criteria for copper are presented in dissolved concentrations. USEPA recommends conversion factors to calculate dissolved criteria. The USEPA default conversion factors for copper in freshwater are 0.96 for both the acute and the chronic criteria. As discussed further in section IV.C.2.d of this Fact Sheet, the applicable WER value for copper is 6.49. Using the worst-case measured hardness from the effluent (90 mg/L) and receiving water (21 mg/L), the default conversion factors, and the WER of 6.49, the applicable chronic criterion (maximum 4-day average concentration) is 53 ug/l and the applicable acute criterion (maximum 1-hour average concentration) is 79 ug/l, as dissolved concentrations. As discussed in section IV.C.2.e of this Fact Sheet, the applicable translator values for copper are 1.05 (1/fD) for acute freshwater and 1.19 (1/fD) for chronic freshwater. Using the site-specific translators to translate the dissolved criteria to total criteria, the applicable acute criterion is 83 µg/L and the applicable chronic criterion is 63 µg/L, as total recoverable.

The MEC for total copper was 18 ug/l, based on 43 samples collected between 1 January 2005 and 6 March 2008. Therefore, the discharge does not have a reasonable potential to

cause or contribute to an in-stream excursion above the CTR criteria for copper.” (Track changes mode deleted, emphasis added)

Zinc. The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. The criteria for zinc are presented in dissolved concentrations. USEPA recommends conversion factors to calculate dissolved criteria. The USEPA default conversion factors for zinc in freshwater are 0.978 for the acute criteria and 0.986 for the chronic criteria. As discussed further in section IV.C.2.d of this Fact Sheet, the applicable WER value for zinc is 1.70. Using the worst-case measured hardness from the effluent (90 mg/L) and receiving water (21 mg/L), the default conversion factors, and the WER of 1.70, the applicable chronic criterion (maximum 4-day average concentration) and the applicable acute criterion (maximum 1-hour average concentration) are each 182 µg/L and 184 µg/L, respectively, as dissolved concentrations. As discussed in section IV.C.2.e of this Fact Sheet the applicable translator values for zinc are 1.03 (1/fD) for acute freshwater and 1.19 (1/fD) for chronic freshwater. Using the site-specific translators to translate the dissolved criteria to total criteria, the applicable acute criterion is 187 µg/L and the applicable chronic criterion is 219 µg/L, as total recoverable.

The MEC for total zinc was 177 ug/l, based on 43 samples collected between 1 January 2005 and 6 March 2008. Therefore, the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for zinc.

For lead, the Discharger acknowledged that the study did not satisfy the recommended minimum number of translator samples, but pointed out that it was apparent that dissolved lead does not have a large ambient presence in the system or that collection of additional samples would likely produce more detected results. Using the conservative assumption that the lead concentration is equal to the detection limit for non-detected samples in the translator calculations, it is assumed that the actual dissolved lead concentration would be lower than the assumed value at the detection limit. Thus, the resulting lead translators are slightly higher than they would be if lower detection limits were achieved. The Regional Water Board acknowledges that use of the detection limit for non-detected values is a conservative approach; however, the translators for lead have not been approved. The nine sampling events used to develop the lead translator occurred during high (>26 MGD) and low (<26 MGD) flow regimes. The minimum recommended number of sampling events for developing a translator with data from all flow regimes is 20, which is not satisfied by the Discharger’s dataset. If the dataset were revised to exclude sampling events taken when flows in Wolf Creek exceeded 26 MGD, the dataset would consist of only six valid sampling events, which does not satisfy the minimum number of sampling events necessary to calculate a translator with sampling events taken during low flow regimes. Regardless of the use of the translator, lead does not exhibit reasonable potential to exceed the CTR criteria and effluent limitations have not been included in this Order.”

There was no further information regarding any reasonable potential analysis for lead.

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 Permit states that the effluent hardness and the receiving water hardness were used to calculate Effluent Limitations for metals. However, it appears only the effluent hardness was used. Use of the lowest recorded receiving water hardness would result in maintaining the Effluent Limitations for copper, lead and zinc. Use of the effluent hardness in determining reasonable potential is contrary to 40 CFR 131.38(c)(4) as cited above.

On March 24, 2000 the US Fish and Wildlife Service (Service) and the National Marine Fisheries Service (NMFS) issued a biological opinion on the effects of the final promulgation of the CTR on listed species and critical habitats in California in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; Act). The biological opinion was issued to the U.S. Environmental Protection Agency, Region 9, with regard to the “Final Rule for the Promulgation of Water Quality Standards: Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California” (CTR)”. The document represented the Services’ final biological opinion on the effects of the final promulgation of the CTR on listed species and critical habitats in California in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; Act).

On Page 13 (C) and repeated on pages 216 and 232 of the biological opinion it is required that:

“By June of 2003, EPA, in cooperation with the Services, will develop a revised criteria calculation model based on best available science for deriving aquatic life criteria on the basis of hardness (calcium and magnesium), pH, alkalinity, and dissolved organic carbon (DOC) for metals.”

The biological opinion contains the following discussion, beginning on page 205, regarding the use of hardness in developing limitations for toxic metals:

“The CTR should more clearly identify what is actually to be measured in a site water to determine a site-specific hardness value. Is the measure of hardness referred to in the CTR equations a measure of the water hardness due to calcium and magnesium ions only? If hardness computations were specified to be derived from data obtained in site water calcium and magnesium determinations alone, confusion could be avoided and more accurate results obtained (APHA 1985). Site hardness values would thus not include contributions from other multivalent cations (e.g., iron, aluminum, manganese), would not rise above calcium + magnesium hardness values, or result in greater-than-intended site criteria when used in formulas. In this Biological opinion, what the Services refer to as hardness is the water hardness due to calcium + magnesium ions only.

The CTR should clearly state that to obtain a site hardness value, samples should be collected upstream of the effluent source(s). Clearly stating this requirement in the CTR would avoid the computation of greater-than-intended site criteria in cases where samples were collected downstream of effluents that raise ambient hardness, but not other

important water qualities that affect metal toxicity (e.g., pH, alkalinity, dissolved organic carbon, calcium, sodium, chloride, etc.). Clearly, it is inappropriate to use downstream site water quality variables for input into criteria formulas because they may be greatly altered by the effluent under regulation. Alterations in receiving water chemistry by a discharger (e.g., abrupt elevation of hardness, changes in pH, exhaustion of alkalinity, abrupt increases in organic matter etc.) should not result, through application of hardness in criteria formulas, in increased allowable discharges of toxic metals. If the use of downstream site water quality variables were allowed, discharges that alter the existing, naturally-occurring water composition would be encouraged rather than discouraged. Discharges should not change water chemistry even if the alterations do not result in toxicity, because the aquatic communities present in a water body may prefer the unaltered environment over the discharge-affected environment. Biological criteria may be necessary to detect adverse ecological effects downstream of discharges, whether or not toxicity is expressed.

The CTR proposes criteria formulas that use site water hardness as the only input variable. In contrast, over twenty years ago Howarth and Sprague (1978) cautioned against a broad use of water hardness as a “shorthand” for water qualities that affect copper toxicity. In that study, they observed a clear effect of pH in addition to hardness. Since that time, several studies of the toxicity of metals in test waters of various compositions have been performed and the results do not confer a singular role to hardness in ameliorating metals toxicity. In recognition of this fact, most current studies carefully vary test water characteristics like pH, calcium, alkalinity, dissolved organic carbon, chloride, sodium, suspended solids, and others while observing the responses of test organisms. It is likely that understanding metal toxicity in waters of various chemical makeups is not possible without the use of a geochemical model that is more elaborate than a regression formula. It may also be that simple toxicity tests (using mortality, growth, or reproductive endpoints) are not capable of discriminating the role of hardness or other water chemistry characteristics in modulating metals toxicity (Erickson *et al.* 1996). Gill surface interaction models have provided a useful framework for the study of acute metals toxicity in fish (Pagenkopf 1983; Playle *et al.* 1992; Playle *et al.* 1993a; Playle *et al.* 1993b; Janes and Playle 1995; Playle 1998), as have studies that observe physiological (e.g. ion fluxes) or biochemical (e.g. enzyme inhibition) responses (Lauren and McDonald 1986; Lauren and McDonald 1987a; Lauren and McDonald 1987b; Reid and McDonald 1988; Verbost *et al.* 1989; Bury *et al.* 1999a; Bury *et al.* 1999b). Even the earliest gill models accounted for the effects of pH on metal speciation and the effects of alkalinity on inorganic complexation, in addition to the competitive effects due to hardness ions (Pagenkopf 1983). Current gill models make use of sophisticated, computer-based, geochemical programs to more accurately account for modulating effects in waters of different chemical makeup (Playle 1998). These programs have aided in the interpretation of physiological or biochemical responses in fish and in investigations that combine their measurement with gill metal burdens and traditional toxicity endpoints.

The Services recognize and acknowledge that hardness of water and the hardness acclimation status of a fish will modify toxicity and toxic response. However the use of

hardness alone as a universal surrogate for all water quality parameters that may modify toxicity, while perhaps convenient, will clearly leave gaps in protection when hardness does not correlate with other water quality parameters such as DOC, pH, Cl- or alkalinity and will not provide the combination of comprehensive protection and site specificity that a multivariate water quality model could provide. In our review of the best available scientific literature the Services have found no conclusive evidence that water hardness, by itself, in either laboratory or natural water, is a consistent, accurate predictor of the aquatic toxicity of all metals in all conditions.

Hardness as a predictor of copper toxicity: Lauren and McDonald (1986) varied pH, alkalinity, and hardness independently at a constant sodium ion concentration, while measuring net sodium loss and mortality in rainbow trout exposed to copper. Sodium loss was an endpoint investigated because mechanisms of short-term copper toxicity in fish are related to disruption of gill ionoregulatory function. Their results indicated that alkalinity was an important factor reducing copper toxicity, most notably in natural waters of low calcium hardness and alkalinity. Meador (1991) found that both pH and dissolved organic carbon were important in controlling copper toxicity to *Daphnia magna*. Welsh *et al.* (1993) demonstrated the importance of dissolved organic carbon in affecting the toxicity of copper to fathead minnows and suggested that water quality criteria be reviewed to consider the toxicity of copper in waters of low alkalinity, moderately acidic pH, and low dissolved organic carbon concentrations. Applications of gill models to copper binding consider complexation by dissolved organic carbon, speciation and competitive effects of pH, and competition by calcium ions, not merely water hardness (Playle *et al.* 1992; Playle *et al.* 1993a; Playle *et al.* 1993b). Erickson *et al.* (1996) varied several test water qualities independently and found that pH, hardness, sodium, dissolved organic matter, and suspended solids have important roles in determining copper toxicity. They also suggested that it may difficult to sort out the effects of hardness based on simple toxicity experiments. It is clear that these studies question the use of site calcium + magnesium hardness only as input to a formula to derive a criterion for copper because pH, alkalinity, and dissolved organic carbon concentrations are key water quality variables that also modulate toxicity. In waters of moderately acidic pH, low alkalinity, and low dissolved organic carbon, the use of hardness regressions may be most inaccurate. Also, it is not clear that the dissolved organic carbon in most or all waters render metals unavailable. This is because dissolved organic carbon from different sources may vary in both binding capacity and stability (Playle 1998).

C. The Effluent Limitation for specific conductivity (EC) is regulated as an annual average contrary to Federal Regulations 40 CFR 122.45 (d)(2) and common sense.

Federal Regulation 40 CFR 122.45 (d)(2) requires that permit for POTWs establish Effluent Limitations as average weekly and average monthly unless impracticable. The Permit establishes an Effluent Limitation for EC as an annual average contrary to the cited Federal Regulation. Establishing the Effluent Limitation for EC in accordance with the Federal Regulation is not impracticable; to the contrary the Central Valley Regional Board has a long

history of having done so. Proof of “impracticability” is properly a steep slope and the Regional Board has not presented any evidence that properly and legally limiting EC is impracticable.

In addition to ignoring the cited regulation, the Regional Board has not presented any information that the proposed annual average limitation is protective of the beneficial uses of the receiving stream. For example: Research at UCD (*Water and Soil Salinity Studies on California Rice*) shows that rice seedlings are very sensitive to salt concentrations and that early season soil salinity had the strongest correlation with yield. In addition, in a *Biological Significance* document, dated November 1st 2006, James M. Harrington, Staff Water Quality Biologist with the California Department of Fish and Game, citing McKee and Wolf (1971 Water Quality Criteria) wrote that: “Surveys of inland fresh waters indicates that good mixes of fish fauna are found where conductivity values range between 150 and 500 umhos/cm. Even in the most alkaline waters, the upper tolerance limit for aquatic life is approximately 2000 umhos/cm.” The drinking water secondary MCL for EC is based on taste and odor which occur instantaneously. *McKee and Wolf* (1971 Water Quality Criteria) lists the limiting TDS concentrations for numerous industrial uses in mg/l; boiler feed water 50-3000, brewing 500-1000, canning 850, general food processing 850 and paper manufacturing 80-500. All of the above-cited uses could be significantly harmed by limiting EC on an annual basis.

Not only are the Effluent Limitations for EC practicable to limit on an average weekly and average monthly basis but such are necessary to protect the beneficial uses of the receiving stream.

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

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 µg/l and 750 µg/l, respectively.

Aluminum in the effluent has been measured as high as 516 µg/l. Freshwater Aquatic habitat and municipal (MUN) are beneficial uses of the receiving stream.

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 hardnesses 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 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 isolated 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 in 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 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 advise in understanding the criteria, the development procedures or the final recommendations. 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.

The effluent data has exceeded the MCL and the chronic criteria for aluminum.

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. And the drinking water MCL

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 Permit violates 40 CFR 122.44 and CWC 13377.

E. The Permit Effluent Limitation for aluminum has been removed and is therefore less stringent than the existing permit contrary to the Antibacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (I)(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 antibacksliding 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 antibacksliding rule are met. The antibacksliding 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.

F. The information regarding water effects ratios (WER) and removal of Effluent Limitations for copper and zinc is insufficient in accordance with Federal regulation 40 CFR 124.6 (e), 124.8 (b)(4) and 125.56.

NPDES permit Fact Sheets are required to contain the basis for the permit conditions and an explanation of the reasons why such conditions are applicable. The removal of Effluent Limitations for copper and zinc from a permit should warrant such explanation. The Permit modifications delete all *reasonable potential* calculations for copper and zinc, rather than replace them with calculations based on the WER. There are no details of the development of the WER or what specific EPA methods were used. There are no reasonable potential calculations based on the WER. The Permit contains insufficient information regarding development of the WER and removal of the effluent limitations for copper and zinc for the public to make any determinations regarding the adequacy of the Permit. The Fact Sheet must be amended and recirculated for public comment containing sufficient information to form the basis for the Permit.

On March 24, 2000 the US Fish and Wildlife Service (Service) and the National Marine Fisheries Service (NMFS) issued a biological opinion on the effects of the final promulgation of the CTR on listed species and critical habitats in California in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; Act). The biological opinion was issued to the U.S. Environmental Protection Agency, Region 9, with regard to the “Final Rule for the Promulgation of Water Quality Standards: Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California” (CTR)”. The document represented the Services’ final biological opinion on the effects of the final promulgation of the CTR on listed species and critical habitats in California in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; Act). The biological opinion contained the following discussion with regard to water effects ratios (WERs).

“Formulas for all the hardness dependant metals also include a Water Effects Ratio (WER), a number that acts as a multiplication factor. If no site-specific WER is determined, then the WER is presumed to be 1 and would not modify a formula result. A WER purportedly accounts for the difference in toxicity of a metal in a site water relative to the toxicity of the same metal in reconstituted laboratory water. The contention is that natural waters commonly contain constituents which “synthetic” or “reconstituted” laboratory waters lack, such as dissolved organic compounds, that may act to bind metals and reduce their bioavailability. Where such constituents act to modify the toxicity of a metal in a site water compared to the toxicity of the same metal in laboratory water, a “water effect” is observed.

Example WER calculation:

Suppose the LC₅₀ of Cu in site water is 30 µg/L.
 Suppose the LC₅₀ of Cu in laboratory water is 20 µg/L.
 Assume a site hardness of 40 mg/L.
 The freshwater conversion factor (CF) for Cu = 0.96.

$$\text{WER} = \frac{\text{Site LC}_{50}}{\text{Lab LC}_{50}} = \frac{30 \mu\text{g/L}}{20 \mu\text{g/L}} = 1.5$$

$$\begin{aligned}\text{Cu Site-Specific CCC} &= \text{WER} \times \text{CF} \times e^{(m[\ln(4.0)]+b)} \\ &= 1.5 \times 0.96 \times 4.3 \\ &= 6.2 \mu\text{g/L}\end{aligned}$$

What follows are discussions of the Services' concerns regarding the applications of WER, CF and the attendant translators, and deficiencies of the hardness-dependent factors in formula-based determinations of freshwater criteria for As, Cd, Cr (III), Cr (VI), Cu, Pb, Hg, Ni, Ag, Zn and Se in saltwater.

Water Effect Ratios

Except in waters that are extremely effluent-dominated, WERs are > 1 and result in higher numeric criteria. Note that, in the examples above, use of a site-specific WER for copper raised the criterion concentration allowed at the site from 4.1 $\mu\text{g/L}$ to 6.2 $\mu\text{g/L}$, an increase of 50 percent. A WER may be more important than site water hardness or metal-specific conversion factors and translators in determining a criterion and hence the metal loading allowed (see hardness and adding discussions below).

EPA has published guidelines for determining a site-specific WER, which outline procedures for water sampling, toxicity testing, acclimating test organisms, etc. (USEPA 1994). When site water toxicity is lower than laboratory water toxicity, criteria may be raised because: 1) differences in calcium to magnesium ratios in hardness between laboratory water and site water can significantly alter the WER; 2) toxicity testing for WER development is not required across the same range of test organisms used in criteria development; and 3) the inherent variabilities associated with living organisms used in toxicity testing can be magnified when used in a ratio.

EPA guidelines for WER determinations (USEPA 1994) instruct users to reconstitute laboratory waters according to protocols that result in a calcium-to-magnesium ratio of ~ 0.7 across the range of hardness values (USEPA 1989, 1991). This proportion (~ 0.7) of calcium to magnesium is far less than the ratio found in most natural waters (Welsh *et al.* 1997). The Services agree with Welsh *et al.* (1997) that imbalances in Ca-to-Mg ratios between site waters and dilution waters may result in WERs which are overestimated because calcium ions are more protective of metals toxicity than are magnesium ions. The EPA has noted this problem with determining WERs but limits the suggested correction of matching the laboratory Ca-to-Mg ratio and the site ratio to a single sentence at the end of the proposed rule. Thus, the significance and correction of this problem is not adequately addressed.

EPA metal criteria are based on over 900 records of laboratory toxicity tests (USEPA 1992) using hundreds of thousands of individual test organisms, including dozens of

species across many genera, trophic levels, and sensitivities to provide protection to an estimated 95 percent of the genera most of the time (USEPA 1985f). The use of a ratio based WER determined with 2 or 3 test species limits the reliability of the resultant site-specific criteria and calls into question the level of protection provided for families or genera not represented in the WER testing. The inherent variability of toxicity testing can also have a significant effect on the final WER determination, especially because it is used in a ratio. As discussed above, the EPA has developed its criteria based on a relatively large database. However, even with such a large database variability in test results can still cause difficulty in determining a criteria value. For example, Cd data were so variable that EPA abandoned the acute to chronic ratio method of determining the chronic criterion (USEPA 1985b). Instead, EPA applied the acute method to derive a chronic value. The EPA criteria document for Cd (USEPA 1985b) notes a chronic value for Chinook salmon of 1.563 $\mu\text{g}/\text{L}$ with a range of 1.3 to 1.88 $\mu\text{g}/\text{L}$. This is a variability of 17 percent in either direction, which is rather good (inter and intra laboratory variability higher than 17 percent is not unusual). Therefore, if this data is used in a ratio such as a WER, the variability alone could result in a 34 percent difference in the values used. A potential WER using such data could range from 0.7 to 1.4. Thus, a site-specific criteria could increase by 40 percent due to natural variability in the toxicity testing alone. In development of a site-specific WER, fewer tests are conducted and with fewer species, increasing the likelihood that natural variation in toxicity test results could affect the outcome. Care should also be taken to make sure that test results between lab and site water are significantly different. If 95 percent confidence intervals for the tests overlap then they are likely not significantly different and should not be used to determine a WER. Thus, toxicity tests should be conducted and carefully evaluated to minimize experimental variance when collecting data to calculate WERs.

Zooplanktons such as cladocerans (*Daphnia* sp.) are commonly used in bioassays to determine national and site-specific criteria or develop WERs and translation factors. As sensitive as cladocerans seem to be it is possible that the life stage of cladocerans being used in most bioassays are not the most sensitive. Shurin and Dodson (1997) found that sexual reproduction in cladocerans is more sensitive to toxicants than the asexual reproductive stage and that most bioassays utilize daphnia during the asexual phase because they are well fed and cultured under low stress situations. Under stress (low temperature, drought, low food supply) cladocerans and other zooplankton use sexual reproduction to produce resting eggs that can remain dormant for months to years until more favorable conditions return. The loss or a decrease in the production of resting eggs can have a significant long-term effect on the populations of these species. Snell and Carmona (1995) found that for a rotifer zooplankton, sexual reproduction was more strongly affected by several toxicants, including cadmium, than asexual reproduction. The authors concluded that the "level of toxicants presently allowable in surface waters . . . may expose zooplankton populations to greater ecological risks than is currently

believed.” Other metals may also be more toxic to the sexual stage of zooplankton adding additional doubt to the protectiveness of some criteria and WERs.

Procedures for acclimation of test organisms prior to toxicity testing may also be inadequate to assure meaningful comparisons between site and laboratory waters. For the reasons stated above, the Services believe that the EPA procedures for determining WERs for metals may result in criteria that are not protective of threatened or endangered aquatic species. Thus, WERs of three (3) or less are unacceptable because they are likely within the variance of the toxicity tests. WERs over three must be carefully developed and evaluated to ensure that listed species will be protected.”

“Conversion Factors and Translators

EPA derived ambient metals criteria from aquatic toxicity tests that observed the dose-response relationships of test organisms under controlled (laboratory) conditions. In most of these studies, organism responses were plotted against nominal test concentrations of metals or concentrations determined on unfiltered samples. Thus, until recently metals criteria have been expressed in terms of total metal concentrations. Current EPA metals policy (USEPA 1993a) and the CTR in particular propose that criteria be expressed on a dissolved basis because particulate metals contribute less toxicity than dissolved forms. EPA formulas for computing criteria thus are adjusted via a conversion factor (CF), so that criteria based on total metal concentrations can be “converted” to a dissolved basis. Metals for which a conversion factor has been applied include arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc.

The CF is a value that is used to estimate the ratio of dissolved metals to total recoverable metals to adjust the former criteria based on total metal to yield a dissolved metal criterion. A CF based on the premise that the dissolved fraction of the metals in water is the most bioavailable and therefore the most toxic (USEPA 1993a, 1997c). The presumption is that the dose/response relationships found in toxicity tests would be more precise if “dissolved” metal concentrations were determined in test solution samples that have been filtered to remove the larger-sized, particulate metal fraction. The term “total” metal refers to metal concentrations determined in unfiltered samples that have been acidified (pH < 2) before analysis. The term “dissolved” metal refers to metal concentrations determined in samples that have been filtered (generally a 0.45- micron pore size) prior to acidification and analysis. Although it is clear that concentrations determined in a procedurally-defined dissolved sample are not accurate measures of dissolved metals, it may be premature to recommend immediate changes to the current procedure (Chapman 1998). Particulate metals can be single atoms or metal complexes adsorbed to or incorporated into silt, clay, algae, detritus, plankton, etc., which can be removed from the test water by filtration through a 0.45 micron filter.

A CF value is always less than 1 (except for As which is currently 1.0) and is multiplied by a total criterion to yield a (lower) dissolved criterion.

For example, CF values for Cd, Cu, Pb, and Zn, are 0.944, 0.960, 0.791, and 0.978 respectively (USEPA 1997c). The CF values approach 100 percent for several metals because they are ratios determined in laboratory toxicity-test solutions, not in natural waters where relative contributions of waterborne particulate metals are much greater. The California Department of Fish and Game (CDFG 1997) has commented that particulate fractions in natural waters in California are often in the range of 80 percent, which would equate to a dissolved-to-total ratio of 0.2. To convert metals criteria, EPA reviewed test data that reported both total and dissolved concentrations in their test waters and also conducted simulations of earlier experiments to determine the dissolved-to-total ratios (USEPA 1992, 1995a, 1997c). In this way, the historical toxicity database could be preserved and a large number of new toxicity tests would not have to be performed. Overall, the CFs proposed in the CTR are based upon roughly 10% of the historical database of toxicity tests. CF values for As and Ni were based on only 1 study each, comprising 11 records. CF values for Cr were based on only 2 studies, while the estimated CF for Pb was based on 3 studies, comprised of only 3 records. Although additional confirmatory studies were performed to develop the CFs, the database available appears to be limited and calls into question the defensibility of the CFs determined for these metals.

Ultimately the scientifically most defensible derivation of dissolved metals criteria should be based on reviews of new laboratory investigations because:

1. The several water quality variables that modulate metal toxicity may not have been properly controlled, measured, reported, or manipulated over ranges that are environmentally realistic and necessary to consider if site-specific criteria are to be proposed (see section on hardness);
2. It is likely that most toxicity tests measured organism responses in terms of traditional endpoints such as mortality, growth, reproductive output. These may not be sufficient for determining the toxic effects of metals in test waters manipulated to reflect environmental (site) conditions (see section on hardness);
3. The test waters contained very low contributions from particulate metals to the total metal concentrations. These proportions are not environmentally realistic; and
4. The present EPA criteria for metals lack meaningful input and modification from metals toxicity research done in the last decade.

Points 1 and 2 above are discussed in this final biological opinion in the hardness section dealing with the use of water hardness as a general water quality “surrogate”. Point 3 is illustrated by the fact that the CF’s proposed in the CTR for several metals are near a value of 1.0. This indicates that the toxicity tests reviewed to derive dissolved-based criteria exposed test organisms in waters that contained very low concentrations of particulate metals. For example, the CF values for Cd, Cu, Pb, and Zn, are 0.944, 0.960, 0.791, and 0.978 respectively (USEPA 1997c), meaning that particulate metal percentages were (on average) 5.6%, 4.0%, 20.9%, and 2.2%. These percentages are much lower than found in many natural waters. The California Department of Fish and Game, in their comments to the EPA on the proposed CTR, has stated that particulate fractions in natural waters in California are often in the range of 80 percent (CDFG 1997), which would equate to a dissolved-to-total ratio of 0.2. It is clear that the historical toxicity database does not include studies of the toxic contributions of particulate metals under environmentally realistic conditions. Improved assessments are necessary to develop adequately protective, site specific criteria.

The EPA Office of Water Policy and Technical Guidance has noted that particulate metals contribute some toxicity and that there is considerable debate in the scientific community on this point (USEPA 1993a). While the Services agree that dissolved metal forms are generally more toxic, this is not equivalent to saying that particulate metals are non-toxic, do not contribute to organism exposure, or do not require criteria guidance by the EPA. Few studies have carefully manipulated particulate concentrations along with other water constituents, to determine their role(s) in modulating metals toxicity. Erickson *et al.* (1996) performed such a study while measuring growth and survival endpoints in fish and suggested that copper adsorbed to particulates cannot be considered to be strictly non-toxic. Playle (1997) cautions that it is premature to dismiss particulate-associated metals as biologically unavailable and recommends the expansion of fish gill-metal interaction models to include these forms. The Service is particularly concerned that investigations have not been performed with test waters that contain both high particulate metal concentrations and dissolved concentrations near the CTR-proposed criteria concentrations.

Despite a paucity of information about the aquatic toxicity of particulate metals, the CTR proposes that compliance would be based on removing (filtering) these contaminants from a sample prior to analysis. It would be prudent to first conduct short-term and longer term studies, as well as tests that expose organisms other than fish. Particulates may act as a sink for metals, but they may also act as a source. Through chemical, physical, and biological activity these metals can become bioavailable (Moore and Ramamoorthy 1984). Particulate and dissolved metals end up in sediments but are not rendered entirely nontoxic nor completely immobile, thus they still may contribute to the toxicity of the metal in natural waters.

Particulate metals have been removed from the regulatory “equation” through at least two methods: the use of a CF to determine the dissolved metal criteria, and the use of a translator to convert back to a total metal concentration for use in waste load limit calculations. When waste discharge limits are to be developed and TMDLs are determined for a receiving waterbed, the dissolved criterion must be “translated” back to a total concentration because TMDLs will continue to be based on total metals.

EPA provides three methods in which the translation of dissolved criteria to field measurements of total metal may be implemented. These three methods may potentially result in greatly different outcomes relative to particulate metal loading. These methods are:

1. Determination of a site specific translator by measuring site specific ratios of dissolved metal to total metal and then dividing the dissolved criterion by this translator. As an example: a site specific ratio of 0.4 (40% of the metal in the site water is dissolved) would result in a 2.5 fold increase in the discharge of total metal. The higher the fraction of particulate metal in the site water the greater the allowable discharge of total metal. See the discussion and Table 9 below. This is EPA’s preferred method.
2. Theoretical partitioning relationship. This method is based on a partitioning coefficient determined empirically for each metal and when available the concentration of total suspended solids in the site-specific receiving water.
3. The translator for a metal is assumed to be equivalent to the criteria guidance conversion factor for that metal (use the same value to convert from total to dissolved and back again). Since translators are needed to calculate discharge limits they become important in determining the total metals allowed to be discharged (see also loading discussion for individual metals below).

In the economic analysis performed by the EPA and evaluated by the State Board (SWRCB 1997), it was estimated that translators based on site-specific data will decrease dischargers costs of implementing the new CTR criteria by 50 percent. This cost savings is “directly related to the less stringent effluent limitations that result from the use of site-specific translators.” This implies a strong economic incentive for dischargers to reduce costs by developing site-specific translators and ultimately being allowed to discharge more total metals. This conclusion regarding the impact of site specific translators is supported by documents received from EPA (USEPA 1997d).

EPA performed a sensitivity analysis on the effect of the site specific translator, which relies on determining the ratio of metal in water after filtration to metal in water before filtration in downstream waters. EPA’s analysis indicated that use of a

site-specific translators to calculate criteria would result in greater releases of toxic-weighted metals loads above the option where the Cfs are used as the translators. The potential difference was estimated to be between 0.4 million and 2.24 million “toxic weighted” pounds of metals discharged to California waterways.

The Services believe that the current use of conversion factors and site specific translators in formula-based metal criteria are not sufficiently protective of threatened and endangered aquatic species because:

1. Particulate metals have been removed from the regulatory equation even though chemical, physical, and biological activity can subsequently cause these particulate metals to become bioavailable;
2. The criteria are developed using toxicity tests that expose test organisms to metal concentrations with very low contributions from particulate metals;
3. Toxicity tests do not assess whether the toxic contributions of particulate metals are negligible when particulate concentrations are great and dissolved concentrations are at or near criteria levels;
4. This method has the potential to significantly increase the discharge of total metal loads into the environment even though dissolved metal criteria are being met by a discharger; and
5. The premise ignores the fact that water is more than a chemical medium; it also physically delivers metals to the sediments.”

5. THE MANNER IN WHICH THE PETITIONERS ARE AGGRIEVED.

CSPA is a non-profit, environmental organization that has a direct interest in reducing pollution to the waters of the Central Valley. CSPA’s members benefit directly from the waters in the form of recreational hiking, photography, fishing, swimming, hunting, bird watching, boating, consumption of drinking water and scientific investigation. Additionally, these waters are an important resource for recreational and commercial fisheries. Central Valley waterways also provide significant wildlife values important to the mission and purpose of the Petitioners. This wildlife value includes critical nesting and feeding grounds for resident water birds, essential habitat for endangered species and other plants and animals, nursery areas for fish and shellfish and their aquatic food organisms, and numerous city and county parks and open space areas. CSPA’s members reside in communities whose economic prosperity depends, in part, upon the quality of water. CSPA has actively promoted the protection of fisheries and water quality 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 declining aquatic resources. CSPA member’s health, interests and pocketbooks are directly harmed by the failure of the Regional Board to develop an effective and

legally defensible program addressing discharges to waters of the state and nation.

6. THE SPECIFIC ACTION BY THE STATE OR REGIONAL BOARD WHICH PETITIONER REQUESTS.

Petitioners seek an Order by the State Board to:

- A. Vacate Order No. R5-2009-0068 (NPDES No. CA0079898) and remand to the Regional Board with instructions prepare and circulate a new tentative order that comports with regulatory requirements.
- B. Alternatively, prepare, circulate and issue a new order that is protective of identified beneficial uses and comports with regulatory requirements.

CSPA, however, requests that the State Board hold in abeyance further action on this Petition for up to two years or further notice by Petitioners, whichever comes first. CSPA anticipates filing one or more additional petitions for review challenging NPDES permit decisions by the Regional Board concerning the issues raised in this Petition in the coming months. For economy of the State Board and all parties, CSPA is endeavoring to consolidate these petitions and/or resolve the common issues presented by these petitions. Accordingly, CSPA urges that holding this Petition in abeyance for now is a sensible approach.

7. A STATEMENT OF POINTS AND AUTHORITIES IN SUPPORT OF LEGAL ISSUES RAISED IN THE PETITION.

CSPA's arguments and points of authority are adequately detailed in the above comments and our 12 January 2009 and 10 May 2009 comment letters. Should the State Board have additional questions regarding the issues raised in this petition, CSPA will provide additional briefing on any such questions. The petitioners believe that an evidentiary hearing before the State Board will not be necessary to resolve the issues raised in this petition. However, CSPA welcomes the opportunity to present oral argument and respond to any questions the State Board may have regarding this petition.

8. A STATEMENT THAT THE PETITION HAS BEEN SENT TO THE APPROPRIATE REGIONAL BOARD AND TO THE DISCHARGERS, IF NOT THE PETITIONER.

A true and correct copy of this petition, without attachment, was sent electronically and by First Class Mail to Ms. Pamela Creedon, Executive Officer, Regional Water Quality Control Board, Central Valley Region, 11020 Sun Center Drive #200, Rancho Cordova, CA 95670-6114. A true and correct copy of this petition, without attachment, was sent to the Discharger in care of: Mr. Tim Kiser, City Engineer, 125 E. Main Street, Grass Valley, CA, 95945.

9. STATEMENT THAT THE ISSUES RAISED IN THE PETITION WERE PRESENTED TO THE REGIONAL BOARD BEFORE THE REGIONAL BOARD ACTED, OR AN EXPLANATION OF WHY THE PETITIONER COULD NOT RAISE THOSE OBJECTIONS BEFORE THE REGIONAL BOARD.

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CSPA presented the issues addressed in this petition to the Regional Board in 12 January 2009 and 10 May 2009 comment letters that were accepted into the record.

If you have any questions regarding this petition, please contact Bill Jennings at (209) 464-5067 or Michael Jackson at (530) 283-1007.

Dated: 12 July 2009

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Bill Jennings". The signature is written in a cursive, flowing style.

Bill Jennings, Executive Director
California Sportfishing Protection Alliance

Attachment No. 1: Order No. R5-2009-0068