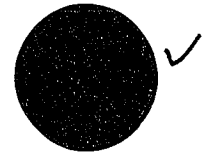




Region 5



# El Dorado Irrigation District

In reply refer to: FML1005-232

October 14, 2005

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Craig J. Wilson, Chief  
Water Quality Assessment Unit  
Division of Water Quality  
State Water Resources Control Board  
P.O. Box 100  
Sacramento, CA 95812-0100

Re: Comment on Proposed 303(d)-Listing of Carson Creek as Impaired due to Copper

Dear Mr. Wilson,

The El Dorado Irrigation District (District) owns and operates the El Dorado Hills Wastewater Treatment Plant, which currently discharges treated effluent to Carson Creek on a seasonal basis, typically from November through April. During the remaining months, treated effluent is reclaimed for irrigation. The District is contesting the proposed listing of Carson Creek, in accordance with section 303(d) of the Clean Water Act, as impaired due to copper.

The water body fact sheet for Carson Creek with respect to copper (p. 13-14 of *Staff Report Volume III, Revision of the Clean Water Act Section 303(d) List of Water Quality Limited Segments, September 2005*), states, "Two out of 11 samples exceed the CTR criterion based on an assumed hardness of 100 mg/L as CaCO<sub>3</sub>." This statement is based on an incorrect comparison of total recoverable copper data to the CTR criteria, which are expressed as the dissolved fraction of copper in the water column.

The CTR copper criteria for freshwater aquatic are expressed as equations:

$$CMC = WER * CF \{ e^{0.9422[\ln(hardness)] - 1.700} \}$$

$$CCC = WER * CF \{ e^{0.8545[\ln(hardness)] - 1.702} \}$$

where:

CMC = criterion maximum concentration, µg/l expressed as the dissolved fraction

CCC = criterion continuous concentration, µg/l expressed as the dissolved fraction

WER = water-effect ratio (the CTR default value is 1.0)



CF = conversion factor used to convert criterion expressed as the total recoverable fraction to a criterion expressed as the dissolved fraction (the CTR default value for copper is 0.96)

hardness = water hardness, mg/l as  $\text{CaCO}_3$

At a hardness of 100 mg/L (as  $\text{CaCO}_3$ ), and applying the default WER and CF in the above equations, the CTR acute (CMC) and chronic (CCC) criteria are 13  $\mu\text{g/L}$  and 9.0  $\mu\text{g/L}$ , respectively, expressed as the dissolved fraction.

The creek data relied upon by the SWRCB to determine the need for the 303(d) listing was collected by the District and is summarized below. The maximum dissolved copper concentration in the creek was 3.56  $\mu\text{g/L}$ . During the same monitoring period, the creek hardness ranged from 67-180 mg/L (as  $\text{CaCO}_3$ ), and averaged 141 mg/L (as  $\text{CaCO}_3$ ). Even considering the lowest creek hardness, the CTR criteria are 6.4  $\mu\text{g/L}$  (CCC) and 9.2  $\mu\text{g/L}$  (CMC). The creek concentrations are well below these values.

Sample Date	Dissolved Concentration ( $\mu\text{g/L}$ )	Total Recoverable Concentration ( $\mu\text{g/L}$ )
3/27/2001	2.65	13.7
4/17/2001	2.70	15.5
6/19/2001	0.85	0.95
7/19/2001	0.93	0.95
8/30/2001	3.45	3.49
9/18/2001	1.16	1.17
10/22/2001	1.07	1.24
11/15/2001	3.51	4.12
12/19/2001	3.56	8.28
1/22/2002	1.62	1.85
2/13/2002	2.13	1.88
<b>Maximum</b>	<b>3.56</b>	<b>15.5</b>

The SWRCB staff apparently compared the total recoverable copper concentrations to the dissolved criteria as a means of concluding that the creek is impaired. This comparison is simply inappropriate. U.S. EPA revised the copper criteria to be expressed as dissolved based on its determination that the dissolved fraction better approximates the biologically available fraction of copper for aquatic organisms better than total recoverable (60 FR 22228). As such, the dissolved copper concentrations in Carson Creek should be compared to the dissolved criteria.



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Because dissolved copper concentrations in Carson Creek are well below the CTR criteria, given the range of hardness occurring in the creek, the proposed listing of Carson Creek as impaired due to copper is inappropriate and should be rescinded.

The District requests the SWRCB consider the information above and not list Carson Creek as impaired due to copper levels. If you have any questions, please do not hesitate to contact the undersigned at (530) 642-4107.

Sincerely,

A handwritten signature in cursive script, appearing to read 'David Powell', is written in black ink.

David Powell  
Director of Facilities Management

DP:pj